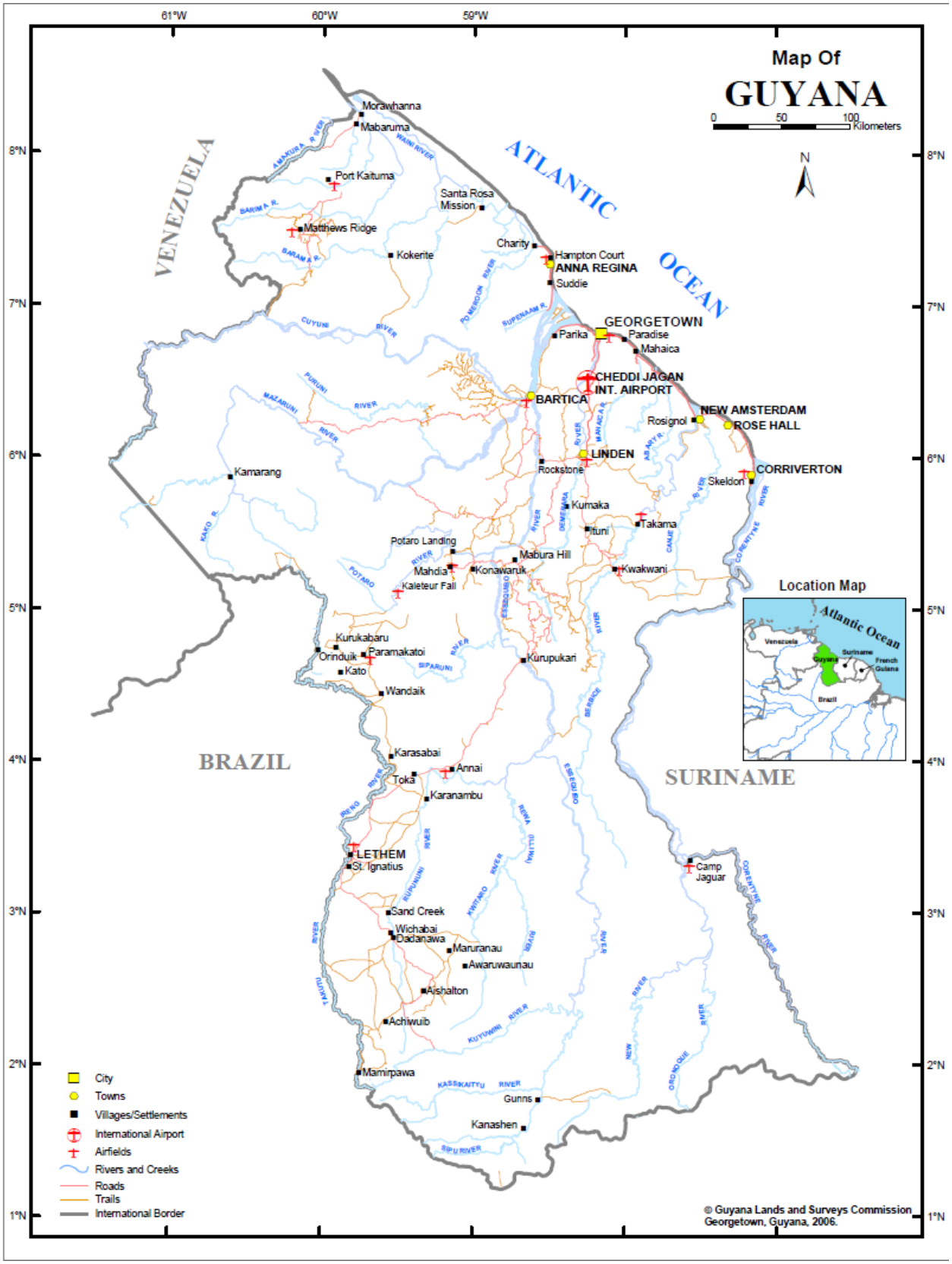
MULTI-HAZARD
DISASTER
PREPAREDNESS & RESPONSE
PLAN

GUYANA

2013

EMPOWERED LIVES
RESILIENT NATIONS

MAP OF GUYANA: Source: Guyana Lands and Survey Commission



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DISTRIBUTION LIST

Name of Agency	Point of Contact	Date Received				

The CDC will review the MHPRP on a regular basis. Suggestions for amendments to the plan can be forwarded at any time to: Director General, Civil Defence Commission, Thomas Road, Thomas Lands, Georgetown. Entry of amendments in this copy of the MHPRP is to be noted in the columns below.

TABLE OF AMENDMENTS

National Multi-hazard Preparedness and Response Plan	Draft	Revised	Periodic Revisions			
	June 2011					
	August 2011					
	November 2013					

ACRONYMS

CBRNE	Chemical/ Biological/ Radiological/ Nuclear/Explosive
CDC	Civil Defence Commission
CDCc	Community Democratic Council
CDEMA	Caribbean Disaster Emergency Management Agency
CDM	Comprehensive Disaster Management
DRM	Disaster Risk Management
DRM	Disaster Risk Reduction
ERC	Emergency Relief Council
FAO	Food and Agricultural Organization
GRC	Guyana Relief Council
GDF	Guyana Defence Force
HFA	Hyogo Framework for Action
MoF	Ministry of Finance
MoH	Ministry of Health
MLG&RD	Ministry of Local Government and Regional Development
NMHPRP	National Multi-hazard Preparedness and Response Plan
NDC	Neighbourhood Democratic Council
NEOC	National Emergency Operations Centre
PAHO	Pan American Health Organization
RDC	Regional Democratic Council
RDC	Regional Disaster Committee
SAR	Search and Rescue
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
WASH	Water Supply, Sanitation and Hygiene

MESSAGE FROM THE NATIONAL DISASTER COORDINATOR

MESSAGE FROM THE DIRECTOR GENERAL CDC

1.0 INTRODUCTION

1.1 POLICY STATEMENT: The Government of Guyana (GoG) is aware that the effect of a disaster be it domestic, civil or natural in occurrence can be devastating upon its people and economy. They are also aware of the types of disasters that affect the country. Therefore, the Government of Guyana is committed to instituting adequate preparedness and response mechanisms to ensure that the country is well prepared and able to respond in an efficient manner. The GoG has appointed the Civil Defence Commission to lead this effort and is in full support of the National Multi-hazard Preparedness and Response Plan.

LEGISLATIVE FRAMEWORK: The Government of Guyana has made progress in developing the framework for effective integrated disaster risk management, inclusive of preparedness and response, through the development of legislation, management plans, implementation strategies, procedures, guidelines, damage assessment and needs analysis system, early warning system, and coordination platforms. Currently, a Disaster Risk Management Bill, National DRM Policy and Early Warning System Framework document, National Flood Plan, Community Based Integrated DRM Plan, Integrated DRM Agriculture and Environment Plan, National Public Education Plan, among other instruments, are being formalized by the Government of Guyana. **This National Multi-Hazard Preparedness and Response Plan**

This plan has been developed under the existing mandate. The Cabinet, under Cabinet note CP (97)2:2: reconstituted the CDC in 1997. The Terms of Reference of the Commission are as listed below:

a. To identify disasters according to established criteria and classification
b. To produce plans for the Management of National Disasters
c. To identify and implement mechanisms for disaster response and mitigation
d. To maintain a permanent body, to enhance the national capacity for Disaster Management Services
e. To train human resources involved in Disaster response mechanisms
f. To educate all levels in the tenets of Disaster response

Authority from the Office of the President provides for the maintenance and restoration of order in areas affected by catastrophes, and relief against such catastrophes. These provisions are made through the government appointed entity – the Civil Defence Commission (CDC). This body will work through other critical stakeholders, in particular, the Ministry of Local Government and Regional Democratic Councils and its regional bodies.

1.2 AIM

The overall aim of the National Multi-hazard Preparedness and Response Plan is to detail arrangements to cope with the effects of natural and/or man-made disasters occurring in Guyana. It seeks to assign responsibilities and to provide coordination of emergency activities connected with major disasters, in general and specific ways.

1.3 PURPOSE

The purpose of the National Multi-hazard Preparedness and Response Plan (NMHPRP) is to enhance the country's ability to manage all disasters using a comprehensive disaster management approach. It is also to ensure the timely and effective assistance to the affected in a coordinated manner, ensuring the greatest protection of life, property and health. The Plan also defines the administrative structure in times of disaster.

The NMHPRP incorporates all disaster management activities from preparedness to response. It presents a framework for emergency response at different levels of government structures; identifies the roles and responsibilities of various stakeholders; and lays down coordination mechanism for activities with civil society, the news media, public and private sector, and brings together a full range of national capabilities to prepare for and manage any disaster.

The NMHDRP classifies different types of hazards, levels of vulnerabilities and its causes, as well as the structure, functions, and coordination methodology of the National Disaster Management Structure to include the CDC and the disaster management organizations of the Regional Democratic Councils (RDC) and the related bodies of the City Council, Neighbourhood Democratic Councils and the Community Democratic Councils (CDC).

The various sub plans will focus on, but not limited to:

a. the provision of relief
b. early recovery
c. the procedure of declaring disaster areas
d. early warning systems, and,
e. the communication management procedures from national to RDC in the case of different hazards.

The NMHDPRP also focuses on the concept of EOCs at the national, regional and community/neighbourhood level.

1.4 SCOPE

Scope of the Plan is as under:-

a. The MHPRP classifies natural and manmade disasters in three levels in the country and corresponding response mechanisms and procedures.
b. Illustrates structures and mechanisms for providing operational direction to disaster management authorities at national, regional and community levels.
c. Defines emergencies at national, regional and community levels and clearly defines the process of declaring each level of emergency and response mechanisms and
c. procedures accordingly.

1.5 PLANNING ASSUMPTIONS

The following assumptions have been made:-

a. Incidents are managed at the local level and when overwhelmed the regional and national levels step in to assist.
b. Government agencies, the private sector, Non Governmental Organizations (NGOs) and Community Based Organizations (CBOs) will support the overall Concept of Operations of the Plan and will carry out their functional responsibilities.
c. The impact of a single or multiple hazards can result in a large number of casualties and damage to infrastructure, severely affect population and livelihoods; gives rise to the potential threat of disease outbreak; and displaces large numbers of people, which could lead to the declaration of a national disaster in the country.
d. The nature and scope of disasters can include natural and manmade hazards;
e. The safety and security of human populations and the provision of basic social services will be priority in all cases. The protection of animal-based livelihoods, and other animals will be provided, as able, once social welfare has been addressed. In terms of protection of economic based capital, infrastructure serving urgent social needs will be prioritized.
f. Floods may cause the destruction of physical and communication infrastructure, large-scale casualties and displacement of local communities.
g. The response capacity and resources at regional and community level may become easily overwhelmed.
h. In some cases the first responders, e.g., local authorities, communities, and other response structures, may be affected by an incident and left unable to perform their duties.
i. Disasters can occur at any time or of any scale, with little or no warning in the context of general or specific threats or hazards.
j. No single disaster event will completely devastate the country rendering it uninhabitable.
k. All Government agencies, critical facilities and the private sector would have developed general disaster/emergency and contingency plans. These organizations will implement preparedness, mitigation, response and recovery activities and conduct exercises in order to maintain the overall national response capability.

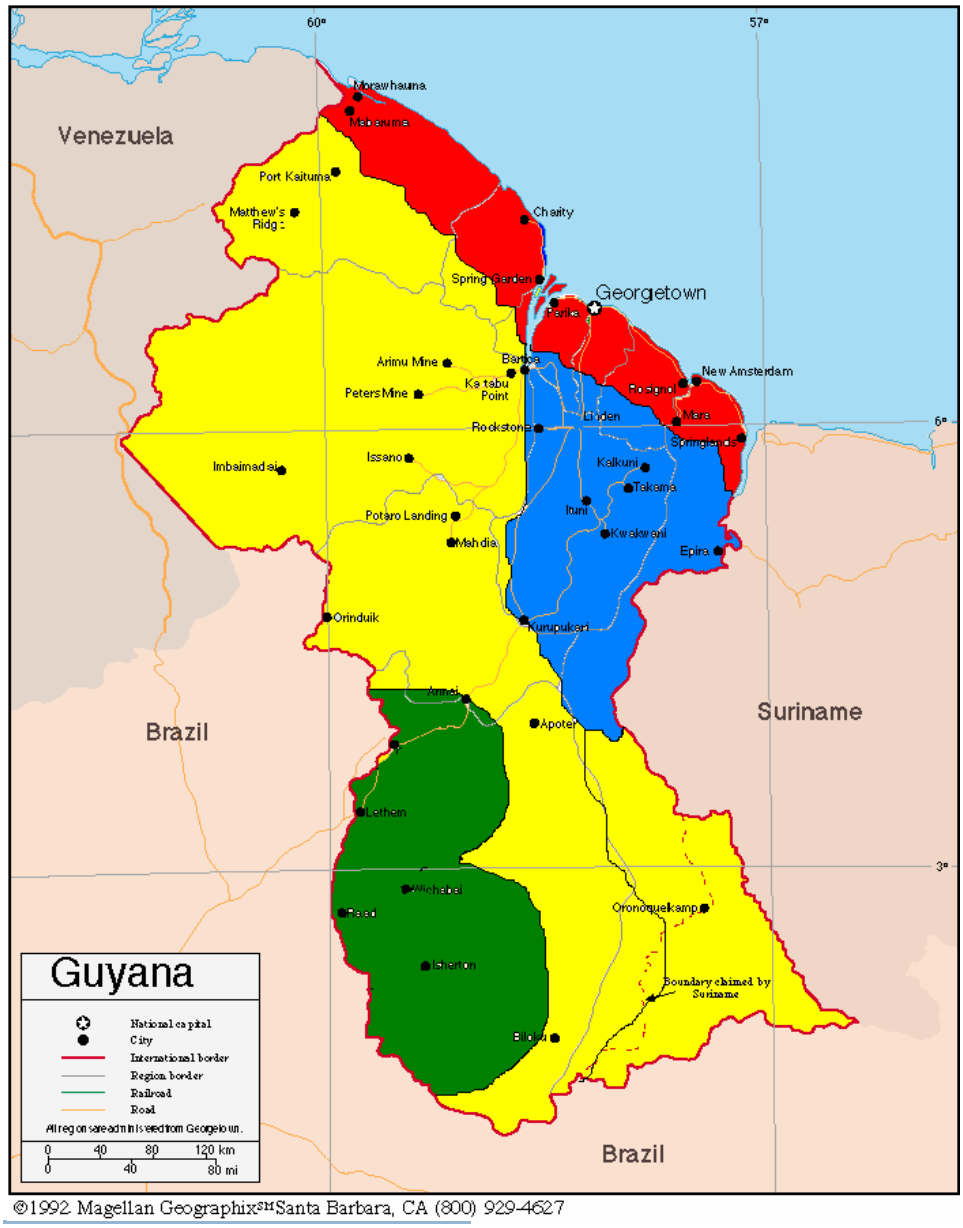
The Plan will be a dynamic and living document and changes and amendments will continue, as and when required, to address the emerging needs.

1.6 USE OF THE PLAN

The plan is to be used as follows:

a. To guide operational response to disasters in Guyana
b. For the provision of information to the general public before, during and after disasters
c. To upgrade and enforce administrative job descriptions for officers in government agencies
d. For the management of the NEOC
e. Preparedness activities- to develop and implement

2.0 PROFILE OF GUYANA



KEY

LOW COASTAL PLAIN

HIGHLAND REGION

HILLY SAND AND CLAY

INTERIOR SAVANNAH

FIGURE 2: Profile of Guyana

2.1 GEOGRAPHY:

Location: Northern South America, 10° to 8½° North Latitude and 56½° to 61½° West Longitude. It is bounded on the North by the Atlantic Ocean; on the South by Brazil; on the East by Suriname and on the West by Venezuela and Brazil.
Area: 215 000 sq. km. (83 000 sq. mi.).

2.2 TOPOGRAPHY:

Guyana is divided into four (4) natural regions as follows:-

(i) the low coastal plain,
(ii) the hilly sand and clay area,
(iii) the highland region, and
(iv) the interior savannah.

The coastal plain, which occupies about five percent of the country's area, is home to more than 90 percent of its inhabitants. The plain ranges from five to six kilometers wide and extends from the Courantyne River in the east to the Venezuelan border in the northwest. The coastal plain is made up largely of alluvial mud swept out to sea by the Amazon River, carried north by ocean currents, and deposited on the Guyanese shores. A rich clay of great fertility, this mud overlays the white sands and clays formed from the erosion of the interior bedrock and carried seaward by the rivers of Guyana. Because much of the coastal plain floods at high tide, efforts to dam and drain this area have gone on since the 18th century.

The coastal belt accounts for 4% of the land mass in Guyana where 90% of the country's population is found. Approaching the ocean, the land gradually loses elevation until it reaches sea level. Seaward from the vegetation line is a region of mud flats, shallow water, and sandbars. Off New Amsterdam, these mud flats extend almost 25 kilometres (16 mi). The sandbars and shallow water are a major impediment to shipping, and incoming vessels must partially unload their cargoes offshore in order to reach the docks at Georgetown and New Amsterdam.

Wetlands form a barrier between the white sandy hills of the interior and the coastal plain. These wetlands, formed when water was prevented from flowing onto coastal croplands by a series of dams, serve as reservoirs during periods of drought. The white sand belt lies south of the coastal zone. This area is 150 to 250 kilometers wide and consists of low sandy hills interspersed with rocky outcroppings. The white sands support a dense hardwood forest. These sands cannot support crops, and if the trees are removed erosion is rapid and severe. Most of Guyana's reserves of bauxite, gold, and diamonds are found in this region.

The largest of Guyana's three geographical regions is the interior highlands, a series of plateaus, flat-topped mountains, and savannahs that extend from the white sand belt to the country's southern borders. The Pacaraima Mountains dominate the western part of the interior highlands. In this region are found some of the oldest sedimentary rocks in the Western Hemisphere. Mount Roraima, on the Venezuelan border, is part of the Pakaraima

range and, at 2,762 meters, is Guyana's tallest peak. Farther south lies the Kaieteur Plateau, a broad, rocky area about 600 meters in elevation; the 1,000-meter high Kanuku Mountains; and the low Acarai Mountains situated on the southern border with Brazil.

Much of the interior highlands consist of grassland. The largest expanse of grassland, the Rupununi Savannah, covers about 15,000 square kilometers in southern Guyana. This savannah also extends far into Venezuela and Brazil. The part in Guyana is split into northern and southern regions by the Kanuku Mountains. The sparse grasses of the savannah in general support only grazing, although Amerindian groups cultivate a few areas along the Rupununi River and in the foothills of the Kanuku Mountains.

2.3 HYDROLOGY

Guyana is a water-rich country. Numerous rivers flow into the Atlantic Ocean, generally in a northward direction. A number of rivers in the western part of the country, however, flow eastward into the Essequibo River, draining the Kaieteur Plateau. The Essequibo, the country's major river, runs from the Brazilian border in the south to a wide delta west of Georgetown. The rivers of eastern Guyana cut across the coastal zone, making east-west travel difficult, but they also provide limited water access to the interior. Waterfalls generally limit water transport to the lower reaches of each river. Some of the waterfalls are spectacular; for example, Kaieteur Falls on the Potaro River drops 227 metres, more than four times the height of Niagara Falls.

