

REPUBLIC OF RWANDA

MINISTRY OF DISASTER MANAGEMENT AND

REFUGEE AFFAIRS



**NATIONAL CONTINGENCY PLAN FOR FLOODS AND  
LANDSLIDES**

**Kigali, 2014**

## **FOREWORD**

This contingency plan covers the planned activities to be undertaken in any case of major floods and landslide with scenarios for the likely occurrence based on the Rwanda risk profile especially in prone areas. The previous rainfall forecast has revealed that most parts of the country have received normal to above rainfall between October and December, and March to May. However, it is anticipated that in the coming five years the whole country is expected to receive normal to above normal rainfall. Based on previous experience, the occurrence of above normal rainfall may precipitate the occurrence of excessive rainfall or flash floods in low lying areas and landslides in the hilly topographic areas of the country.

The Contingency Plan draws on historical data and experiences of the occurrence of disasters such as floods and landslides and comes up with planning assumptions and likely scenarios should such hazards occurred during the 2011, 2012, 2013 rain season.

The overall objective of the Contingency Plan for floods and landslides (NCP) is to support the timely, consistent and coordinated response to anticipated floods and landslides thus effectively minimizing the impact of the floods and landslides on human population, livelihoods, lifelines, properties and the environment. This will in turn help reduce the scale of humanitarian needs to the affected population. Although the emphasis of the plan is on floods and landslides, the plan has an in – built flexibility that allows it to embrace other hazards such as drought, heavy winds and lightning should they occur anywhere in the country in association with heavy rains.

The contingency plan shall be implemented at three stages i.e. before the emergency, during and after. Preparedness activities before the emergency are informed by sector response plans in. The sectors covered in the contingency plan are Human Settlement and Shelter, Health and Nutrition, Water and Sanitation, Education, Agriculture and Food Security, Public Infrastructure, Information Management and Emergency Communication. Scenario analysis and assumptions are the main determining factors responsible for the scope and depth of the contingency plan.

In order to ensure a coordinated response, guidance is provided on who should carry out rapid assessments and later on disseminate the related information. In the same vein, participation of all cooperating partners and stakeholders are maximised in the plan by encouraging them to isolate activities whose implementation they are in a position to support.

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**Minister of Disaster Management and refugee affairs**

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I thank also the members of the national platform for disaster risk reduction for their proofreading and technical validation.

I however reiterate the need of collaboration of all stakeholders as their support will also be needed in reviewing and adapting this plan when necessary but more importantly to implement it in order to mitigate floods and landslides risk, prepare and respond to and recover from effects of the mentioned disasters if they occur.

Sincerely,

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**Director of Disaster Response and Recovery Unit**  
**Ministry of Disaster Management and refugee Affairs**

## LIST OF ABBREVIATIONS/ACCRONYMS

**CP:** Contingency Plan  
**DDMCs:** District Disaster Management Committees  
**DDMOs:** District Disaster Management Officers  
**EWASA:** Energy, water and Sanitation Authority  
**JIMC:** Joint Intervention Management Committee  
**MIDIMAR:** Ministry of Disaster Management and Refugee Affairs  
**MINALOC:** Ministry of Local Government  
**MINEDUC:** Ministry of Education  
**MININFRA:** Ministry of Infrastructure  
**MINIRENA:** Ministry of Natural Resources  
**MoH:** Ministry of Health  
**NDMEC:** National Disaster Management Executive Committee  
**NDMTC:** National Disaster management Technical Committee  
**NGOs:** Non-Government Organizations  
**NPDRR:** National Platform for Disaster Risk Reduction  
**RAB:** Rwanda Agricultural Board  
**RBA:** Rwanda Broadcasting Agency  
**RDF:** Rwanda Defense Forces  
**RHA:** Rwanda Housing Authority  
**RNP:** Rwanda National Police  
**RRC:** Rwanda Red Cross  
**RTDA:** Rwanda Transport Development Agency  
**SDMCs:** Sector Disaster Management Committees  
**UN:** United Nations  
**UNDP:** United Nations Development Programme  
**WFP:** World Food Programme  
**WHO:** World Health Organization

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## INTRODUCTION

The frequency, intensity and impact of natural hazard events are growing and causing more disasters with negative impacts on humans, economy and environment. Many areas in the world are prone to one or several natural hazards. Hazard events result in disasters when risk factors such as hazard, vulnerability and inadequate capacity (coping capacities) overlaps in space and time. Avoiding or reducing the impact of disasters can be reached by reducing the Disaster risks. Consequently, focusing on Disaster Risk Reduction is an issue at stake worldwide (*UNISDR, 2005*). Natural hazards by themselves do not cause disasters. It is the combination of an exposed, vulnerable and ill prepared population or community with a hazard event that results in a disaster. Disasters undermine development achievements, impoverishing people and nations and states. In the absence of combined efforts to address root causes, disasters represent an increasingly serious obstacle to the achievement of the Millennium Development Goals.

Floods and Landslides have been amongst the major disasters in Rwanda and have had a great impact on human development, properties, infrastructures as well as environment. Floods and landslide are key disasters that frequently affect localized areas of the country (*MIDIMAR, 2001*) and most of the affected people do not have efficient mechanisms to cope with natural hazards. In addition, the hilly topography and high annual precipitation rates with overexploitation of the natural environment such as deforestation, inappropriate farming and poor housing techniques accelerate the disaster risks and hence result into losses of lives and damages to property from the community exposed to these disaster risks.