Figure 3 : Map of the Essequibo River drainage basin. (Source Wikipedia)

Drainage throughout most of Guyana is poor and river flow sluggish because the average gradient of the main rivers is only one meter every five kilometers. Swamps and areas of periodic flooding are found in all but the mountainous regions, and all new land projects require extensive drainage networks before they are suitable for agricultural use. The average square kilometer on a sugar plantation, for example, has six kilometers of irrigation canals, eighteen kilometers of large drains, and eighteen kilometers of small drains. These canals occupy nearly one-eighth of the surface area of the average sugarcane field. Some of the larger estates have more than 550 kilometers of canals; Guyana itself has a total of more than 8,000 kilometers. Even Georgetown is below sea level and must depend on dikes for protection from the Demerara River and the Atlantic Ocean.

2.4 POPULATION/ DEMOGRAPHY

Guyana population is one of mixed heritage, chiefly made up of six peoples – Indians, Africans, Portuguese, native Amerindians, Europeans and Chinese. These groups of diverse nationality backgrounds have been fused together by a common language, that is, English.

The 2002 Population and Housing Census indicated that the population was 751,223, including 376,034 males (50.1 percent) and 375,189 females (49.9 percent). While the sex ratio is evenly balanced between males and females, there are variations within various age groups. The life expectancy at birth was 66.43 years (Males: 63.81 years; Females: 69.18 years); (2008 est.) The total fertility rate was 2.03 children born per woman (2008 est.)

The largest nationality sub-group is that of East Indians comprising 43.5 percent of the population in 2002. They are followed by persons of African heritage (30.2 percent). The third in rank are those of Mixed Heritage (16.7 percent), while the Amerindians are fourth with 9.2 percent. The smallest groups are the Whites (0.06 percent or 476 persons), the Portuguese (0.20 percent or 1497) and the Chinese (0.19 percent or 1396). A small group (0.01 percent or 112 persons) did not identify their race/ethnic background.

Guyana's population is small in relation to its land space with an average population density of approximately four persons per square kilometre but population density differs significantly between rural and urban areas. Only 10 percent of the population lives in the interior and the majority (90 percent) lives on the country's narrow coastal plain that occupies a mere 7.5 percent of the country's total land area.

Currently, the mid-year population at 2007 was estimated by the Census Bureau to be 763,200, with a growth rate of 0.3%

The country has been divided into ten (10) administrative regions as follows:-

Region 1	Barima/Waini
Region 2	Pomeroon/Supenaam
Region 3	West Demerara/Essequibo Islands
Region 4	Demerara/Mahaica
Region 5	Mahaica/West Berbice

Region 6	East Berbice/Corentyne
Region 7	Cuyuni/Mazaruni
Region 8	Potaro/Siparuni
Region 9	Upper Takatu/Upper Essequibo
Region 10	Upper Demerara/Upper Berbice

2.4 LANGUAGES:

Although the official language is English, there are at least eight different languages spoken throughout the country. English, Amerindian dialects, Creole, Caribbean Hindustani (a dialect of Hindi), Urdu

2.5 ECONOMY: (as at 2009) Source: Guyana Bureau of Statistics

Per Capita GDP: US$ 1298.60
Per Capita GNP: US$ 1276.6
GDP: US$ 999.40 Million
GNP: US$982.50 Million
Annual Growth: 2.3%
Inflation: 3.9%
Major Industries: Sugar, bauxite, rice, timber, fishing (shrimp), gold mining, diamonds
Major Trading Partners: US, Canada, UK, Caribbean (especially Trinidad and Tobago) Brazil, China and India.

2.6 CLIMATE:

Tropical; hot, humid, moderated by northeast trade winds; two rainy seasons (May to August, November to January)

3.0 HAZARD / DISASTER RISKS IN GUYANA

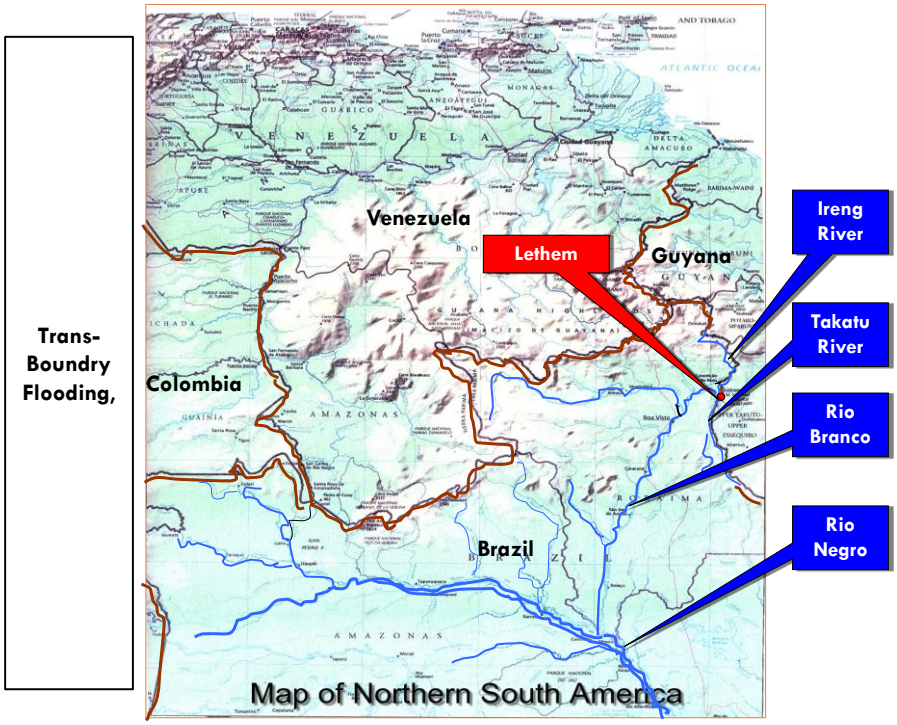


Figure 4: Tran boundary Flooding in Guyana Source: CDC

3.1 GENERAL

Guyana, like most countries in the region, is vulnerable to a variety of hazards. Because of the lowness of the coastal plain, it is susceptible to periodic flooding. An extensive sea defence system comprising of sea walls and dams have therefore been constructed to keep the sea out. Guyana while not being within the hurricane zone has been affected by very high winds and sea surges as a result of meteorological disturbances in the Caribbean Sea. There are no volcanoes within its boundaries. However, small tremors are experienced on occasion.

Apart from regular localized cases of flooding, Guyana's other main disaster threats are from droughts and fires. Both in Georgetown and in the regions, most of the houses are constructed of wood. In the 1940's, 1950's and 1960's Georgetown was affected by large fires. The country is also prone to large forest fires, especially in the dry periods and during the La Nina periods.

While Guyana is not within a hurricane prone zone, climate change continues to alter the intensity, frequency and patterns of windstorms and other climate related phenomenon worldwide. The continued predicted and calculated rise in global temperatures will further exacerbate climate variability, and affect related events - especially those of a hydro-meteorological nature. The important precondition for climate change related preparedness is the most accurate data and information possible for predicted change and associated impact on Guyana. The level of uncertainty of future risks in the context of a changing climate, needs to be considered. The deforestation and degradation of trees which serves as wind breaks

(mangrove) decreases Guyana´s resilience from being affected by high winds and sea surges. This should be reversed and mangroves and other coastal vegetation protected and fostered if resilience is to be prioritized.

3.2 HAZARDS

LIST OF HAZARDS

For the National Plan, the following hazards will be considered:

a. Flooding
b. Landslides
c. Earthquake
d. Hurricanes/ Storms/ Severe weather systems
e. Fires
f. Hazardous Materials Spill
g. Sea Wall Breach
h. Conservancy Breach
i. Oil Spill
j. Mass casualty events: aircraft accident, vehicular accidents
k. Epidemics
l. CBRN- chemical/ biological/ radiological/ nuclear
m. Mining accidents
n. Riverine Accidents
o. Tsunami

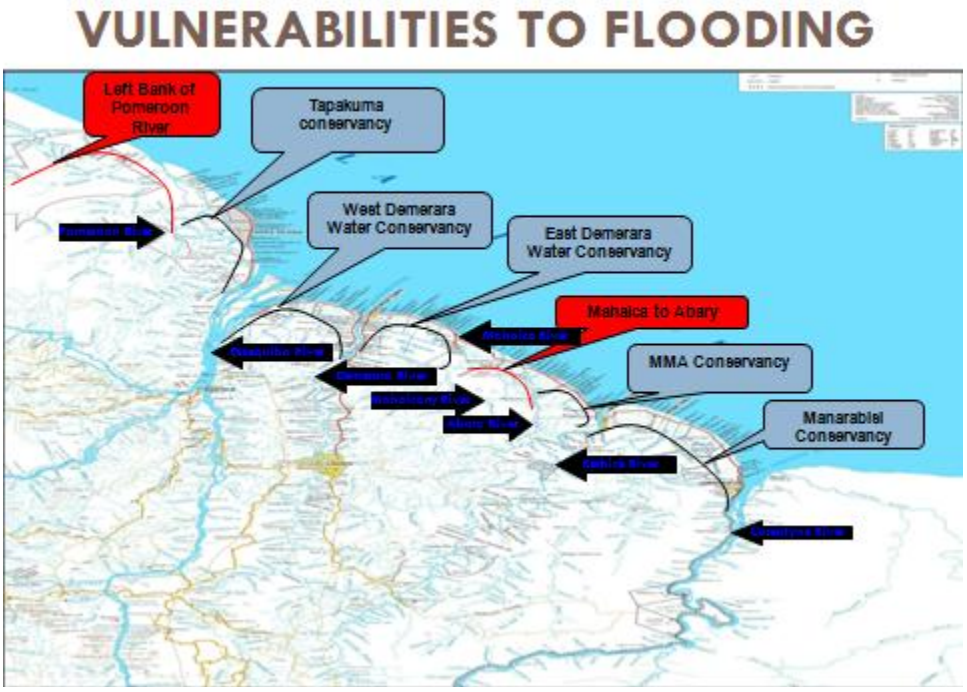


Figure 3: Areas on the Coastal Plains Vulnerable to flooding Source: CDC

3.3 Vulnerabilities

Vulnerability to disasters can be categorized into five main aspects, which are geographical, physical, environmental, social and economic.

In Guyana, **geographical aspects of vulnerability** include among others, remote habitation of some of the population (approximately 10%), coastal elevation at and below sea level, wetlands topography making transportation difficult and expensive, and tropical climate as related to epidemic disasters through insect vectors.

In terms of **physical vulnerabilities**, infrastructure related to the provision of adequate potable water and sanitation remains lacking. Transportation routes need improvement. The Seawall also continually requires upgrading which carries a heavy financial toll. In terms of the built environment, disaster prone building codes, norms and standards need both upscaling and oversight. Abandoned or structures in ill repair pose hazards as projectiles in heavy winds and also in terms of housing disease vectors such as rodents. The elaborate drainage system, waterways and irrigation systems also continually demand high upkeep. If not maintained, these too can harbor disease vectors. Water storage for drought and precipitation variability also remains inadequate, especially for agricultural purposes.

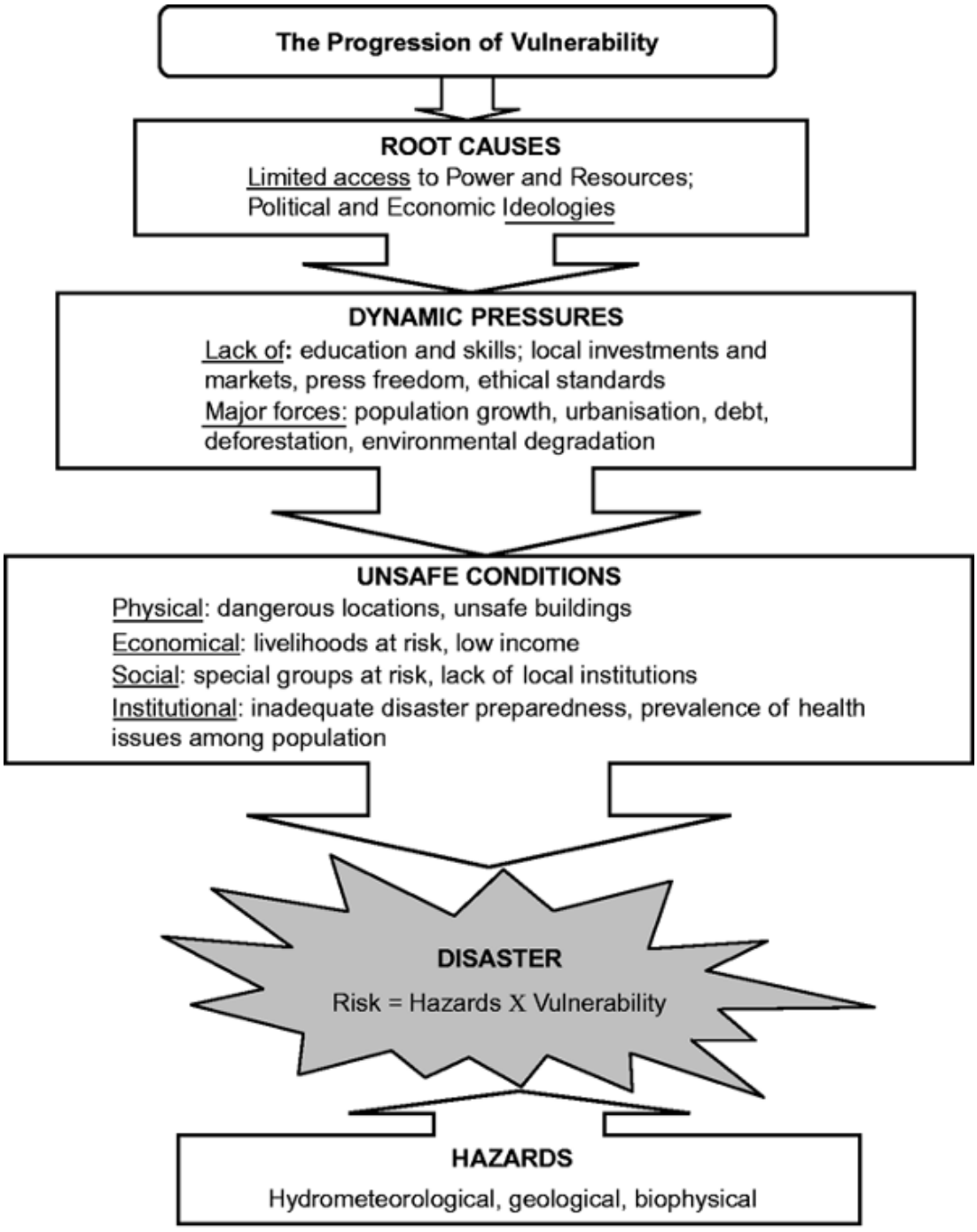
Environmental vulnerabilities includes aspects related to natural resource depletion, degradation and/or contamination. Environmental vulnerability overlaps with social and

economic vulnerabilities. Poverty and environmental degradation/resource depletion couple when population and pressure for resource needs increase. For example, contamination from an industrial accident would pose a man-made threat but if the contaminant dispersed widely into the surrounding environmental, then that creates an environmental based vulnerability for the population in situ. Although a resilient eco-system can sustain the onslaught of repeated events, severe floods, droughts, wild land fires, and windstorms take their toll on the natural environment eventually degrading the resource base. This can be worsened by unsustainable social and economic activities.

Social Vulnerabilities include aspects of human society, its governance, its social behavioural norms and perspectives, including various cultural perspectives within the population, which influence the extent to which one perceives threat and prepares and plans for a potential event. In Guyana, one of the main challenges is the achievement of a culture of prevention at all levels for all people.

Economic Vulnerability relates directly with poverty, which remains a cross-cutting and significant challenge in Guyana. Without meeting the needs of a basic platform of goods and services, future thinking remains a luxury. Thus poverty and disaster vulnerability remain the duo of spiraling multi-dimensional poverty. With poverty levels, to varying degrees, at an approximately 20% of the population, disaster resilience remains a pressing a complex issue.

Please refer to the Figure below which portrays the progression of vulnerability through various contexts of root causes, dynamic pressures and unsafe conditions. This type of simple and practical examination allows a higher resolution of analysis and also enabled a pinpointing of cause and effect in the spectrum of vulnerability.

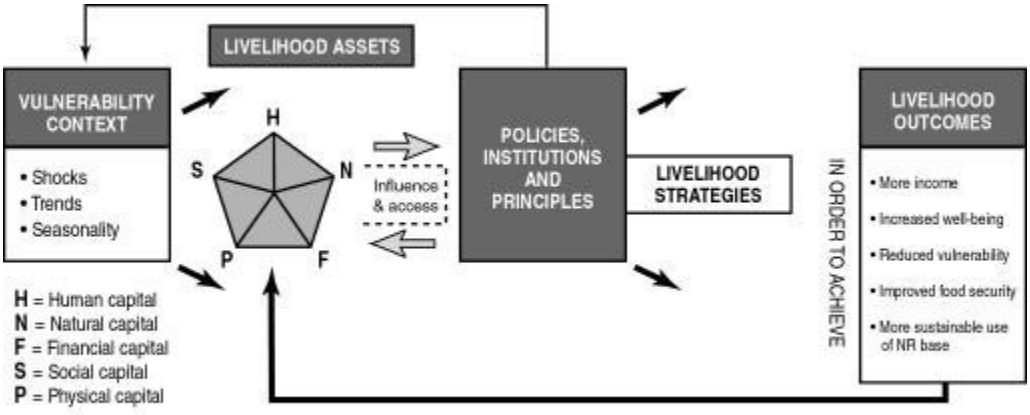


Source: Adapted from Wisner *et al.* (2004)

3.4 Key Drivers of Vulnerability in Guyana

a. **High Dependency on Climate/Weather sensitive resources and livelihoods:** Crops and livestock are main sources of income particularly in those areas prone to floods and droughts. There is little visible diversity in livelihoods. As such, the impact of floods and drought is very high for these communities. When these communities are hit by these hazards, their recovery periods tend to be longer than the other areas. Previous socio-economic studies conducted by entities such as United Nations Economic Commission for Latin America and the Caribbean (UN/ECLAC) have shown that these communities suffer extensively from floods, climate variability and periods of drought.

To illustrate the complexity of vulnerability drivers with regards to sustainable livelihoods, please refer to the diagram below. One can see that the Vulnerability Context is made up of shocks, trends and seasonality. There are five main aspects of capital assets, which is influenced and accessed by policies, institutions and principles and which aim to achieve more positive livelihood outcomes as detailed.



Source: DFID

The figure below uses the above Livelihood Assets model as above to illustrate a capital assets model of a rural farmer in Guyana with reference to disaster related vulnerability aspects of sustainable livelihoods. This type of analysis brings forth vulnerability as the centre point, the organizing principle, around which various elements lie. This approach demands multi-disciplinary work, helping to integrate all sectors and parties involved.

DISASTER RELATED VULNERABILITY ASPECTS of SUSTAINABLE LIVELIHOODS

Capital Assests Model of a Rural Farmer in Guyana

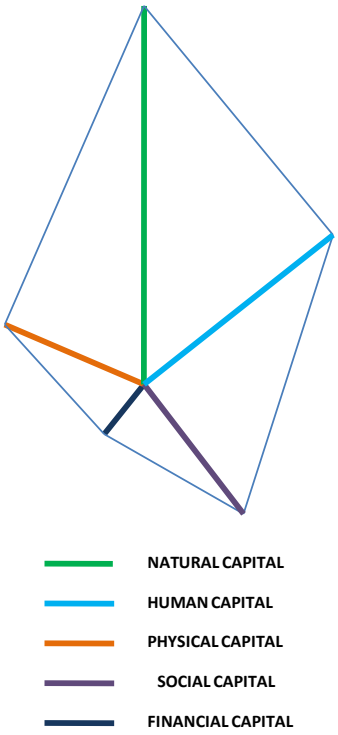
As can be seen, the level of **natural capital is very high**, given the environmental quality, level of ecosystem fiunction, diversity, climate generally, and resource base. Some problems such as degraded soils and erosion are present but overall the natural capital is very high.

Human Capital is sound as available human resources for labour is satisfactory. Some problems with accessing expert skills for specific tasks pose setbacks but generally speaking the human capital is sound.

In terms of **physical capital**, medium levels reflect that ,while basic infrastructure is available, upscaling is needed in a number of areas related to physical infrastructure, such as for drainage and irrigation of land, improving of venues to store produce, upgrading transportation routes , improving structures to be more disaster resilient and upscaling water storage for potable and agricultural use.

Social capital would also be at a medium level seeing as, while ownership of some land, a sense of community and belonging, and other cultural aspects may well positively affect social aspects of resilience, the social services available remain inadequate in some ways. There is more need for educational services and training espeically for drought and disaster resistent crops, for soil sustainability and for flood prevention. Education for basic home / farm resilience is also needed. There is a need for safe schools and safe hospìtals /health centres too.

Financial capital is quite low reflecting a need for financial input. With costs being high for many basics, challenges remain for bettering profits, income and salaries. Until basic financial needs are met, investing in disaster risk and prevention will be significantly hampered.



b. **Poverty in Hazard-Prone Areas**: Poverty is one of the main factors of vulnerability, exposing people and communities to disasters. Poverty reduces the capacities of the communities to mitigate, respond and lessen the impact of a hazard. Further, the absence of safety nets and limited access to assets diminishes individuals' ability to sustain the brunt of disasters. The poor living in hazard-prone areas are badly exposed to disaster affects.

c. **Lack of Institutional Capacity to Deal with Disaster Risk Reduction**: Overall institutional capacity is limited to deal with disasters, particularly at the regional and local levels. There is also a lack of coordination of agencies at the national and regional level and a not so effective early warning system. There is an insufficient focus on preparedness because of capacity and scarcity (or uncertainty) of resources. All these factors increase the vulnerability of local population to different disasters.

d. **Climate Change and its Impact**: Climate change impact includes losses in biodiversity, rise in the sea level, increased intensity and frequency of windstorms, climate variability, changes in precipitation levels and patterns, drought and generally abnormal shifts in the weather patterns. Increased coastal flooding changes the freshwater supply and worsens severe weather impact. Alteration of forest and crop yields are often resultant. Changes in microclimate can also result in the alteration of eco-zones, and disease carrying vectors can increase in populations and / or migrate to areas where they were previously non-existent or non-problematic. Periods of inadequate water can result in various WASH related challenges. The potential of rapid sea level rise is, of course, of significant threat to the low lying coastal lands, which is home to the vast majority of the population.

4.0 DISASTER MANAGEMENT SYSTEM

4.1 Institutional Framework

The Cabinet, under Cabinet note CP (97)2:2: reconstituted the CDC in 1997. The Terms of Reference of the Commission are as listed below:

a. To identify disasters according to established criteria and classification
b. To produce plans for the Management of National Disasters
c. To identify and implement mechanisms for disaster response and mitigation
d. To maintain a permanent body, to enhance the national capacity for Disaster Management Services
e. To train human resources involved in Disaster response mechanisms
f. To educate all levels in the tenets of Disaster response

Authority from the Office of the President provides for the maintenance and restoration of order in areas affected by catastrophes, and relief against such catastrophes. These provisions are made through the government appointed entity – the Civil Defence Commission (CDC). This body will work through other critical stakeholders, in particular, the Ministry of Local Government and Regional Democratic Councils and its regional bodies.

The National Disaster Management System is a three tiered system:

i. National
ii. Regional
iii. Community or Local level.

The **National Level** is the policy level consisting of the Office of the President, with the President as the head/ lead in policy decisions in an emergency. Supporting the Head of State is the National Disaster Coordinator (NDC), linking with the Cabinet. In support of the Cabinet, there is currently a Sub Committee of Cabinet addressing DRM issues.

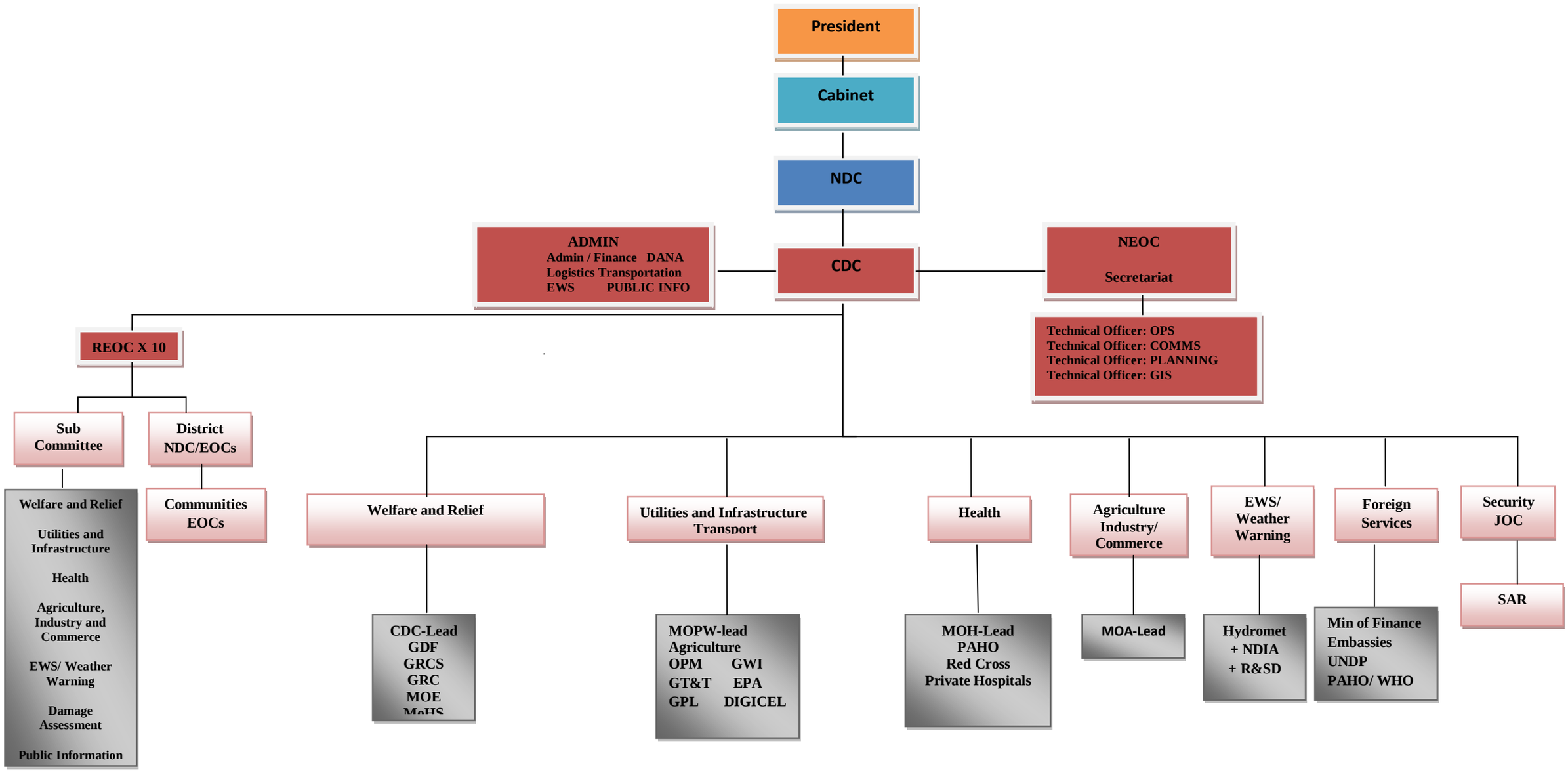
On **the Technical Level**, the CDC is the lead/ coordinator. Assistance and guidance in programming is given to the CDC by the **Disaster Risk Reduction Platform**, which is comprised of the following agencies:

Disaster Risk Reduction Platform Membership

NDIA	Guyana Red Cross
UNDP	Guyana Lands and Survey Comm
MLG&RD	MoH
UNICEF	MoF
Sea and River Defence	Hydromet Dept.
Guyana Fire Service	Guyana Police Force
EPA	Guyana Defence Force
Private Sector Commission	Inter American Development Bank

In addition to the DRM Platform, there is a National Preparedness and Response Structure that will be responsible for the management and execution of this plan. See chart below. The committees in this structure will operate in conjunction with the CDC and the other levels.

PROPOSED NATIONAL PREPAREDNESS AND RESPONSE STRUCTURE



5.0 DISASTER PREPAREDNESS FUNCTIONS

5.1 Development of Preparedness and Response Plan

Preparedness is essential for effective response. There are six essential activities for responding to an incident:

i. plan
ii. organize
iii. train
iv. equip
v. exercise
vi. evaluate and improve.

The Preparedness Cycle Builds Capabilities

During the preparedness phase, the following activities will be conducted:

5.2 Pre-Disaster: The CDC will:

a. Prepare emergency preparedness plan at national level.

b. Define and review roles of key agencies in disaster risk management.

c. Ensure that Local Government Authorities develop emergency preparedness plan.

d. Prepare hazard specific national level contingency plans

e. Provide technical support to public and private sectors in preparation of contingency plans

f. Lay down the guidelines for preparing disaster management plans for different Ministries, Department and the RDCs

g. Prepare, review, maintain and upgrade the communication mechanisms for early warning and devise such information dissemination strategy that the information reaches the end user.

h. Coordinate with relevant Ministries and agencies and the RDCs for emergency stockpiles of relief material to ensure that such material is available at short notice.

i. Develop, coordinate and monitor the national disaster preparedness and response strategy and policy.

j. Promote general education and awareness with regards to disaster management and perform such other functions that may be required.

k. Review and update national plan at appropriate intervals.

l. Design , plan and run annual field simulation exercises as necessary to include all aspects of disaster management and agencies involved in disaster response.

m. Set up the national emergency operations centre (NEOC) and maintain state of readiness with all equipment in working order. Orient and train EOC personnel on its operations.

n. Prepare communication and transportation plans for potential disaster response.

o. Prepare hazard specific maps showing vulnerable areas and population.

p. Provide technical support to the RDCs for emergency preparedness plan development.

q. Assess training needs of the RDCs, NDCs and other stakeholders and organize training sessions for them.

r. Design, Maintain and upgrade emergency telecommunications system to ensure the coordination of emergency operations involving emergency services.

s. Conduct hazard and risk analysis as required, using the information to design and implement a hazard loss reduction programme , focusing on key areas such as critical facilities, housing etc.

t. Prepare an inventory of resources for emergency response in collaboration with of RDCs and NDCs disaster management authorities.

u. Coordinate/ develop a network with humanitarian organizations such as, the Guyana Red Cross, NGOs and the private sector for disaster mitigation and preparedness activities.

v. Design and implement ongoing DRM programmes in public education, training, inventory management and resource procurement.

At the regional Level, the Regional Democratic Councils will undertake the following preparedness activities:

a. During non disaster time, RDCs will work in the preparedness mode, working during the day time in order to take care of extended emergency preparedness activities.

b. Prepare Regional emergency preparedness plans.

c. Prepare hazard specific maps showing vulnerable areas and population.

d. Prepare regional contingency plans.

e. Set up regional emergency operation centre (REOC) and maintain state of readiness with all equipment in working order. Orient and train REOC personnel on its operations.

f. Coordinate with NDCs and the CDCs to ensure that local and community preparedness and contingency plans are prepared.

g. Provide technical support to NDCs for emergency preparedness and contingency planning.

h. Assess training needs of the RDC and NDCs in relation to emergency preparedness and response and organizing trainings for them.

i. Conduct risk analysis for use in contingency planning.

j. Assist the Civil Defense Commission in national level response planning.

k. Coordinate with the relevant departments for the preparation of a resource inventory for use in emergency response.

5.3 EARLY WARNING, INFORMATION FLOW

Early Warning (EW) is defined as "the provision of timely and effective information, through identified institutions, that allows individuals exposed to hazard to take action to avoid or reduce their risk and prepare for effective response." (ISDR 2004). To be effective and complete, an early warning system needs to comprise four interacting elements, namely:
(i) risk knowledge, (ii) monitoring and warning service, (iii) dissemination and communication and (iv) response capability. (From International Strategy for Disaster Reduction (ISDR), United Nations (UN), 2006):

An early warning is only effective if it reaches the communities in time so that required action can be taken. Undoubtedly this can substantially reduce loss of life, property, and livelihoods etc. In many cases, early warning systems are either nonexistent or are ineffective / prone to break down at critical point. However, during last couple of years, the country has witnessed development in the field of communication. This progress has certainly improved the ability of the emergency services to communicate.

It has been recognized internationally that EWS have to be people centered to be most effective. The EWS must empower individuals and communities so threatened or at risk, to act in sufficient time and in an appropriate manner, to reduce the possibility of personal injury, loss of life and damage to property.

To be effective, the CDC must collaborate with the telecommunication, print and electronic media to ensure effective contributions to early warning at national and local levels to reduce the impact of disasters. (Please refer to the *National Early Warning System Framework 2013* document for further and complementary details.)

Early warning system can be made more effective by ensuring that:-

a. All warning system and technologies are maintained in working condition and checked on a regular basis.
b. Communities in the disaster prone areas are made aware of the warning systems.
c. Alternate warning system must be kept in readiness in case of technical failure.
d. Only the designated agencies and officer will issue the warning.
e. The warning should be in clear and easy to understand.

5.3.1 NATIONAL EWS STRUCTURE and MECHANISM

The National Structure is being established under the National Disaster Management Framework. The EWS will be a sub set of the National Disaster Committee, and is established as follows:

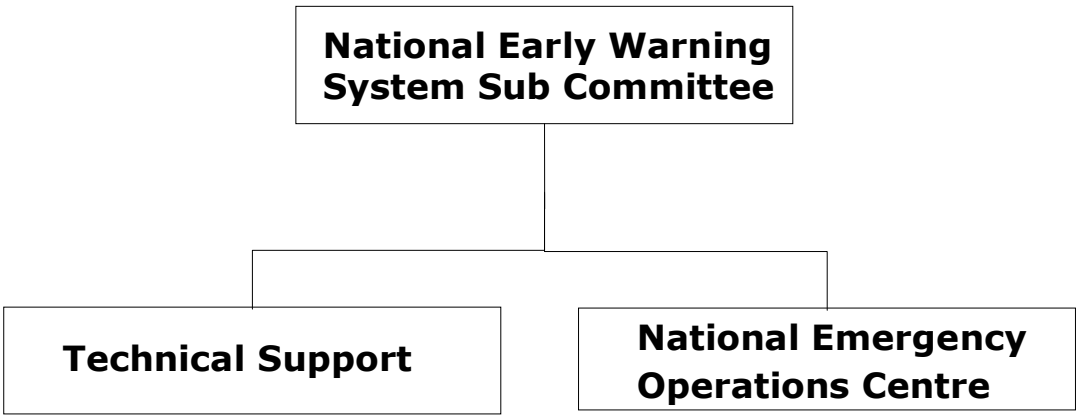


Figure 2: National Early Warning System Management Structure

5.3.2 IMPLEMENTATION SYSTEM: EWS PROTOCOLS

Under the management structure, the implementation of the national EWS is guided by the following protocol. Based on hazard assessments, the EWS is predicated mainly on hydro meteorological hazards, and health hazards. The three main ministries who will provide the warnings will be Agriculture, Public Works and Health.

The EWS is started when the monitoring and warning mechanisms of the ministries detect a threat that could lead to a major impact. Their internal teams and policies kick in and the relevant analysis is undertaken. On completion, a pre determined warning message is dispatched to the public for their information. A copy of this information is recommended to be passed to the CDC prior to the dispatch to the public.

On receipt of the warning, the Director General of the CDC holds discussions with relevant technical agencies and prepares a draft alerting and preparedness message. He forwards a copy of same to the Office of the President and to the National Disaster Coordinator (NDC), for their review and approval. On agreement on the content, it is recommended that the message be forwarded to GINA for onward dissemination to the press and to the emergency services for their action as required.

5.3.3 DECISION MAKING PROCESS

The information passed to the CDC will be used to generate a composite picture, taking into consideration all the current factors. On receipt of information, the relevant parties needed, depending on the hazard, will be called into the NEOC to do the analysis of the information at hand. The outputs will be recommendations, plan of action and public advisories. Before dissemination, they must be approved by the NDC.

5.3.4 COMMUNICATION/ DISSEMINATION PROTOCOLS

a. Warnings/ alerts etc will originate from the Ministry of Agriculture, Ministry of Health and Ministry of Public Works and be sent directly to the public.

b. Same alerts are to be passed to the CDC prior going to the public. This is to facilitate planning, early warning and preparedness

c. Timelines for dissemination will be driven by the nature of the event, by policy and the extent of the hazard, and by who needs to know what is to be done.

d. On receipt of warning, discussions will be held and then decisions made, leading to public advisories and advice to emergency responders

e. Public advisories will be so structured as to inform on what/ where/ when/ who/ how severe/ actions to be taken

f. After formulation, public advisories sent to NDC for approval if there is policy level content for approval. If purely technical, then disseminated directly to agencies and to GINA etc.

g. If no approval needed, a copy is still sent to the NDC/ OP for information purposes, to ensure that they are aware of all that is being sent out.

h. Dissemination flow: it is agreed that all messages from the Technical Group will be sent back to the main originating ministry for dissemination to the public. This is so as they have strong PR machinery and it will provide a natural follow up on their original message. Messages will be sent directly to the Minister's office from the DG CDC, and if a representative from the ministry is present in the EOC, they will also pass back to the Minister.

i. Other copies will be distributed to the Joint Services by the HPS and also to GINA who will send to the media houses as well

j. (Digicel and GT&T) have indicated that they can also disseminate messages using the SMS Text feature.

k. Other means of passing messages:
   - ✓ Amateur radio
   - ✓ CB
   - ✓ Land line
   - ✓ Cell phone
   - ✓ Signs

- ✓ Runners
- ✓ Email
- ✓ Social networks
- ✓ mobile loud speakers
- ✓ sirens
- ✓ flyers
- ✓ sides of buses

l. Messages sent from CDC to agencies will be sent via:

- ✓ Email
- ✓ Fax
- ✓ Land line
- ✓ Radio
- ✓ Hand delivery to offices
- ✓ Direct to representative in EOC

5.4 DECLARATION OF A DISASTER

The declaration of disaster depends upon the nature and size of the level of hazard impact. **Under the CDEMA mechanism**, three levels of emergency/ disaster are categorized:

Level 1
Localized emergency events can be managed within the regular operating mode of the protective and emergency services. Can be managed by the RDC with its own resources.

Level 2
Emergency/disaster events that overwhelm the capacity of the resources in a region, but which *do not* overwhelm the capacity of the national resources to respond and recover (such zones of impact can be declared *Disaster Areas*).

Level 3
Disaster events that *overwhelm the capacity of the national resources* to respond and recover (such an event may be designated as a *National Disaster*).

The President will make the declaration of a **National** or **Regional Disaster**, or if it is a contained area within a region, **A Disaster Area**. The declaration will be based upon the damage assessments and recommendations of the NDC and DG of the CDC.

To ensure that there is some level of clarity between the terms "emergency" and "disaster" the following has been noted.

Emergency
An emergency is any event requiring immediate and urgent attention. These are usually life threatening situations such as vehicular collisions, collapse buildings, which will entail

emergency functions – medical treatment and search and rescue. In the context of disaster management, there can be level 1 and level 2 emergencies, which are well within the capacity of the first responders. Level 2 emergencies can be of a higher or lower order depending on the extent of resources required to carry out emergency functions.

Disaster
In accordance with the definition noted above, a national disaster can only occur when all resources have been used/consumed/exhausted and international aid is required. The definition of a disaster is tied to the ability and capacity of responders to address and return to a state of normalcy.

5.4.1 Criteria for Declaring a Disaster

There is no clear benchmark or guide line currently existing that is used in making the declaration. Normally, a technical committee/ damage assessment team is dispatched and based on their assessment; recommendations are made to the CDC then onward to NDC/HPS and Cabinet. The President reviews this information and recommendation, and based on these makes the relevant declaration, as described above.

The Declaration of a Disaster can be either a national one or for a specific area of the country. Currently no legislation exists to put this is effect and it is done by Presidential declaration. Several international bodies and development partners will only provide assistance if the impacted country has declared a disaster in some form. Then emergency funds will be released and make them eligible for additional assistance. In the declaration.
A **disaster area** is a region or a locale heavily damaged by either natural hazards, such as floods, earthquakes, technological hazards including nuclear and radiation accidents, or sociological hazards like riots, terrorism or war. The population living there often experiences a loss of energy supply, food, services, and an increasing risk of disease. Declarations of disaster areas open up the affected areas for national or international aid.

Given below is a hazard-specific set of criteria that is generally to be followed by disaster management authorities for declaring a disaster area, regional disaster or national disaster.

5.4.2 Levels of Emergency

Level 1. Localized incidents for example, small scale fire, landslides, flood, sea wall breach, etc dealt with by the RDCs/ NDCs at the regional level. The RDC is capable of handling the situation on its own. Emergency may be declared by the Chairman after consultation with the relevant local authorities. Actions and responsibilities are as under:-

	Actions	Responsibility
1	Activate REOC partially	Lead RDC Led by the RDCc
2	Conduct rapid assessment of the situation	
3	Declare local level disaster	
4	Inform MLG and departments about the local level disaster declaration	RDCc
5	Immediately initiate relief work in the affected area	
6	Prepare relief operation report and share it with RDC and relevant line departments at district level	
7	Stand down the REOC and inform RDC and line departments	Lead RDCc
8	Close down the relief operation and inform all line departments and RDC	Lead RDCc

Level 2. Wide Spread incidents which overwhelm the capacity of the Regional Disaster Committee (RDCc) of the Regional Democratic Councils, and the RDC to manage the situation, RDC can make a request for assistance to the Civil Defence Commission through the Ministry of Local Government. Request is also made to neighbouring RDCs for assistance where possible, especially in situations close to the boundaries. In this situation a disaster is declared by the Chairman. Actions and responsibilities are as under:-

	Actions	Responsibility
1	Activate REOC	Lead RDC
2	Inform NEOC / CDC about the situation	
3	Alert and inform all line departments in the region	
4	Conduct damage and need assessment in the affected area	RDCc
5	Immediately initiate relief work in the affected area	Lead RDCc Support Agencies, Emergency responders regional line departments NGOs/CBOs
6	Share assessment report with MLG and request for assistance for emergency operation	
7	Mobilize and deploy resources e.g. evacuation, SAR team, medical team etc	
8	Make request to MLG for financial assistance	
9	Coordinate and facilitate CBOs and NGOs for relief operation	RDC
10	Prepare relief operation report and share it with relevant line departments at regional level	RDCc
11	Stand down the REOC and inform MLG and line departments	Lead is RDCc

Level 3. In case of a disaster that is beyond the capacity of Local Government authorities, a national disaster is declared by the President. Appeals may be launched internationally for additional assistance. Actions and responsibilities are as under:-

	Actions	Responsibility
1	Activate NEOC at CDC	Lead is CDC
2	Inform RDC and RDCc, about the activation of NEOC	
3	Alert relevant ministries and departments	
4	Support local government entities in conducting damage and needs assessment in the affected area	
5	Share assessment report with national entities	Relevant Ministries, Support Agency regional line departments NGOs/CBOs
6	Support local government authorities in resource mobilization for relief operations	
7	Provide technical support to local government authorities in the conduct of relief operation	
8	Coordinate with GDF for assistance	
9	Initiate the process of disaster declaration and notification process	
10	Prepare situation report on daily and weekly basis and share with President and relevant stakeholders	
11	CDC to prepare request to the NDC and Cabinet for financial assistance if necessary	
12	Coordinate I/NGOs, UN and other international humanitarian organization, philanthropists for effective response	
13	Inform public about the situation through media briefings	CDC/ GINA
14	Coordinate with UN Cluster System for effective response	CDC
15	Stand down the NEOC when the relief phase is over	CDC
16	Prepare relief operations report and share it with key stakeholders	

6.0 DISASTER RESPONSE FUNCTIONS

6.1 Command and Coordination/ Disaster Response Systems

On declaration of an emergency, various agencies must respond as early as possible to provide relief to those most in need. However, all entities must bear in mind that there are standards and a criteria that must be adhered to. The purpose of this section is to explain the response functions of the various agencies, standards and criteria to be used for organization of emergency response by different stakeholders.

6.1.1 Response Agencies

Civil Defence Commission (CDC)

After the devastating floods in December 2005/January 2006 the Office of the President reconstituted the CDC to serve as the focal point and to coordinate all DRM related activities among all stakeholders, including ministries, divisions, departments, and humanitarian organizations at all levels for emergencies in Guyana.

Region Disaster Committee (RDCc)

Disaster Management units have been established in all ten regions. The ultimate authority lies with the Central Government with local oversight provided by the regions' Regional Executive Officers (REO) in collaboration with the Regional Chairmen, under the Regional Democratic Councils (RDC). These regional bodies shall be responsible for region level planning, coordinating and implementation for disaster management and take all measures for the purpose of disaster management in the region in accordance with the guidelines laid down by the national management authorities.

In furtherance of the three tier level, the RDC will establish Neighbourhood Disaster Committees (NDCc) under the management of the Neighbourhood Democratic Councils (NDC) as well as Community Disaster Committees (CDCc) under the Community Democratic Councils (Com)

6.2 Response Agencies Roles and Functions

6.2.1 Civil Defence Commission CDC

During Disaster.

The CDC acts as the lead implementing, coordinating and monitoring body for disaster management. Its functions are to:

(a) Activate National Emergency Operation Centre (NEOC).
(b) Manage national level incidents and support the RDCs and NDCs in incident management.
(c) Inform and alert concerned ministries and departments about the incident.
(d) Inform concern ministries and departments to join the NEOC.
(e) Lead rapid damage assessment teams in the affected area.
(f) Mobilize and deploy teams e.g. search and rescue, technically skilled people (e.g. GDF, USAR, & Rescue teams etc) heavy machinery, medical equipment, medicines, immediately to the affected areas.
(g) Mobilize and send food and non-food items to the affected Regions for distribution.
(h) Coordinate with relevant ministries and department e.g. Civil Aviation Authority, Social Welfare, Health and Education etc to prepare them to activate and deploy resources.
(j) Coordinate with the RDC in the affected areas and provide them with the necessary technical and material assistance for relief operation.

(k) Establish and maintain communications with incident command authorities to ensure a common and current operating picture regarding critical resources requirement.
(l) Coordinate with UN agencies, humanitarian organizations, NGOs for mobilizing their relief assistance.

6.2.2 Regional Disaster Committees/ Regional Democratic Councils/ CDCc

During the Disaster

(a) Activate regional emergency operation centre (REOC).
(b) Conduct rapid assessment.
(c) Coordinate with relevant departments for response.
(d) Responsible for incident management at the regional level.
(e) Conduct post disaster rapid assessment and actively play role in emergency declaration notification process.
(f) Mobilize, activate and deploy resources for disaster response at regional level.
(g) Coordinate with public and private sector at regional level to mobilize resources and deploy for effective response.
(h) Closely coordinate and update the CDC before, during and after disaster situation.
(j) Coordinate and provide necessary support and guidance to the affected districts/agencies in the event of disaster.
(k) Provide timely and essential relief goods and logistics support to the affected areas of the region.
(l) Monitor hazards risks and vulnerable conditions within the region on regular basis and prepare plans accordingly.
(m) Encourage participation and facilitate NGOs, voluntary organizations and communities in different aspects of disaster response.
(n) Coordinate and facilitate humanitarian organizations, UN and private sector organizations for effective response.
(o) Inform public of the situation on a timely basis through print and electronic media
(p) Open and manage shelters as needed within the affected areas.

6.2.3 Guyana Defence Force (GDF)

The GDF has always contributed very effectively in emergency response operations and provided immediate relief through extensive air, ground and marine efforts. The GDF is a critical stakeholder to the CDC that provides readily available manpower and national resources. The main areas of responsibility for this entity include, but not limited to:

(a) Work in support of the CDC in relief, rescue and other related operational work.
(b) Assist in the management of the NEOC.
(c) Liaison with the CDC in search and rescue operations and provide available resources as needed to assist in response.
(d) Assist with preparations for flood contingency and relief operation plans.
(e) Assist in setting up and **managing shelter facilities** in close coordination with other

relevant ministries, departments.
(f) Assist with security during disasters if required.
(g) To support the Ministry of Health with Technical and medical personnel.
(h) To support the delivery of response resources

6.2.4 Role of GLSC

As the National Mapping Agency of Guyana, the role of the Guyana Lands and Surveys Commission in relation to the National Multi-hazard Disaster Preparedness and Response Plan can be classified as follows;

(a) **Land Policy and Planning**
To provide Guidance on Land Use by way of policy, and plans, in order to guide the orderly and efficient utilization of public land resources.

(b) **Land Definitio**n
To advise on land surveying matters as it relates to the disaster preparedness and response plan.

(c) **Land Information**
a. To create and provide relevant geographic information, for informed land decisions as it relates to disaster preparedness and response plan. (GIS mapping, Gazetteer of Guyana)
b. To create and provide relevant geographic information using the appropriate technology to aid decision making.
c. To provide maps of Guyana or parts thereof.
d. To provide charts, plans and images of spatial information.
e. To undertake flood level mapping

6.2.5 Welfare and Relief

The lead in this section is the Ministry of Human Services who works closely with the Ministry of Amerindian Affairs and the Guyana Relief Council among others. Human Services will provide counseling; financial and medical assistance; will deal with vulnerable persons – old age pensions, general public assistance and provide a loan scheme for single parents. Human Services also works very closely with the Ministry of Housing and have established a Women's Affairs/Men's Affairs Bureau. The Human Services Ministry has standing arrangements with small businesses to accessing goods and is also closely linked with UNFPA, UNICEF and Red Cross and will utilize these associations to make the necessary relief provisions.

The Guyana Relief Council will assist with provisions for the most impacted. They will provide shelter which will focus on keeping families together.

The Amerindian Affairs Ministry will oversee needs for this specific population. They will provide their Community Development Officers to offer assistance to those Amerindian populations hardest hit. Displaced Amerindians will be housed at welfare hostels.

6.2.6 Agriculture and Natural Resources Group

The Ministry of Agriculture will lead this group that includes Forestry Commission (GFC), Hydromet Department, Ministry of Natural Resources and the Environment, Environmental Protection Agency (EPA) and the National Drainage and Irrigation Authority (NDIA). The Ministry will work closely with the Food and Agriculture Organization (FAO). The FAO is currently in the process of establishing a plan for the agricultural sector. The Ministry of Agriculture will provide assistance to affected farmers.

6.2.6 Telecommunications

The lead entity will be the Frequency Management Unit (FMU), and will coordinate national telecommunications activities. They will also ensure the provision of nationwide telecommunication support to the National and Regional Disaster Management mechanisms. Digicel and GT&T will work in conjunction with the FMU to coordinate and ensure timely resumption of services in affected areas. There will also be the following

(a) The coordination of the requirement of temporary telecommunication in the affected areas by identifying operational telecommunication facilities within the so identified affected areas. This will involve both providers.
(b) The identification of telecommunication facilities that need to be transported to the affected site to establish emergency operational services.
(c) the identification of the actual and planned action of private telecommunication companies (GT&T and Digicel) towards reconstruction of their facilities.
(d) The establishment of a temporary communication facility through mobile exchanges, on priority, for use by the State on priority basis.

6.2.7 Medical/ Public Health

The Ministry of Health (MoH) will take the lead in this area assisted by the Pan American Health Organization (PAHO) and the Red Cross Society as dictated in the **National Health Sector Disaster Plan**, Annex C1. MoH will coordinate, direct and integrate national level response to provide medical and sanitation health assistance to the affected areas. This coordination assistance will supplement national and regional resources in response public health and medical care needs following a significant natural or manmade disaster. Further, the MoH will direct the activation of health/medical personnel, supplies and equipment in response to the request for national assistance.

Coordination of the evacuation of patients from disaster areas will be overseen. Patients whose injuries do not pose any threat to their health will be discharged after first aid. There

will also be the provision of human services assistance through the Ministry of Human Services.

Annex B13 provides more information on health sector preparedness standards and Annex C1 is the Guyana National Health Disaster Plan

6.2.8 Public Works/Engineering Transport – Ministry of Public Works and Commission

The lead will provide the coordination of transportation to the State and Regional bodies in need of assistance during emergency situations. The lead will also coordinate efforts to restoring roads, other infrastructure and the emergency supply routes. It will also assist in the prioritization and/or allocation of civil transport, air and marine traffic control, search and rescue and damage assessment.

6.2.9 Public Safety and Security Group

The lead is the Ministry of Home Affairs but each essential service is aware of its responsibilities in an emergency. The Guyana Police Service, the GDF and the Fire Service will perform in their mandated role.

6.2.10 United Nations (UN) Agencies

UN Agencies (the Cluster System) play a significant role in disaster management especially in assessment, planning, coordination, response, recovery and longer term disaster risk reduction programme. UN takes a lead role in establishing the Inter Agency Standing Committee. The main purpose of this group is to organize and coordinate meetings of UN on a regular basis to monitor response of various agencies. In addition to this, the UN assists in providing technical assistance to building capacity and strengthening public organizations in emergency response and disaster preparedness through training.

6.2.11 Media

The lead entity (the Government Agency GINA) will ensure that the public receives timely early warnings, evacuation orders, and public messages on disaster situations to help save lives and property. GINA will also coordinate messages sent to prevent communicable diseases, relay information on missing persons and stranded communities. Further, it will provide information on recovery efforts taken by government and other humanitarian organizations.

6.3 The National Emergency Operation Centre (NEOC)

The NEOC will serve as the hub for receiving early warning and issuing information to the public, media (on condition that the release is approved by the OP), ministries, departments and humanitarian response agencies. The NEOC will also lead the coordination and

management of relief operation in affected areas, in conjunction with the RDCs and the REOC. All the agencies will be coordinated by the NEOC and the respective REOC.

The NEOC will be part of the CDC office with full and part time staff and facilities for representatives from different ministries, departments and those humanitarian organizations who will join the NEOC during the disaster time. These representatives will assist the NEOC Director and Operations Officer in dealing with the emergency messages that come in to the NEOC, and in general assist in the management of the response to the particular incident.

The NEOC will be equipped with facilities such as:

i. Telephones (landlines, cellular and **satellite phones**)
ii. Fax
iii. Internet/emails
iv. Computers
v. Printers
vi. Photocopiers
vii. Televisions
viii. Status boards and map boards
ix. Generators
x. Other telecommunication systems – radio telephone, handsets, VHF wireless radio communication and standby power system.

The NEOC will be supervised and directed by the Director General of the CDC or his designee and will be headed by the Deputy Director General (NEOC Director) and supported by the operations, communications, public information, finance, administration and logistics support teams. Detailed job description of various members is given in the NEOC SOPs at Annex xxx. The NEOC will function 24/7 during the peak of the disaster time, at full activation, on a rotating three shift basis. During partial activations, and in the non-disaster time, it will operate on normal office hours.

Objectives. The main objectives of the NEOC are to:-

a) Organize and manage emergency operations at national level
b) Collect information, undertake analysis and arrange dissemination
c) Liaise with all stakeholders
d) Disseminate warning on time
e) Coordinate with different stakeholders for effective response

Functions. The main functions of the NEOC are:-

a) <u>Pre-Disaster</u>
   i. Prepare emergency preparedness plan at national level

ii. Ensure that regional and sectoral disaster management authorities develop emergency preparedness plan.
iii. Prepare national contingency plans.
iv. Set up national emergency operations centre and maintain state of readiness with all equipment in working order. Orient and train personnel of EOC on its operations.
v. Prepare communication and transportation plan for potential disaster response.
vi. Prepare hazard specific maps showing vulnerable areas and populations
vii. Provide technical support to regional bodies for emergency preparedness plan.
viii. Coordinate with regional bodies for regional contingency plans
ix. Assess training needs for regional bodies and organizing training for them.
x. Conduct risk analysis from the perspective of contingency planning.
xi. Prepare inventory resources for emergency response with collaboration of regional and sector disaster management authorities.
xii. Coordinate with humanitarian organizations to discuss their plans for preparedness and response for future hazards.

b) <u>During the Disaster</u>

i. Collect, consolidate, analyze and circulate information related to emergency operations to the key stakeholders.
ii. Screen and issue emergency warnings and information to the public concerning preparedness and safety.
iii. Prepare damage, need assessment and relief reports.
iv. Mobilize and deploy resources in the affected areas.
v. Supply food, drinking water, medical supplies, and non-food items to the affected populations.
vi. Coordinate and provide technical support to the regional and sectoral EOC for emergency response.
vii. Coordinate with humanitarian organizations, bilateral and multilateral agencies for resource mobilization and deployment in the affected areas.
viii. Coordinate relief operations.
ix. Forward urgent information to relevant agencies for immediate action.
x. Prepare daily briefings on disaster situations for the NDC
xi. Prepare press release and other information for general public and specific groups and route to OP for approval prior to release.
xii. Organize regular media and public information briefings in conjunction with OP.
xiii. Prepare situation report (SITREP) on daily and weekly basis and circulate to the NDC & other critical entities.

6.3.2 Activation Procedure and Stand-Down Procedure

On Receipt of Alert (Standby – Stage 1).

Director General will collect information from the regional bodies and other stakeholders about the potential disaster, after reviewing it, advise the NEOC director to be on alert or standby position of the NEOC. The CDC DG will update the NDC and seek his approval for activation of the NEOC. SOPs to be followed for this stage are:-

i. Monitor the situation
ii. Alert the NEOC staff on the operationalization of the NEOC at short notice
iii. Put everything ready and functional in the NEOC
iv. Coordinate with key ministries, departments, non-governmental organizations, private sector, humanitarian organizations and alert them
v. Closely coordinate with stakeholders to get information and review it

These activities will be done by the NEOC Director (DDG CDC)

On Receipt of Warning (Stage 2).

DG will issue notification to the NEOC Director for full activation of the NEOC. The NEOC Director through the Operations Officer will inform key ministries, and other key stakeholders and remain fully operational on 24/7 basis. SOPs to be followed for this stage are:-

i. Place NEOC fully operational
ii. Open all communication systems and links
iii. Collect essential information including detail of resources, which might be required for relief operation
iv. Inform all relevant ministries and departments to send their representatives to sit in the NEOC
v. Share information regularly with critical stakeholders

These activities to be done by the NEOC director and the Operations Officer

Stand Down Procedure (Stage 3).

After reviewing the situation and consultation between the DG and the NDC the DG will advise the NEOC Director for stand down. Stand down is considered once the emergency phase is over, the situation is brought under control and no further threats exist, and the all clear has been issued in case of meteorological events. The NEOC Director will notify stand down to key ministries and departments. SOPs to be followed for this stage are:-

i. DG will consult with NDC about stand down
ii. DG will notify NEOC Director to approve stand down
iii. NEOC Director will disseminate notification to the relevant ministries, departments and other stakeholders
iv. Final report on the emergency operations will be prepared by the NEOC director and circulated to key stakeholders
v. NEOC staff will work in normal mode
vi. Put communications system in store

6.3.4 Regional Emergency Operations Centre (REOC).

The Regional Emergency Operations Centre will serve as the hub for receiving early warning and management of response to all events occurring within the Region. The Regional Democratic Council will lead the coordination and management of relief operations in affected areas. All the government departments at the regional level and concerned stakeholders will be coordinated by the REOC for emergency response. The REOC will function throughout the year in disaster and non disaster times. In disaster times the REOC will be disseminating early warning information, relief coordination and management and focus on early recovery. In non disaster times the focus will be on preparedness and contingency planning. The REOC will be overall supervised and directed by the REOC Director appointed by the REO. The REOC will be headed by the REOC Director and supported by the operations and other support teams. The REOC will be working round the clock during the disaster time and full activation. In the non disaster time and partial activation, the REOC will be working in normal office hours.

Objectives

(a) Issue timely warning.
(b) Communicate with stakeholders.
(c) Coordinate with concerned departments and other stakeholders for effective response.
(d) Mobilization and deployment of resources.
(e) Organize and manage emergency operation at provincial/regional/state level.
(f) Collection of Information, analysis and dissemination

Functions

(a) **Pre-Disaster**

i. Prepare emergency preparedness plan.
ii. Prepare multi-hazard contingency plans.
iii. Anticipate resource inventory needs in collaboration with line departments for emergency response.
iv. Interact with NEOC for assessing training needs and organize training for them.
v. Conduct risk analysis from the perspective of contingency planning.
vi. Assist relevant departments to update their SOPs.
vii. Coordinate with humanitarian organizations for preparedness and response plans.

(b) **During Disaster**

i. Conduct rapid assessment of the relief needs. This assessment is done as per the DANA plan and passed to national level as per the National DANA plan.
ii. Coordinate with NEOC, concerned departments and other stakeholders.
iii. Collect information from NEOC. Analyze, consolidate and circulate to NEOC,

concerned departments and other stakeholders.

iv. Coordinate operations management at regional level.
v. Deploy evacuation, medical, search and rescue teams in the affected area.
vi. Provide relief assistance to the affected population in the district.
vii. Supply temporary shelter as relief camp to the affected population.
viii. Provide medical and sanitation facilities to the affected population.
ix. Liaison with concerned departments and stakeholders engaged in emergency response.
x. Screen and issue disaster warnings and information to the communities concerning preparedness and safety.
xi. Forward urgent information to relevant agencies for immediate action.
xii. Arrange daily briefings on disaster situations.
xiii. Issue press releases and information for general public and specific groups, in coordination with GINA and the OP who gives approval.
xiv. Record keeping and preparation of consolidated reports.

Activation Procedure

(a) **On Receipt of Alert (Standby - Stage 1)**.

REOC Director receives information and regular update on potential disaster from key stakeholders about the situation. Advises REO and Chairman to seek alert/activation approval about the alert phase. Once approval is given, Approval of Alert phase is notified to the key departments and NEOC. SOPs to be followed for this stage are:-

i. Closely coordinate and gets information on the situation
ii. Monitor the situation.
iii. Update the REO and Chairman
iv. Alert the REOC staff.
v. Put everything ready and functional in the REOC centre.
vi. Coordinate with key departments and humanitarian organizations.
vii. Update different stakeholders about the situation.
viii. Closely coordinate and consult with NEOC.

These activities are done by the REOC Director

(b) **On Receipt of Warning (Stage 2)**.

Notification for full activation is issued and REOC remains fully operational at 24/7 basis. The Chairman/REO will inform concerned departments at regional level, and NEOC.SOPs to be followed for this stage are:-

i. Notification for full activation of the PEOC.
ii. Place REOC fully operational at 24/7 basis.
iii. The Chairman/REO will inform concerned departments, NEOC, humanitarian organizations, NGOs etc

(c) **Stand Down Procedure (Stage 3)**. After reviewing situation and consultation with MoLG administration, REOC Director will advice the Chairman/REO to stand down. After getting approval of MoLG, Chairman/REO will approve the stand down of the REOC. REOC will notify to the key departments at all levels. SOPs to be followed for this stage are:-

i. Coordinator REOC will debrief Chairman/REO about stand down.
ii. Chairman/REO REOC will approve it and issues notification
iii. REOC Director disseminates notification to the relevant departments and other stakeholders.
iv. Final report on the emergency operations will be prepared by REOC Director and circulated to key stakeholders.
v. Inform NEOC for stand down.

6.4 Disaster Response Elements

6.4.1 Evacuation.

An emergency evacuation is the rapid removal of people from a dangerous environment to a safer place. Ideally, all the people at risk are removed and taken to the safety, through variety of means. The term may be used to refer to evacuating people from a single place or an entire area. Evacuation of affected persons can be done before and after the disaster happens. In each disaster, evacuation is different, and can be done by using different transportation means including local means. There are several steps involved in the emergency evacuation. Some of the steps are given below:-

a. Evacuation plan.

Evacuation of people to safer place is the responsibility of district administration for which a detailed plan will be prepared. Some of the salient points of the plan are:-

i. Develop and clarify roles and responsibilities of the government officials or designated staff and inform them.
ii. Prepare a team of Government officials from different departments, Security Forces and volunteers for evacuation.
iii. Prepare safer routes in advance, time planning, shelter etc.
iv. Develop transport plan for evacuation.
v. Recognition of potential threat.
vi. Develop communication mechanisms to inform communities and volunteers for evacuation.
vii. Evacuation team should be given trainings on emergency evacuation of disabled persons.

b. Actual Evacuation. All evacuations are ordered by the Chairman/ REO or senior police officer in the region. The voluntary evacuation can takes place just 1-2 days before the disaster happens depending upon the warning available. The mandatory evacuation happens prior to the disaster strike. Following may be ensured:-

i. Alert communities using siren, radio, cable TV and other local communication means for evacuation

ii. Inform communities of evacuation routes
iii. Tell communities about transportation arrangements
iv. Notify communities about temporary shelter arrangements (Shelter site should be within 5 km or one hour walk of dwellings, as far as possible
v. Involve local community leaders, CBOs/NGOs in the evacuation process
vi. Prepare list of people who are being evacuated
vii. Evacuate family together as a unit, minimizing chances of separation in a family
viii. Give priority to evacuate a seriously injured & sick people, pregnant women, handicapped or disabled persons, elderly person, children and women
ix. Display the list of evacuees in the shelter
x. All evacuations are reported to the REOC

c. In situations like floods, conflicts government makes decisions for mandatory evacuation, and then the responsible government officials at district and below district level shall try to convince local communities for voluntary evacuation. At times, government use pressure of force such as police, and army to evacuate local communities to protect them from the potential threat. In emergency evacuation communities should be allowed to take minimum essential items/ belongings. These minimum essential items are listed in the National Shelter Plan

d. Evacuation of Injured. For evacuation of injured people, triage procedure should be followed. Triage is the process of prioritizing transfer of the injured people based on first hand assessment by the medical officer on disaster site. The identification of the patient is done by attaching tag to each patient. Different colors are used for tagging different categories of patients for evacuation.

Guidelines for Efficient Evacuation

a. Advance planning.
b. Prior arrangements for shelters at earmarked evacuee's lodgment sites.
c. Provision of basic facilities e.g. water supply, sanitation etc. at the site.
d. Identification of Evacuation routes/circuits under intimation to all concerned.
e. Enforce measures for timely evacuation of the elderly, pregnant women and disabled persons.
f. Fool proof security arrangements for the evacuated areas as well as camp sites.
g. Adequate arrangements for transportation of the affected communities and their minimum belongings, including livestock. Separate camps for the latter.

ANNEX B10 provides more details on Evacuation plans for xxxxxxxx

6.4.2 Damage Assessment and Needs Analysis (DANA)

In an emergency, damage assessment is undertaken in order to give the NEOC a clear understanding of the situation, and to assist them in making decisions on what kind of resources and capacities are required for effective response, as well as recovery. The DANA plan at **Annex B5** will be activated and followed. After the "All Clear" is given, DANA Teams

will be deployed at the earliest possible time to undertake assessments. Details of deployment will be contained in Standard Operating Procedures. The DANA process will be conducted in three stages.

STAGE 1

This is the first stage of the damage assessment process, which is carried out to rapidly obtain a broad picture of the extent of the damage caused by the impact of the hazard. The damage assessment will be undertaken within 4-8 hours after the "All Clear" has been given. The assessment will be informed by one or all of the following;

i. An aerial reconnaissance done by national or regional teams
ii. Community/Local surveys
iii. The application of pre-established baseline vulnerability database

The objectives of this stage in the DANA process are to;

i. To obtain a general overview of the damage.
ii. Identify the initial needs of the impacted population which must include emergency response requirements

STAGE 2

This phase must be conducted within the first seven (7) days after the "All Clear" has been issued. Within these 7 days, an interim SITREP must be prepared and submitted at the end of 48hrs followed by SITREPS at the end of each 24hr period. These SITREPS are then compiled at the end of the 7 days to produce the Stage 2 DANA Report.

The method for collecting this data will be house to house surveys where applicable. A pre-designed form (in DANA plan) will be used to execute the assessment in the field. Teams comprising both community and sector personnel will be deployed to carry out the surveys.

The main objective of this stage is to obtain more detailed and specific data on damage and needs. This data is intended to be more quantitative than qualitative.

The main outcomes are as follows;

i. A report on specific needs generated within 48 hours or two days after impact. The 48hrs report should include where possible preliminary cost estimates of damage.
ii. Ongoing daily situation reports (SITREPs) of damages.
iii. A comprehensive report will be generated at the end of the 7 day period.

The National Damage Assessment Team drawn from the Damage Assessment Committee will conduct the assessments at this stage. This team will be a multi-disciplinary team of persons to execute the necessary surveys.

STAGE 3

This stage will be conducted within 21 days of the all clear. Surveys will be conducted primarily by sectors. Various technical approaches employed by sectors (engineering, land use planning, economic) will be used to determine detailed damage in terms of absolute numbers, structural integrity of infrastructure and recommendations for demolition, retrofitting or continued use of structures. The direct costs and recovery/rehabilitation costs associated with these elements should as far as possible be included in the assessment. The method for reporting this information will be on a specific form.

The main outcomes are as follows;

- To generate the direct and indirect cost of impact.
- To determine an estimate of the recovery cost (inclusive of rehabilitation and reconstruction)

A detailed damage report on the full extent of the impact of the hazard on the country will be produced to include best estimates of direct and recovery/rehabilitation costs. This report will be used to inform the macro-economic assessment usually conducted by the UN ECLAC.
This stage of the assessment will help to:

i. Determine the overall direct cost of the impact;
ii. Determine the rehabilitation and reconstruction needs of each sector; and
iii. Determine the types of long term assistance required.

This stage again employs the use of a multi-disciplinary team to execute the detailed assessment. The team may be the same as that used at the second stage or be expanded to include specialists in the various sectors being assessed. The focus in the third stage is to do a more detailed assessment to include estimation of direct and recovery/rehabilitation costs.

6.4.3. **Search and Rescue** (SAR)

Search and Rescue will be undertaken according to the National SAR plan of Guyana **(ANNEX B11)**. The first 12 hours of any disaster are regarded as the critical hours. This means that the sooner the search and rescue operations start the better are the chances for survival of entrapped people. A trained and equipped team of professionals is able to carry out timely and effective coordinated operations to locate and rescue persons in distress and deliver them to a place of safety.

During the activation of the NEOC, if reports received indicate the need for SAR, the National SAR plan will be activated.

Under the National SAR plan, there are three sub plans:

- Guyana National Land Search and Rescue Plan standard operation procedure
- Aeronautical search and rescue plan – Guyana Civil Aviation Authority
- Maritime search and rescue manual – Maritime Administration Dept

Land Search and Rescue (Annex B11)

The objectives of the LSAR are to undertake the following.

a) Mobilize and coordinate timely national response to terrestrial events requiring SAR operations.
b) Eliminate or ameliorate, as far as practicable, the immediate consequences of terrestrial events requiring SAR response.

PROCEDURE

The focal point of the LSAR will be Police Force Control.

1) After receiving information on a SAR incident, the officer in charge of Force Control, or in the absence of the officer in charge, the most senior rank, will inform the Commissioner of Police of the incident.
2) The Commissioner of Police in consultation with the National Disaster Coordinator or other competent authority will invoke the LSAR plan.
3) Call out proceedings will be initiated when the SAR team and MRT leaders are notified by the Commissioner of Police of the LSAR plan being invoked.
4) Upon activation, the Director of the Emergency Operations Centre (EOC) will retain responsibility for oversight and coordination of national LASR response.
5) The EOC team will be comprised of the EOC and support agencies as determined by the specific land based SAR event.
6) The Incident Command System (ICS) will be utilized as the onsite command and control mechanism.
7) Utilizing the principles of the ICS, an Incident Commander, will head the Incident Command Post (ICP). The Incident Commander will manage the event in keeping with the principles of the ICS and will convey information on the event status and response needs to the EOC.
8) The designated LSAR team and MRT leaders will oversee the operation of the LSAR team in the field and report to the Incident Commander.
9) The decision to de-activate the LSAR Operations will be made by the Commissioner of Police after due consultation with the Director of the EOC.

For further details see Annex B11

Air Search and Rescue

The Air SAR plan involves the aeronautical SAR organization, coordination, operations and procedures which are intended to form the basis of aeronautical search and rescue in

Guyana. It is prepared using guidelines from the International Civil Aviation Organization (ICAO) Guidance Material for Preparation of a National SAR plan, the International Aeronautical and Maritime Search and Rescue Manual, ICAO **Annex 12** and the Guyana National SAR plan. It shall be used in conjunction with the above mentioned documents to guide SAR personnel in the performance of their duties.

Search and Rescue Services Search and rescue services comprises of two components; an operation coordinated by a Rescue Coordination Centre (RCC) or a Rescue Sub-Centre (RSC) using available personnel and facilities to locate persons in distress and the retrieval of persons in distress, provide for their initial medical and other needs and deliver them to a place of safety.

Scope of Aeronautical SAR

Aeronautical SAR activities include but are not limited to the process of locating, missing, overdue or downed aircraft, extricating and providing initial medical treatment to persons involved aircraft incident or accidents in the areas outside of the perimeter of Cheddi Jagan International Airport and Ogle Airport. The CJIA and Ogle Airport Emergency plans include procedures applicable to aircraft incident and accident in the vicinity of and on airports. Note: The National SAR system will provide assistance as required during an Airport Emergency.

Mission:

i. To search for and locate overdue, missing and downed aircraft and its' occupants either believed to be or are in distress.
ii. To provide initial response and relief capabilities critical to saving lives in an aeronautical incident or accident.

Maritime Search and Rescue

According to the National Search and Rescue Plan, the Maritime Administration Department (MARAD), shall assume responsibility for maritime search and rescue in Guyana's maritime Search and Rescue Region (SRR).

In accordance with the International Convention for the Safety of Life at Sea (SOLAS) and the International Convention on Maritime Search and Rescue1, the Government of Guyana through Maritime Administration Department (MARAD), accepts responsibility for the coordination of maritime search and rescue in Guyana's Search and Rescue Region (SRR). These responsibilities shall be exercised through a Rescue Coordination Centre (RCC).

The RCC is to be staffed continuously and is responsible for:

a. coordinating SAR in respect of civil aircraft in the maritime SAR area;
b. coordinating maritime SAR for all classes of ships
c. promulgation of Maritime Safety Information (MSI); and
d. provision of information on maritime activities such as oil pollution, offshore mineral exploration and dumping at sea.

SAR stages

The response to a SAR incident usually proceeds through a sequence of five stages. These stages are groups of activities typically performed by the SAR system in responding to a SAR incident from the time the system becomes aware of the incident until its response to the incident is concluded. The response to a particular SAR incident may not require the performance of every stage. For some incidents, the activities of one stage may overlap the activities of another stage such that the portions of two or more stages are being performed simultaneously. The five SAR stages are:

a. Awareness. Knowledge by any person or agency in the SAR system that an emergency situation exists or may exist.
b. Initial Action. Preliminary action taken to alert SAR assets and obtain more information. The stage may include evaluation and classification of the information, alerting of SAR assets, communication checks and, in urgent situations, immediate performance of appropriate activities from other stages.
c. Planning. The development of operational plans including plans for search, rescue and final delivery of survivors to medical facilities or other places of safety as appropriate.
d. Operations. Dispatching SAR assets to the scene, conducting searches, rescuing survivors, assisting distressed craft, providing necessary emergency care for survivors and delivering casualties to medical facilities.
e. Conclusion. Return of SRUs to a location where they are debriefed, re-fuelled, replenished and prepared for other missions, return of SAR assets to their normal activities and completion of all required documentation.

All SAR activities will be overall coordinated by the NEOC. The NEOC Director or the Operations Officer will establish contact with the relevant control centre, air , sea or land and receive regular updates. The NEOC as stipulated in the various SAR plans will provide additional support as needed.

7.0 EARLY RECOVERY FRAMEWORK

Principles of the Early Recovery Framework

The purpose of an early recovery section is to assist in bridging the transition period from the relief phase to the recovery phase and to minimize the impact of future disasters. Experiences in many countries show that following the relief phase, investment in affected communities drop considerably. It is essential to incorporate early recovery measures that will ensure those persons who were impacted live in a dignified manner, with proper housing, adequate opportunities to provide for their families and decent local services. Further, it is necessary to carry forward the positive momentum created by relief operations into sustainably rebuilding lives and communities. **As such, early recovery seeks to address issues surrounding resettlement and livelihoods as well as the cross-cutting issues of climate change, disaster risk reduction and environment.**

The Early Recovery Framework is intended to provide a framework for the national disaster recovery effort. **It must be stressed that the Framework is intended as a guide**. The Recovery Process, as with any other process, must be lead, directed, controlled, monitored and evaluated, in order for it to achieve its objectives. The effectiveness of the Framework is determined by the commitment to its procedures and uses. Recovery is a phased process in which the phases overlap and the boundaries are blurred. Action in the Recovery context will be required at:

i) The Immediate Response Phase
ii) The Restoration phase – Short-term Recovery
iii) The Reconstruction phase – Medium term Recovery
iv) The long term Reconstruction Phase

Recovery is a complex, dynamic process which **depending on the nature of the event**, may extend over many years. This Framework focuses attention on Immediate Response, Restoration and Reconstruction, short and medium term Recovery.

The Framework is not intended to replace any wider National Strategic Development Plan that the GoG may have in place.

Objectives
The objectives of the Framework are:

1. Prioritize recovery action requirements.
2. Promote effective, coordinated actions of all agencies involved in the recovery process

3. Promote timely decision-making and the implementation of such decisions in support of the recovery goal.
4. Reduce, and where possible eliminate, duplication of effort and waste of resources.
5. Establish and maintain appropriate accounting and reporting arrangements for the recovery process.
6. Provide appropriate arrangements for the dissemination of public information.
7. Enhance capacity for dealing with disasters in future.
8. Reduce vulnerability to disasters in future.

The Early Recovery Framework encompasses a detailed assessment of a range of sectors and activities that take into account the capacity, strengths and resilience of both local communities and the Government.

The key areas of strategic intervention covered are:

1) Resettlement and access to basic social service and infrastructure;
2) Livelihoods,
3) Disaster Risk Reduction and Climate Change; and
4) Environment.

Recovery planning incorporates several immediate intentions, which include:

(a) Promoting a return to the provision of services and the availability of goods which support normal life.
(b) Promoting courses of action which will contribute to a reduction in the vulnerability of the population to a range of hazards.
(c) Stimulating local initiatives to respond to the effects and impacts of a disaster.
(d) Developing plans and strategies to enhance the process of long-term rehabilitation.

Against this backdrop of synergies and cross-linkages across sectors, the key principles that ought to govern an Early Recovery Framework (ERF) include;

(a) Alignment with Key Government Plans, Policies & Priorities: (This section ensures that the ERF is closely linked to the Strategy for the Development of Guyana)

(b) Community-centered & Inclusive: The effective reconstruction and resettlement efforts from natural disasters are characterized by a closely coordinated multi-sectoral approach that emphasizes systematic consultation with affected communities as well as close collaboration between Government and non-Governmental agencies. The full integration of communities, taking special measures to ensure that the poor and most vulnerable groups are included, in reconstruction and resettlement strategies, is essential for ensuring equity, ownership, transparency and accountability

(c) Informed Decision: The affected population should be able to make an informed decision regarding whether to return to their homes communities relocate or integrate if they are staying in host communities. To the extent possible, information should be made available on rights to voluntary, safe and dignified return, resettlement or return

(d)Human Rights Based & Protection Approach: Efforts must be responsive to the diverse needs of communities and individuals in a way that recognizes and appreciates their integrity, dignity and basic rights. At the same time, development interventions should address core issues that result in the equal improvement in the quality of life for boys, girls, men and women. Additionally, the Government shall enable the displaced and affected communities to return, relocate or integrate locally under conditions of sustainability, safety and dignity and to ensure that:

(1) resettlement areas area assessed as stable and safe by the competent authorities;
(2) new constructions are culturally acceptable and meet building safety codes and international standards on adequate housing;
(3) resettlement areas have safe and ready access to all basic services, as well as to employment and appropriate livelihood opportunities and markets;
(4) special housing, services and support are provided to groups with particular needs;
(5) a compensation or restitution package is made available for those whose land might be affected by the resettlement operations; and
(6) in order to prevent inter-community tension and to ensure a targeted and equitable response, the needs of non-affected or indirectly affected communities should be assessed.

(e)Disaster Risk Reduction & Climate Change: Disaster risk reduction/management needs to be considered as a key cross-cutting issue throughout the recovery process. In particular, enhancing safety standards and avoiding the rebuilding of previous vulnerabilities and the creation of new risks must be factored in the rehabilitation and reconstruction of houses, infrastructures and livelihoods.

(f)Gender Sensitive & Equitable Distribution of Resources: The recovery and rehabilitation phases provide opportunities to promote gender equality within communities, more evenly distributed ownership of assets, and improve the condition and position of women and other vulnerable groups.

(g)Adequate Shelter: Shelter remains a problem in early recovery that has serious humanitarian concerns. Urgent attention must be focused on re-building better and resettling vulnerable families that cannot rebuild for themselves

The Early Recovery Framework will outline in greater detail the approach that will be taken to increase the chances of disaster victims returning to a dignified life.

Early Recovery Process

The Early Recovery Process will be lead by a committee established to oversee this process. As stated above, the process must be led, directed, managed and controlled in order for it to be effective. As the process may take an extended period, the committee must be clear of its mandate and prepared for the "long haul".

The committee will include those agencies and ministries that are involved in mitigation and recovery: reconstruction and rehabilitation. They will not only be promoting a return to the provision of services and the availability of goods which support normal life, but they will also be developing plans and strategies to enhance the process of long-term rehabilitation.

The disaster recovery process will be activated by the authorities who will determine the appropriate time to trigger this phase. The Recovery process will work in tandem with the other disaster management functions of the CDC and will also work in tandem with the NEOC.

Once an event occurs and the NEOC is activated, the committee head is alerted. The lead then contacts the committee and assembles them to begin the process. The work of the committee is facilitated by the DANA reports and thus works in close conjunction with this committee.

The lead of the committee will undertake a review of the **rapid DANA** on the impact of the hazardous event. (This information will be supplied by the DANA committee). From assessment of the DANA (rapid-8hr and detailed-72 hr) information, the lead of the Group will initiate the alerting, decision-making process and actions for items listed in Table 1. This will be carried out mindful of and in coordination with, the disaster management functions being undertaken by other sectors and groups within the NEOC. As more detailed DANA reports are provided, the Committee will then develop an appropriate recovery plan and strategy for the particular event.

Monitoring

Disaster Recovery pursues specific goals and objectives. The Committee will constantly assess the Recovery effort to determine the degree of goal achievement. In so doing, decisions will be taken in terms of the effectiveness and efficiency of the process.

The Committee will ensure that:

1) The specific goal and objectives of the Recovery effort are widely publicised.

2) The leaders of all key agencies are made aware of the goals and objectives.

3) The Recovery Committee will develop an Action Plan which specifies key tasks, targets and time schedules.

4) All key agencies will be required to report on progress (or otherwise) on agreed priorities frequently and regularly. A simple report format should be devised.

5) A cabinet level review of progress will be done regularly. The committee will provide reports to the HPS and Cabinet on the progress.

6) Appropriate directives will issued from Cabinet to sustain progress

7) Consideration will be given to the imposing of sanctions on agencies which hinder goal achievement.

Evaluation

Every disaster event offers many lessons. The lessons extend from the nature of hazards and their effects, through the effectiveness of Mitigation, Response, Planning and Preparedness and Recovery efforts.

It is recommended that for all emergencies, a detailed review of the entire event be undertaken. For prevention and recovery purposes, emphasis will be placed on identifying specific mitigation lessons learnt and recommendations for action in the short, medium and long term. Based on these, the Recovery plan is then adjusted accordingly.

Table 1: Key Tasks and Activities in Recovery Planning and Management

KEY ACTION AREAS	TASKS AND ACTIVITIES
IMMEDIATE RESPONSES (days to weeks after the event)	- Essential services restoration - Support services restoration - Recovery aid appeal - Recovery logistics - High level briefings - Information dissemination and management - Network with local and external agencies
SHORT AND MEDIUM TERM RECOVERY (weeks to months after the event)	- Development of Recovery Plan for this disaster - Repair of houses and other buildings - Restoration of utilities and related facilities - Repair and replacement of infrastructure - Welfare assistance – building materials and financial assistance programmes - Restoration of social services such as education - Restoration of commercial & economic activities and services - Replacement of critical facilities such as ports, jetties and fuel depots - Coordinate inter-agency actions - Monitoring, evaluation and accounting - Restoration of external communications and transport arrangements - Network with local and external agencies
LONG TERM RECOVERY	- Mitigation Planning - Physical Planning - Zoning - Supportive legislation - Building zones and permit management - Vulnerability Reduction - Retrofitting of critical facilities - Relocation of vulnerable groups - Environmental and vulnerability Impact Assessments

	- Hazards reevaluations and mapping - Capacity enhancement for recovery - Training and personnel development - Exercising and rehearsals of plans - Public awareness and education - Environmental Management - Coastal Zone protection - Reforestation and soil conservation - Development of GIS systems

8.0 Key Next Steps

Key Next Steps in Advancing Multi-Hazard Preparedness and Response Planning in Guyana

Generated from the various multi-stakeholder processes held over a period of several years in Guyana, a number of recommended next steps were presented. It is envisaged that these key next steps suggested from the stakeholders be prioritized and that resources be sought and allocated for their implementation. Further, it is envisaged that an elemental action plan for these key steps be drafted, indicating entities to be involved and their specific roles, estimating timelines, approximating costs, and detailing beneficiaries. The *Key Next Steps* recommended by the stakeholders were as follows. It is envisaged that the broad and diverse group of stakeholders, at all levels in Guyana, and internationally, will participate in following up with the goals and tasks as described below. It is also envisaged that key results generated from this document will be incorporated into the DRM Key Results Matrix. The coordination of this exercise rests with the CDC.

a. There is need for not only proactive plans, but also back-up plans in case plans fail. At the same time, there is a need to work towards preventing chain disasters or other disasters from occurring as a spin-off effect of one disaster. Thus there is a call for upscaled **contingency planning,** detailing evacuation plans, detailing roles of first responders, with trained-communications/coordination logisticians, trained-rapid assessment, medical and transportation.

b. A **proactive, practical approach** is called for generally. Examples given were the clearing of silt away from seawalls to help tackle flooding and poor sanitation as well as maintaining the drains of Georgetown (Innovative ways of taking action on this chronic, yet simply solved issue, include to consider student wages, volunteer labour and assistance of the incarcerated, to help with high costs of maintenance.)

c. Agreed was that **higher disaster preparedness awareness**, through public education and communications campaigns, is most important. Education, particularly in the subject area, is very important for the general population to understand disasters and promote involvement. Considerations were to tie in basic safety and family level resilience training with this.

d. **Local level and hazard-specific clear guidance** need to be drafted in conjunction with communities, in the form of local level plans and guidelines, as to how each community is to prepare for, and respond to, events as able. Relevant sectors are to assist with this task.

e. A need for **Innovative Strategies** was repeatedly presented. Innovations in terms of technology regarding the seawall defences, and regarding the better use of ICT are encouraged. Innovative ways of funding and accessing increased volunteer help was also brought forth, as was the need for further innovation in institutional strengthening.

f. The stakeholders were in agreement that the next step in terms of planning was to draw forth a **strategic implementation plan, and resource mobilization scheme**, based on this document. Detailed plans are needed, showing capacity, and addressing the questions of who will do what, when, and how. These activities are seen to be the responsibility of the broad group of stakeholders, coordinated by the CDC.

g. It was stated that **hazards within the mining sector** present significant and repeated risks to some of the most vulnerable populations within Guyana. It was recommended that this issue be examined by the stakeholder group to come up with innovative ideas for solutions. Local and off shore interests should be represented in stakeholder discussions.

h. **Ownership** is sometimes lacking in communities and on a national level, and only when we take full ownership of our roles in these plans can there be real improvement. This needs to be taken into account at the outset of planning activities within communities.

i. All hazards, **including uncommon hazards and those related to climate change** need to be ranked / prioritized and associated vulnerabilities need to be linked in the form of a table.

j. The **whole spectrum of most vulnerable needs to be considered more carefully.** Capacity building cannot be done in isolation or excluding special groups, such as the deaf, disabled, illiterate, etc. There is need for the consideration of the use of sign language, graphics, etc. in the public awareness and capacity building efforts to ensure all target groups are reached. Thus a **Human Rights Based Approach** in preparedness and response needs to be cross cut throughout all sectors and included within all plans and instruments.

k. There was call for a series of **Evacuation Plans** be drawn up by the stakeholders. A plan specific to the Georgetown area was also recommended. Other community level evacuation plans should be developed at the local level, with national level support as needed.

l. There is need for **enforcement, consistency and oversight of laws and legislations** that can prevent disasters, such as solid waste management policies, no building on reserves etc.

m. **Responsible agencies need to ensure enforcement of laws and work within their particular areas to support the work of the CDC and DRM**. A lot more work needs to be done from other agencies in support of CDC, in terms of enforcement and their respective mandates. Sector plans need to address gaps, looking at what needs to be done and can be done from a sectoral approach, whilst disaster preparedness should focus on what can be done when all else fails.

n. The Disaster preparedness plan **needs to incorporate emergency medical services** so that responding can be done in a timely man should be addressed in the medical sector plan, where this sector should work towards ensuring that the services it provides are efficient, well coordinated and effective. It was also suggested that the

roles for Emergency Officers and Medics expand to sporting events and other public events drawing crowds, in the event of a crowd-based emergency.

o. **Disaster Response Functions:** there should be a flow chart showing the chain of command for both the National Emergency Operations Centre (NEOC) and the Regional Emergency Operations Centre (REOC). Detailed job description of the NEOC and REOC Committee Members is essential since roles and responsibilities of all persons involved in the plan should be outlined and should have been included in the plan since persons currently holding these positions are likely to change given the country scenario.

9.0 ANNEXES

Annex A: Hazard Specific Sub Plans

ANNEX A: Hazard Specific Sub Plans

- Annex A1 Flooding
- Annex A2 Oil Spill
- Annex A3 Aircraft Crash
- Annex A4 Landslides
- Annex A5 Earthquake
- Annex A6 Hurricanes/ Storms/ Severe weather systems
- Annex A7 Fires
- Annex A 8 Hazardous Materials Spill
- Annex A 9 Sea Wall Breach
- Annex A 10 Mass casualty events: aircraft accident, vehicular accidents
- Annex A11 Epidemics
- Annex A 12 CBRNE- chemical/ biological/ radiological/ nuclear/explosive
- Annex A 13 Mining accidents

ANNEX B

ANNEX B: Response Sub Plans and Standard Operating Procedures (SOPs)

- Annex B1 Mass Casualty Management
- Annex B2 National Emergency Operation Center (NEOC) SOPs
- Annex B3 Regional Emergency Operation Center (REOC) SOPs
- Annex B4 RDC Response Plans
- Annex B5 Damage Assessment and Needs Assessment (DANA) Plan
- Annex B6 National Telecommunications Plan
- Annex B7 Early Warning Systems (EWS) Plan
- Annex B8 Public Information Plan
- Annex B9 Shelter Management Plan
- Annex B10 Evacuation Plans
- Annex B11 National Search and Rescue (SAR) Plans: Air/ Land / Maritime
- Annex B12 Telecommunications Matrix
- Annex B13 Preparedness and Response Cross Cutting Issues

ANNEX B13

This section seeks to closely align the National Multi-Hazard Preparedness and Response Plan to those cross cutting issues engaging the attention of the international Disaster Risk Management community. Some of these issues are:

I. Medical Services
II. Relief Management - Food and Non Food Items (NFIs).
III. Food Programme
IV. Shelter and Shelter Requirements
V. Water and Sanitation
VI. Protection
VII. Telecommunications
VIII. Transportation and Delivery

As it pertains to Preparedness and Response the plan seeks to provide the steps entities ought to recognize and address when seeking to reduce the risk or protect the lives of those most vulnerable

I. **Medical Services**.

Health care is very important for survival in the early stage of disaster because disasters have significant impact on health and well being of the affected population. The health impact on population varies according to the context and type of the hazard. The health impact may include injury, psychological trauma, general health problems e.g., fever, flu, cough, skin diseases, eyes infection, diarrhea, cholera, and other possible infectious diseases. The main purpose of providing health services in disaster situations is to prevent and reduce morbidity and mortality and to control and prevent from infectious diseases during and after the disaster situation. Ministry of Health is responsible for provision and coordinating health services pertaining to all natural and human induced hazards.

1.0 **Health Policy for Patients Discharge**. A sound health policy needs to be in place to ensure that patient gets proper care and treatment that they need in disaster time:

The policy may include the following points:-

a. All hospitals maintaining complete records of all patients treated.
b. Data (including finger prints and digital photographs) on all patients to be collected by the assigned entity
c. Hospitals ensure the provision of continued care to them in the centres.
d. Patients fully recovered being sent to shelter homes/ transit camp or back to their house.
e. Patients‟ data should be submitted to the Ministry of Health, NDMA etc.
f. In the case of fully recovered orphans, destitute women and the disabled, they would be handed over to Ministry of Human Services.

1.1 Disease Early Warning System. Surveillance is the best way to detect and monitor outbreaks of disease, and it allows for preventive measures to be put in place before full-scale epidemics occur. The WHO defines surveillance as ongoing systematic collection, collation, analysis and interpretation of data; and dissemination to those who need to know in order that action may be taken" .

The Disease Early Warning System specifically tracks the outbreak of diseases such as cholera, typhoid and malaria. The main goal of the system is to minimize the morbidity and mortality due to communicable diseases by detecting epidemics at the earliest possible stages. It is proposed that one Medical Officer and one laboratory technician at each basic health facility be given training to focus on the suspected signs and symptoms rather than the probable or the confirmed cases. This information is passed on to regional level. Simultaneously, health department and humanitarian organizations conduct health assessment in the affected area to understand the situation on ground and develop plan accordingly.

1.2 Checklist - Assessment of Health Services

a. Get available socio economic and geographical information on the disaster affected population and health profile of the affected area.
b. Determine the total disaster affected population and proportion of children under 5 years.
c. Determine age and sex breakdown of the population.
d. Determine the average household size and estimates of female, elderly and child headed households.
e. Identify groups at increased risk, e.g. women, children, older and disabled persons, people living with HIV/AIDS, and disadvantaged groups of ethnic, religious minority and other social groups.
f. Recognize pre existing health problems and priorities in the disasters affected areas prior to the disaster.
g. Identify existing risk to health e.g. potential epidemic diseases.
h. Classify previous sources of health care.
i. Determine the functional status and capacity of local public and private health institutions/organizations.
j. Determine the availability of skilled health workers in the affected or nearby area.
k. Verify the availability of standardized protocols, essential drugs, supplies and equipment
l. Determine the capacity of existing logistics system, especially as they relate to the procurement, distribution and storage of essential drugs and medical supplies.

1.3 Minimum Standards in Health

1.3.0 Health System and Infrastructure Standards

a. **Prioritizing Health Services**. All people have access to health services that are prioritized to address the main cause of excess mortality and morbidity.
b. **Supporting National and Local Health Systems**. Health services are designed to support existing health systems, structures and providers.
c. **Coordination**. People have access to health services through coordinated efforts amongst agencies and sectors to achieve maximum impact.
d. **Primary Health Care**. Health services are based on primary health care principles.
e. **Clinical Services**. People have access to clinical services that are standardized and follow accepted protocols and guidelines.
f. **Health Information System**. The design and development of health services are guided by the ongoing, coordinated, collection, analysis and utilization of relevant public health data.

1.3.1 Control of Communicable Diseases Standards

i. **Prevention**. People have access to information and services are designed to prevent the communicable diseases that contribute most significantly to morbidity and mortality.

ii **Measles Prevention**. All children aged 6 months to 15 years have immunity against measles.

iii **Diagnostic and Case Management**. People have access to effective diagnostic and treatment for those infectious diseases that contribute more significantly to morbidity and mortality.

iv **Outbreak Preparedness**. Measures are taken to prepare for and respond to outbreak of infectious diseases.

v **Outbreak detection, Investigation and Response**. Outbreaks for communicable diseases are detected, investigated and controlled in a timely and effective manner.

1.3.2 Control of Non-communicable Diseases

(a) **Injury**. People have access to appropriate service for the management of injuries.
(b) **Reproductive Health**. People have access to sexual and reproductive health services to respond to their reproductive health needs.

(c) **Mental and Social Aspects of Health**. People's access to social and mental health services to reduce mental health morbidity, disability and social problems.

(d) **Chronic Diseases**. Populations in which chronic diseases are responsible for a large proportion of mortality, they may have access to essential therapies to prevent death.

i. Nutrition value.
ii. The local culture.
iii. People's familiarity with cooking of food.
iv. Eating habits.
v. Availability of food in local market.
vi. Purchase food from the local market.
vii. Fuel requirement for cooking.
viii. Grain processing: any food item requires processing, e.g. milling.
ix. Quality of the food should be good.
x. Avoid importing food from other countries in emergency situation,

2. Relief Management - Food and Non Food Items (NFIs).

Relief management is the most significant part of the response to any disaster. Normally, when people are evacuated before or during disaster, they carry very small amount of items with them. Therefore, they need certain food and nonfood items (i.e. clothes, blankets, cooking utensils, hygiene kits, buckets, plastic sheeting, sleeping mats, water jerry cans, washing powder etc) for their survival. The main purpose of the relief management is to provide life sustaining commodities to the affected communities in a fair and organized system, according to the specific needs, population and cultural environment of the affected region.

2.0 Food Aid. Food is basic right of the population in disaster times. Food is essential for the survival of affected population in the disaster situation. In the first few days after floods and cyclone in particular and war/conflict affected population, government provides cooked food and then gradually shifts to the dry ration distribution to the population so that communities can cook themselves. *The following factors needs to be considered for food aid planning and management*:-

2.1 Assessment. Initial assessment may be carried out which helps to identify food requirements, eating habits, cultural practices, type and quantity of food, any special food requirement for the pregnant women, children etc. Initial assessment should also focus on the nutritional value of the food. The ration or food package should be decided on the basis of the nutrition criteria taking in to account the issue of acceptability and cost effectiveness. The package/ration should be enough to provide 2100 K calories/person/day. When food commodities are selected for emergency distribution the following points mat be considered before deciding the food commodities:-

2.2 Food Aid Targeting and Distribution

(a) The beneficiary selection for the food aid should be done with the participation of key persons, local leaders, teachers etc from the affected population and beneficiary selection should be regardless of religion, ethnicity, language, gender etc.

(b) The proper list and the registration card/food distribution card shall be prepared and distributed to the selected beneficiaries in advance.

(c) Beneficiaries shall be informed in advance about the distribution point, date, time and procedure.

(d) Special attention and priority should be given to the persons with disability, elderly person heading household, women adolescent heading household.

(e) Women should be encouraged to participate in the whole process of planning and distribution of the food. An equal number of men and women should be used where possible.

(f) Coordination with other humanitarian organization working in the food distribution to avoid the duplication.

(g) Coordinate with other aid agencies in relation to relief supplies and take lead role in distribution.

(m) Prepare a ration card for the affectees with the help of WFP, UNHCR and other I/NGOs and develop distribution system.

The Distribution Method, Selection of Distribution Points and Information Dissemination Mechanism should be decided in consultation with local communities keeping in mind appended points:-

(a) Convenience of the recipients.

(b) Less travelling time for recipients.

(c) Easy transportation of food for recipients.

(d) Quantity and type of rations distributed.

(e) Distribution plan (day, time, location, frequency) and change in plans if any due to external circumstances.

(f) Safety and security aspects.

(g) Accessibility for every one particularly for women, elderly persons,person with disabilities and children-headed households.

(h) Punctuality for distribution of food, no postponement of the distribution.

(j) Waiting area and drinking water should be arranged for recipients.

(k) Separate waiting area for women, elderly persons and persons with disability.

(l) Priority should be given in distribution to the elderly persons, women and persons with disabilities.

(m) Equal and transparent distribution of food to everyone.

(n) Set up complaint mechanism for the beneficiaries where beneficiary can register complaint about the quality, quantity, distribution and targeting procedures.

(o) Any change in the food ration/ basket/ package caused by shortage of food in the market and the changes must be discussed with recipients through the distribution committees/agents and changes made with the consultation of receipts.

(p) Monitoring gives you feedback for the future plan of the food aid and may include feedback on selection of the beneficiaries or needs improvement, usefulness and appropriateness of food items, quantity, quality, and distribution system. The methodology can include interviews with communities, individuals, monitoring of the food distribution card.

STANDARDS (PROJECT MINIMUM STANDARDS IN DISASTER RESPONSE)

3. Food Programme

(a) The food aid programme in emergencies must fulfill the nutritional requirement of 2100 cal/person/day.

(b) The food items to be appropriate, acceptable to the communities and according to the local culture, communities" eating habits, local practices and can be efficiently used at household level.

(c) The food provided to the communities should be of good quality and fit for the human consumption. The food packing is properly done and instructions are written in a language which can be easily readable and understandable.

(d) Food is stored, prepared and consumed in a safe appropriate manner at both household and community level.

(e) The method of food distribution should be transparent, equitable and appropriate to the local conditions which may includes beneficiaries' " selection and registration, distribution methodology, selection of distribution point, safety and security and monitoring of the food aid after distribution.

3.0 Non-Food Items (NFi)

3.0.1 Clothing and Bedding. Affected population should have access to the clothing and bedding according to the practices to feel comfort, dignity and safety. Clothing and beds should be appropriate to the local culture, conditions, and climate and should be provided to children, women and men and all groups of the society without any discrimination. If the clothes and bedding is not appropriate, there is risk that the affected population may not use it and sell it in
the market.

3.0.2 Hygiene Kit. Hygiene kit should be part of the Non Food Items distribution which helps to minimize the health risk in the camp situation. The hygiene kit items should be according to the local culture and locally available in the market. For example as part of the hygiene kit, it is important to consider the women and girls needs appropriate material for menstruation. Consultation with women needs to be

done regarding such kind of material and the decision is made after the consultation of women.

3.0.3 Kitchen Sets. Kitchen sets with water jerry cans should be according to the culture and local conditions. In Guyana culture women are responsible for cooking food. Therefore, it is essential that women are consulted and decision on kitchen items to be made on the basis of women consultations.

3.1 Factors to be considered in Distribution of the NFIs

(a) The design of the distribution system should be according to social and cultural context and needs of the local population.
(b) The target of the commodity distribution should be the family household unit rather individual.
(c) The affected communities should be consulted particularly women should participate in planning and distribution system. No one should have monopoly/dominance in the distribution system.
(d) The affected communities should be well informed before the distribution of the NFIs contents and quantity of commodities to be distributed.
(e) Every beneficiary must equally and fairly benefit from the distribution system and groups with special needs such as elderly people, minorities, disadvantaged groups, women, and disabled are given priority and attention in the distribution of commodities.
(f) The commodity distribution is very well planned and regular and the communities are informed in advance about the distribution system.
(g) Prepare proper record of the beneficiaries who have benefited from the distribution and develop beneficiaries" complaint mechanism about the distribution, quantity and quality of the commodities are distributed.
(h) Develop monitoring system to get feedback from the communities about the distribution system, quality and quantity of the NFIs.

3.2 Distribution System. Ideally distribution system should be safe, accessible and transparent to the intended beneficiaries. The distribution should be organized in such a way that everyone feels safe and secure. Particular attention should be given to the persons with special needs and vulnerabilities.

Distribution point should be close to where people live. An information system to inform beneficiaries (list of beneficiaries circulated, or pasted on wall, notice board etc) shall be developed so that beneficiaries can access information is continuously informed of changes in quantity, type and method of distribution.

The distribution method, selection of distribution points, information dissemination mechanism should be decided with the consultation of local communities keeping in mind:-

(a) Community participation in deciding the distribution centres.
(b) Convenience to the recipients.
(c) Less travelling time for recipients.

(d) Easy transportation of NFIs for recipients.
(e) Quantity and type of NFIs distributed.
(f) Distribution plan (day, time location, frequency) and change in plans, if any, due to external circumstances.
(g) Safety and security for the recipients.
(h) Accessibility for everyone and particularly for women, elderly persons, person with disabilities and children headed households.
(j) Time punctuality for distribution of NFIs.
(k) Waiting area and drinking water should be arranged for recipients.
(l) Separate waiting area for women, elderly persons, and persons with disability.
(m) Priority should be given in distribution to the elderly persons, women and persons with disabilities.
(n) Equal quantity of food distributed to everyone and done transparently.
(o) Set up complaints mechanism for the beneficiaries whereby beneficiary can make complaint about the quality, quantity or distribution and targeting procedures.

3.3 Community Participation in Designing and Distribution of Commodities.
It is highly recommended to involve communities since the beginning of making plans for distribution of commodities. Communities play an important role to identify the central location which is convenient to all the people, organizing distribution system, distribution method, verification of the local people during the distribution and preparing the record and maintain the security system during the distribution.

3.4 Coordination. There are different humanitarian organizations involved in the relief commodities distribution. It is important to coordinate and share plans of relief commodities distribution with all to avoid the duplication of the efforts. CDC is responsible for managing relief operation and coordinate with humanitarian organization in relief activities set up inter agency coordination for I/NGOs, UN agencies for effective relief operation and organize regular meetings to check the progress and identify the gaps. The frequency of the meetings will depend upon the situation. In the beginning, the daily emergency meeting is important as the situation normalizes; the meeting can be organized once in month or so.

3.5 **Standards**
(a) Cloth and bedding is appropriate according to the culture and climatic conditions and according to the local customs/traditions.
(b) Minimum set of kitchen utensils with good quality material provided to each house hold
(c) The cooking stoves provided should be appropriate to the local culture, easy to use and fuel efficient.

4. Shelter and Shelter Requirements.
Shelters are places for people to live in temporarily when they cannot stay at their

permanent houses (original places). The reason for this could be natural and man-made disasters. In post disaster situations, temporary shelter will be provided by the government and humanitarian organizations as part of the emergency response. Normally, government uses public buildings, and in some instances tents, for emergency shelter where affected communities are temporarily given this support. Sometimes, these settlements continue longer than expected. In majority of the cases, these public buildings are schools, play grounds, open parks, or other available public buildings. During natural disasters, government always prefers and makes arrangement to accommodate affected population in public buildings. If the disaster is on a larger scale and the public buildings are not enough to accommodate the affected population, the government and humanitarian organization decide to provide tents or other suitable accommodation which may be owned by private sector or humanitarian organizations eg the Guyana Relief Council (GRC).

4.0 **Selection of Public Building**. The following factors should be considered for the selection of public building for accommodating affected population:-

(1) Public buildings are identified before the disaster occurs
(2) Plan should be developed clearly stating how many people will be accommodated in each building as part of emergency preparedness
(3) The basic facilities such as electricity and water/sanitation must be functional. If water and sanitation facilities are unserviceable, Public Health Engineering Department be asked to set up temporary water arrangements therein
(4) Separate toilet and bathing facilities for men and women
(5) International standards to be adhered to as far as possible
(6) Take preventive measures for mosquito such as spray, mosquito nets, mosquito repellent coils
(7) Elderly and the disabled persons should be accommodated preferably on the ground floors in case it is multi storied building
(8) Make sure that women have privacy and security in the building
(9) Accessibility for all including the physically challenged.

4.1 **Advantages and Disadvantages of Public Buildings**

4.1.1 Advantages

a. Public buildings are easily available and have more space.
b. Services such as water and sanitation are readily available though they may be inadequate if the number of people exceeds capacity.
c. Easy management.
d. Accessible.
e. Play ground for children particularly when they are accommodated in some public buildings such as schools, parks/ open spaces etc

4.1.2 Disadvantages. If the public building is not designed and facilitated to use as shelter for communities in case of disasters, following disadvantages could be experienced:-

a. Lack of privacy and increased security risk.

b. Inadequate Water/sanitation services for holding large number of affectees.
c. Unhygienic conditions because of over-crowding.
d. High risk of spreading diseases due to unhygienic conditions.

4.2 Standards for Public Buildings. Buildings used to accommodate victims during relief should provide the following:-

(1) Minimum floor area of 3.5 square meters per person.
(2) Minimum air space of 10 square meters per person.
(3) Minimum air circulation of 30 cubic meters per person per hour.
(4) Separate washing blocks for men and women.
(5) Washing facilities:-
(a) One hand basin /10 persons or
(b) One wash bench of 4-5 meters/100 persons.
(c) One shower head/50 persons in temperate climates.
(d) One shower head /30 persons in hot climate.
(e) Toilet accommodation in building housing displaced persons, should meet appended requirements:
i. One seat/25 women
ii. One seat plus 1 urinal /35 men
iii Maximum distance from building of 50 meters or 1 minute walk
iv. Containers are to be plastic or metallic and should have closed lids. A container of 50-100 litres capacity needs to be provided to every 25-50 persons.

5. Water and Sanitation.

Water and sanitation is the key to survival in the initial stages of emergency. Communities in such situation are generally, vulnerable to many diseases due to lack of inadequate water supplies and poor hygiene conditions. Diarrhea and other infectious diseases are critical in emergencies and are transmitted quickly because of poor sanitary conditions. The main purpose of water and sanitation programme in emergencies is to reduce the transmission of diseases from faces to mouth through the promotion of good hygiene practices. The provision of safe drinking water and the reduction of the health risks related to the poor sanitation.

5.0 Water. Water is essential for life and health. It is a basic human right. In emergencies the accessibility, quantity, quality and availability of water is a major challenge. If water is contaminated, threat of health hazards and particularly water borne diseases increases manifold. Children are most vulnerable to the water borne diseases. In emergency situation, it is very important to know the requirement of the water in relief camps. Similarly, quality and quantity of water in all sources must be accurately mapped.

5.1 Water Source Selection. In relief camps situation, it is important to take into account the water source, its feasibility and treatment of water.

5.2 Quality and Quantity of Water. In many emergency situations, water related diseases are transmitted due to low quality of water. Therefore, it is important to ensure that quantity and quality water meet the needs of affected communities. The distribution of water must be designed in a way that everyone benefits from water supply equally. It is important to consider needs of disabled and elderly people, children and women.

5.3 Coverage. In the initial phase of emergency, it is important to cover the immediate needs of water supply to the affected communities. Emergency increases the vulnerability of the affected population and particularly children. Therefore, it is essential that the immediate needs of water for the affected population and particularly for children are met. It is also important to consider
supplying water to the host communities who have provided shelter to the emergency affected population. The water distribution system in emergencies design needs to provide multiple water points so that everyone can access water. The distance of the water point from the camp/house should not be more than 500 meters. The waiting time for water collection should be not more than 15 minutes. If the waiting time for collection of water is high, then inadequacy of water supply or insufficiency of distribution points are most likely causes. According to the *Sphere Minimum Standards in Disaster Response*, the numbers of people per source depend upon the yield and availability of water at each source:

5.4 If excessive water available then additional measures needs to be taken to equitable distribution of water and all the affected groups have equal access to the water. In our culture, it is the responsibility of women to collect drinking water for the family in normal as well as in emergency situation. Therefore, it is essential that water systems are user friendly and women's needs are taken into account at the time of design and planning stage so that women can benefit without any security problem.

5.5 Water Collection and Storage. People need vessels to collect water and store it for washing, cooking and bathing etc. These vessels should be clean, easy to use, and appropriate according to the local needs and habits in terms of size, shape and design. The disabled, elderly people and children may need smaller or appropriately designed vessels to collect and store water.

5.6 Water Quality - Water Treatment and Disinfection. Assessment should cover the possible sources of contamination of water at source, defecation practices, drainage and solid waste management. Community participation is very important in the assessment which can help in identifying where the public health risks are. Therefore, involving communities to finding ways to reduce the risks is essential. In emergency situations normally, water is treated with chlorine; chlorine purification tablets are commonly used to disinfect the water. Chlorine is the most common format of

disinfecting water in emergency situation it is easy and cheap to use chlorine to disinfect water. It is important to put the right quantity of chlorine in the water otherwise chlorine may change taste of water with resultant public disinclination towards consuming the same.
When water is disinfected with chlorine, it is important that the community should be educated about the quantity of chlorine per liter being used to disinfect the water. The following standards in water supply in emergencies are used internationally in emergencies situation. These standards are adopted from The Sphere Project Minimum Standards in Disaster Response:

250 people per tap Based on a flow of 7.5 liters/minute
500 people per hand pump Based on a flow of 16.6 l/m
400 people per single use open well Based on a flow of 12.5 l/m

(a) **Water Supply Standard 1 - Access and Water Quantity**. All people have safe and equitable access to sufficient quantity of water for drinking, cooking, personal and domestic hygiene, Public water points are sufficiently close to households to enable use of the minimum water requirement. Average water use for drinking, cooking and personal hygiene in any household is at least 15 liters per person per day.
(b) **Water Supply Standard 2 - Water Quality**. Water is palatable, and of sufficient quality to be drunk and used for personal and domestic hygiene without causing significant risk to health.
(c) **Water Supply Standard 3 - Water use Facilities and Goods**. People have adequate facilities and supplies to collect, store and use sufficient quantity of water for drinking, cooking and personal and domestic hygiene, and to ensure that drinking water remains safe until it is consumed.

5.7 Sanitation. In early days of the emergency, providing sanitation facilities is one of the major challenges particularly in flood and cyclone situations. Public buildings where community is provided shelters have inadequate or poor sanitation facilities. This can put affected population on higher risk of diseases. Therefore, it is very important that public buildings which are used as temporary emergency shelter have adequate sanitation facilities. Sanitation includes excreta disposal, vector control, solid waste disposal and drainage.

5.7.1 Important Factors to be considered for Sanitation. Rapid assessment helps understand the situation and gauge sanitation needs. This can assist designing and planning of the sanitation programme. Following points should be considered for rapid assessment at early stage.
(a) Existing sanitation facilities.
(b) Personal hygiene habits.
(c) Space, location

(d) Water availability.
(e) Drainage.
(f) Soil conditions for excreta disposal.
(g) Type and design of latrines, cultural practices.
(h) Gender considerations.
(j) Special group needs such as disabled, elderly people and children.
(k) Ground water table.
(l) Preferably in open fields, trenches etc.
(m) Consult with community members and sanitation expert in planning and designing stage of toilets.
(n) Women must participate in the planning and designing stages and decide the location of toilets.
(o) Toilets are designed in such a way that that can be used by all population groups of the society including children, elderly people, and women
(p) Separate toilets for men and women.
(q) Separate toilets should be designed for the disabled people so that they can easily use it.

5.7.2 Toilets' Design and Management Parameters

(a) Not more than 50 meters away from the dwellings
(b) Easy to clean
(c) Arrangements for disposal of women sanitary protection minimize flies and mosquito breeding.
(d) Water availability for washing after use of toilet.
(e) Provide material for cleaning toilets.

5.7.3 Hygiene education plays important role to reduce the risk of diseases in communities in the emergency situation. If there is no hygiene education and if toilets are not kept clean, it may become source for diseases transmission and people prefer not to use them. Therefore, it is important to have health and hygiene education as part of the sanitation programme.

5.7.4 Community Level Sanitation Assistance. The initial phase of emergency, particularly first 6-8 weeks, is crucial for affected population to meet the basic sanitation need to safely dispose of excreta. It is important to be done at the household and community level, which includes camps in the public buildings, tent camps or any other type of refugees/internally displaced community location. In early days of an emergency, community level actions involve finding or building suitable latrines

5.7.5 Standards of Emergency Latrines. Are as follows:-

(a) **Excreta Disposal Standard - Access to and Number of Toilets**. People have adequate numbers of toilets, sufficiently close to their dwellings, to allow them rapid and safe access at all times of the day and night. Some guidelines need attention:-

i. One latrine for 20 people
ii. Separate facilities for men and women
iii. 50 meters or one minute walk from the from shelter
iv. Proper system for disposal of excreta

(b) **Excreta Disposal Standard - Design, Construction and use of Toilets**. Toilets are sited, designed, constructed and maintained in such a way as to be comfortable, hygienic, and safe to use. Some useful tips are as under:

i. Useable by all people including, children, women, pregnant women, elderly people etc.
ii. 30 meters away from the ground water.
iii. Special design for people with disabilities.
iv. Arrangement for women's sanitary protection.
v. Privacy and security for women at all times day and night.
vi. Proper/adequate drainage system.
vii. Adequate and regular supply of water.
viii. Hygiene education

(c) **Vector Control Standard - Individual and Family Protection**. All disaster affected people have the knowledge and means to protect themselves from disease and nuisance vectors that are likely to represent in significant risk to health or well being. Following points help towards preventions:

i. Population understands the modes of diseases transmission and possible methods for prevention.
ii. People avoid mosquitoes during peak biting times.
iii. Mosquito nets, bedding and clothing are aired and washed regularly.
iv. Food is protected from contamination.

(d) **Vector Control Standard - Physical Environmental and Chemical Protection Measures**. The number of disease vectors that pose a risk to the people's health and nuisance vectors that pose a risk to people's well being are kept to an acceptable level. Some aides are appended:

i. Minimize exposure to the mosquitoes to the affected population.
ii. Vector breeding and resting sites are monitored/treated.
iii. Population density of mosquitoes kept low enough to avoid the risk of transmission
iv. People infected with malaria are diagnosed early and receive treatment.

6. Protection.

In any natural or manmade disaster, when people are evacuated and accommodated in shelters (whether public building or tent camp), it is the responsibility of the government authorities to protect people from physical threat, assault, rape, arbitrary, detention, kidnapping and violence. It is the primary duty and responsibility of the state to provide protection to the affected population.

6.0 **Security in Shelters**

(1) The shelter locations selected should be safe, accessible and far from other hazards and risks areas. The shelters should be designed in a way so as to maximize the protection and security of the displaced persons, including women, children, elderly people and persons with disabilities, single headed households and members of religious and ethnic minority or indigenous people.

(2) Persons affected by disaster should be allowed to move freely in and out of the camps. Such movements should not be prohibited unless there is any security or protection threat.

(3) Authorities must not allow weapons in shelters and appropriate measures should be taken to restrict the uncontrolled armed elements in camps. Where such elements are present, action must be taken against them and these elements must be removed from the shelter. The government security deployed to protect the shelter should be without weapons unless there is any security threat or conflicting situation.

(4) Once the immediate emergency phase is over, the government should encourage affected population to repatriate them (subject to the conditions) to their original place of residence without compromising the dignity of the affected population and safe return. Alternatively, safety of affected should be part of security management.

(5) Law enforcing agencies and local authorities to maintain law and order situation during and after the emergency and provide security to the people affected by the disaster.

(6) Appropriate measures should be taken as quickly as possible to prevent children's recruitment in any exploitation activities.

(7) Local authorities and law enforcement agencies should put appropriate mechanisms in place to address the instances of violence, particularly gender based violence, sexual and emotional abuse, harassment and robbery

6.1 Child Protection. Child protection refers to protection from violence, exploitation, abuse and neglect. Natural and manmade disasters can cause displacement, break down of family and social structures, erosion of traditional value systems, violence, weak governance, absence of accountability and lack of access to basic social services, all of which lead to serious child protection failures. Some dismal possibilities, witnessed in affected countries during past are as under:

(1) Separation of Children from parents/guardians
(2) Abduction/Kidnappings
(3) Involuntary involvement in organized crime
(4) Physically hurt due to conflict etc.
(5) Molestation including violence

The Ministry of Human Services needs to develop guidelines and take steps to protect children from different forms of exploitation.

7. Communication Systems.

Telephones shall be the primary means of communication Agency between the various level of government from disaster affected areas to the district, provincial and federal level ministries/departments involved in the response. Others means of communication can also be used which include, fax, emails, wireless etc. Maximum possible utilization should be made of telephone because it is reliable, cheaper and served by a wider network in the country. Wireless phone and cellular phone facilities to complement the source.

7.0 Telecommunication. During the last few years, telecommunication sector has developed significantly in the country. Land line, public and private companies, mobile phone network and Internet services facilitate interaction across the country as well as overseas. Telecommunication assists effective response to disaster. It ensures that the information on any disaster situation is instantly disseminated thereby enhancing reactive potential. In the long run, use of standardized equipment allows an efficient telecommunication service to be provided at a lower cost. In a large scale emergency, it is important that telecommunication companies provide full service and set up temporary offices with technical staff for technical support as well as to ensure that services remain functional. In addition, telecommunication companies develop their emergency preparedness plan for any disaster at the national and regional level.

7.0.1 Types of Telecommunication Equipment/Mediums

–See Telecommunication Matrix attached in Annex B12 for further use in this section.

(1) **Telephone land Lines**. Land line or traditional telephone communication suffer degradation during disaster due to the switching equipment, network disruption or loss of electrical power. In this situation, it is important to have alternate plan for the land line telecommunication. Telephone service providing company must accord high priority to restoration/repair of land line
telecommunication system. In case of disaster, there is need to set up complimentary Public Call Offices for affected communities.

(2) **Satellite Communication System**. The satellite communication system can be used as an alternate to the land line telecommunication system. It is an economical and accessible proposition that can alleviate suffering in disaster hit areas. Service providers must cater for any eventuality wherein land line in any district is rendered unserviceable.

(3) **Mobile Phone Communication**. Mobile phone communication has become very common in the country. The use of mobile phone in the cities as well as in rural areas of Guyana is on the increase as wide coverage is given by different telecommunication companies. Service provider must cater for first, enhancement of

operational disasters to provide mobile phones to rescue and relief workers and, secondly, up rating traffic volume handling capacity.

(4) **Fax**. In the area where internet services are not available, fax is the most effective way of transmitting information. Fax machines are easily available in the market. A dedicated good quality telephone line is recommended. In disaster situation, fax and telephone should not share same line.

(5) **E-mail**. Email communication is increasingly replacing telephone and fax communication in emergencies. Landline telephone service and mobile phone companies have also started the internet service on the mobile phone.

(6) **Radio Technology**. Radio technology is also used in the emergency situation. In Guyana, it is mainly used by the protective services during the emergency operation. It is also used by UN agencies, IFRC and ICRC in the emergency operations. However, in Guyana other humanitarian actors are allowed restricted use. If any organization wants to use the radio technology, special permission is required to be obtained from the Frequency Management Unit. Radio technology has two great advantages for the emergency situations: it is independent of any damage caused to fixed communication system and it has the capacity to simultaneously transmit to a number of users. This is in fact very important for rapidly transmitting security information and instructions. High frequency (HF) and very high frequency (VHF) radios systems are used in Guyana.

(7) Social Media, such as Twitter/Facebook etc. in all its forms as relevant in Guyana.

8. Transportation and Delivery

8.0 National Logistics Cell. Initiation of a prompt response and delivery of relief assistance to the affected people in the aftermath of a disaster situation is largely dependent on the efficiency of logistic system.

8.0.1 Responsibilities

(a) Will prepare contingency plans and SOPs regarding its responsibilities in transportation of emergency relief supplies. Act as lead coordinator for receipt, transport and distribution of relief goods through road, air and sea/river.

(b) Plan and organize the movements of logistics from base(s) to forward location(s). In addition, liaise, coordinate and plan with all major transport companies/organizations involved in transportation of goods on behalf of GoG/CDC, to meet any eventuality. Detach a small part of contingent to be embedded with CDC as and when required.

(c) Carryout resource mapping of existing transportation capacity of Guyana's major traverse points, Private Transport/Goods Carriers and emergency air lift capability of GDF for judicious utilization in the event of a major calamity/disaster.

8.1 Air. When air transport is to be used, the national logistics cell shall liaise and coordinate availability of resources through the Guyana Civil Aviation Authority

regarding airport capacity, aircraft loading/unloading arrangements. The national logistics committee shall maintain a close liaison with respective authorities in this regard. In addition, close coordination is needed with the Customs Department about the rules and regulation for clearance of foreign aid relief goods during emergencies. CDC shall facilitate exemption of import duty/taxes on relief goods donated from abroad.

ANNEX C

ANNEX C: Sectoral Plans

- Annex C1 Health
- Annex C2 Agriculture
- Annex C3 Local Government
- Annex C4 Tourism
- Annex C5 Mining

GLOSSARY

Source: 2009 UNISDR Terminology on Disaster Risk Reduction

Acceptable risk

- The level of potential losses that a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions

Climate change

- The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: "a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use".
(b) The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as "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".

Community-based Disaster Risk Management (CBDRM)

- CBDRM has been defined as a process of disaster risk management in which at risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities. This means that the people are at the heart of decision making and implementation of disaster risk management activities. The involvement of the most vulnerable is paramount and the support of the least vulnerable is necessary. In CBDRM, local and national governments are involved and supportive"

Contingency planning

- A management process that analyses specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations.

Critical Facilities

- The primary physical structures, technical facilities and systems which are socially, economically or operationally essential to the functioning of a society or community, both in routine circumstances and in the extreme circumstances of an emergency.

Disaster:

- A serious disruption of the functioning of a community or a 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. Though often caused by nature, disasters can have human origins. Wars and civil disturbances that destroy homelands and displace people are included among the causes of disasters. Other causes can be: building collapse, blizzard, drought, epidemic, earthquake, explosion, fire, flood, hazardous material or transportation incident (such as a chemical spill), hurricane, nuclear incident, tornado, or volcano.

Disaster risk

- The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Disaster risk management:

- The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Disaster Risk Reduction (DRM)

- (DRM) is a systematic approach to identifying, assessing and reducing the risks of disaster. It aims to reduce socio-economic vulnerabilities to disaster as well as dealing with the environmental and other hazards that trigger them: en.wikipedia.org/wiki/Disaster_risk_reduction

- The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development. (UN ISDR "Living with Risk: A Global view of disaster reduction initiatives") The disaster risk reduction framework is composed of the following fields of action, as described in ISDR's publication 2002 "Living with Risk: a global review of disaster reduction initiatives", page 23:

  - Risk awareness and assessment including hazard analysis and vulnerability/capacity analysis;
  - Knowledge development including education, training, research and information;
  - Public commitment and institutional frameworks, including organisational, policy, legislation and community action;
  - Application of measures including environmental management, land-use and urban planning, protection of critical facilities, application of science and technology, partnership and networking, and financial instruments;

- Early warning systems including forecasting, dissemination of warnings, preparedness measures and reaction capacities.

Disaster risk reduction plan

- A document prepared by an authority, sector, organization or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives.

Early warning system

- The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Emergency management

- The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps.

Emergency services

- The set of specialized agencies that have specific responsibilities and objectives in serving and protecting people and property in emergency situations.

Geological hazard

- Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Hydrometeorological hazard

- Process or phenomenon of atmospheric, hydrological or oceanographic nature that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Hazard:

- A hazard is an extreme, threatening event in the natural or man-made environment that adversely affects human life, property, or activity, or the ecosystem that supports them. A primary hazard disrupts human settlements. A secondary hazard occurs in the aftermath of a primary hazard and contributes to further suffering or loss.

Hazard analysis:

- Identification, studies and monitoring of any hazard to determine its potential, origin, characteristics and behaviour.

Hazard assessment and mapping:

- Hazard assessments are studies that provide information on the probable location and severity of dangerous natural phenomena and the likelihood of their occurrence within a specific time period in a given area. These studies rely heavily on available scientific information, including geologic, geomorphic, and soil maps; climate and hydrological data; and topographic maps, aerial photographs, and satellite imagery. Historical information, both written reports and oral accounts from long-term residents, also helps characterize potential hazardous events. Ideally, a natural hazard assessment promotes an awareness of the issue among all stakeholders in an affected area, evaluates the threat of natural hazards, and describes the distribution of historical or potential hazard effects across the study area.

Mitigation:

- The lessening or limitation of the adverse impacts of hazards and related disasters. There are two types of mitigations: structural and non-structural mitigation. Structural and non-structural measures:

National Platform for Disaster Risk Reduction

- A generic term for national mechanisms for coordination and policy guidance on disaster risk reduction that are multi-sectoral and inter-disciplinary in nature, with public, private and civil society participation involving all concerned entities within a country.

Natural hazard

- Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Post-disaster measures:

- In the aftermath of a disaster, there is great pressure to repair damage quickly. However, the quality of the reconstruction and rehabilitation work that takes place during this period often determines how well the same system weathers future hazard events. Time and budget pressures and the difficulties in communication and transport in the post-disaster environment make it difficult to increase resilience during reconstruction. Putting in place pre-approved and tested reconstruction plans and procedures, with identified financing, can significantly reduce vulnerability to future hazard events, while overcoming the traditional time and budget constraints. Although reconstruction measures are a component of long-term response and recovery, they can form a critical component of a comprehensive risk reduction

program, as the recovery period provides an important window of opportunity for implementing necessary risk reduction measures.

Preparedness:

- The knowledge and capacities developed by governments, professional response and recovery organizations, communities, and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Prevention

- The outright avoidance of adverse impacts of hazards and related disasters.

Public awareness:

- The processes of informing the general population, increasing levels of consciousness about risks and how people can act to reduce their exposure to hazards. This is particularly important for public officials in fulfilling their responsibilities to save lives and property in the event of a disaster. Public awareness activities foster changes in behaviour leading towards a culture of risk reduction. This involves public information, dissemination, education, radio or television broadcasts, use of printed media, as well as, the establishment of information centres and networks and community and participation actions.

Recovery

- The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Resilience

- The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Response

- The provision of emergency services and public assistance during or immediately after a disaster in order to save lives reduces health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

Risk:

- Risk is expected loss (deaths, injuries, damage to property or ecosystem on which human life depends, and disruption of economic activity) due to a particular hazard. The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting

from interactions between natural or human-induced hazards and vulnerable conditions.

Risk assessment:

- A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend. The process of conducting a risk assessment is based on a review of both the technical features of hazards such as their location, intensity, frequency and probability; and also the analysis of the physical, social, economic and environmental dimensions of vulnerability and exposure, while taking particular account of the coping capabilities pertinent to the risk scenarios.

Risk identification:

- A thorough understanding of existing vulnerabilities, including their location and severity, is critical for the development and prioritization of investment programs and activities for hazard risk management. As the level of vulnerability can increase, or decline, with the aging of existing facilities and with new growth, determining underlying causes makes it possible to eliminate or reduce new vulnerabilities as communities, countries and the region as a whole develop. A broad range of activities contributes to the identification and understanding of natural hazard risk: hazard data collection and mapping, vulnerability assessment, risk assessment and post-disaster assessment.

Risk management:

- The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

Risk mitigation:

- Measures that attempt to *reduce* existing risk as well as measures to reduce the consequential damage and loss occasioned by a dangerous event once it occurs. Mitigation assumes that it is not feasible to avoid or control risk completely but that risk can be reduced to levels that are acceptable or feasible.

Risk Reduction:

- Risk reduction activities are designed to mitigate damage from hazard events. These activities address existing vulnerability through such measures as retrofit, strengthening and relocation. Actions taken to reduce future vulnerability, such as the implementation and enforcement of building standards, environmental protection measures, land use planning that recognizes hazard zones and resource management practices, will provide significant benefits over the long term. Risk reduction measures should lead to "safer" growth, rather than a further

accumulation of vulnerability. However, they should always complement activities to safeguard individuals and resources exposed to existing vulnerabilities. Risk reduction measures can be directed towards physical, social and environmental vulnerability.

Risk transfer:

- The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.

Stakeholder:

- Anyone who has a vested interest or impacts on disaster risk management, either negatively or positively, and can include community members, local and central government, land owners, private enterprise, NGOs, Banks, development organizations, and the media.

Structural mitigation:

- Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems.

Structural and non-structural measures

- Structural measures: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard resistance and resilience in structures or systems;
- Non-structural measures: Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education.

Technological hazard

- A hazard originating from technological or industrial conditions, including accidents, dangerous procedures, infrastructure failures or specific human activities, that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Vulnerability:

- The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.