In Rwanda, most vulnerable areas prone to landslides and floods are located in the North-Western parts namely Nyabihu, Ngororero, Rubavu, and Musanze, Burera, Gakenke and many others. This situation calls upon the Ministry of Disaster Management and Refugee (*MIDIMAR*) together with other disaster management stakeholders to put in a place a contingency plan for floods and landslides all over the country since this will contribute a lot in the process of sustainable management, prevention, mitigation and response to disaster risks.

This contingency plan is developed with scenarios for the likely situation based on the risk and hazard profile and on rainfall forecasts. The rainfall forecast has revealed that most parts of the country currently receive normal to above normal rainfall between March to May and between October and December every year. The Contingency Plan also draws on historical data and experiences of the occurrence of disasters of floods and landslides as a building block for coming up with planning assumptions and likely scenarios.

The overall objective of the Rwanda National Contingency Plan for floods and landslides is to support the timely, efficient, consistent and coordinated response to anticipated floods and landslides in the rainy season, thus effectively reducing the impacts on human population,

livelihoods, lifelines, infrastructure and the environment. This will in turn help reduce the scale of humanitarian needs to the affected population.

### **1.1. Context**

Rwanda is a landlocked country situated in the Great Lakes region of East Africa. It is bordered by Uganda, Tanzania, Burundi and the Democratic Republic of Congo (DRC). It is a small country with an area of 26,338 square kilometres and a population of about 12 million people; Rwanda's population density is considered amongst the highest in Africa.

Known as "the land of a thousand hills", Rwanda is at high elevation, with a geography dominated by mountains and hills, five volcanoes, twenty-three lakes throughout the country and numerous rivers, some forming the source of the River Nile. The variety of the landscapes in this green country is dominated to the north by volcanoes and bordered by Lake Kivu to the west. Its vegetation ranges from dense equatorial forest in the north-west of the country to tropical savannah in the east. There are also high altitude forests. The altitude of Rwanda is in the ranges from 1000-4500m above sea level. The rainy seasons are from March to May and from October to November with the average of 110-200 mm per month.

The country's topography and its natural environment shape to a large extent the natural hazards to which it is prone. Natural hazards in Rwanda are categorized as: (a) hydro-meteorological, (b) geological, and (c) biological and technological. The country is vulnerable to a wide range of natural hazards such as floods, flash floods, landslides/mudslides, drought, storms, lightning, earthquake, volcanic eruption, fires and epidemics. Threats of secondary hazards such as famine resulting from long droughts also remain a potential.

### **1.2. Plan Scope and Purpose**

The Flood and landslide Contingency Plan primarily addresses the Rwanda Operational Area's planned response to floods and landslides situation affecting the County. This contingency plan establishes detailed procedures for response to areas that have flooded and slid or may be jeopardized by potential floods and landslides. The purpose of this Plan is to minimize the loss of life and properties through an organized notification and evacuation process and to provide for re-entry into areas that may have been evacuated and/or damaged.

The objectives the National Contingency Plan for floods and landslides are as follows:

- i. To improve the management and coordination of preparedness, response and recovery arrangements
- ii. To improve early warning information sharing to ensure effective mitigation and response.
- iii. To ensure timely resource mobilization and response
- iv. To reduce the risk of secondary hazards,



- v. To ascertain the sector based level of impact of floods
- vi. To ascertain the type and quantities of assistance to be required as a result of the emergency
- vii. To identify and define roles and responsibilities of all partners involved in emergency response
- viii. To utilise emergency and recovery assistance as baselines towards building long term interventions

### **1.3. Plan Authority and Activation**

The National Contingency Plan for Floods and landslides will be implemented upon the decision of the Ministry in charge of Disaster Management, the lead Ministry in charge of floods and landslides.

### **1.4. Public Access to Plan**

As a national and public document, this contingency Plan for floods and landslides and other specific disaster events contingency plans are accessible via the Ministry in charge of disaster management website ([www.midimar.gov.rw](http://www.midimar.gov.rw)), and the Ministry of Natural Resources website ([www.minirena.gov.rw](http://www.minirena.gov.rw)).

## **I. FLOOD AND LANDSLIDE VULNERABILITY AND RISK ANALYSIS IN RWANDA**

### **1.1. Floods and landslide vulnerability context**

The vulnerability of Rwanda to floods and landslides is largely due to its topographic and demographic characteristics. This is further exacerbated by the impacts of climate change such as the increasing variability in rainfall frequencies and intensity causing climatic hazards such as droughts, floods, extreme temperatures and prolonged dry spells.

According to the Baseline Information and Indicators for Rwanda, a report prepared in January 2012 commissioned by REMA, climate data for 1983 to 2005 shows a trend of declining overall rainfall, interspersed with years of excessive rainfall as well as steadily increasing average temperatures from 32.7 to 35.4 °C. More erratic climate conditions and extreme weather events such as droughts and floods are becoming more frequent and intense in the country, thereby increasing disaster risks. Socio-economic, cultural and physical vulnerabilities further aggravate disaster risks. Despite record-high growth recorded by Rwanda over the past decade, there still remains a high poverty incidence. The Third Integrated Household Living Conditions Survey report prepared by MINECOFIN and the National Institute of Statistics Rwanda (NISR) revealed that still about 45 percent of the country's 10.7 million people remain under the poverty line<sup>1</sup>. This poverty rate especially in rural areas embodies the country's socio-

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<sup>1</sup> <http://www.newtimes.co.rw/news/index.php?i=14894&a=49835>

economic vulnerability, which contributes to disaster risks when challenged by occurrence of natural hazards at an increasing frequency and intensity.

Poverty encapsulates the very core of socio-economic vulnerability of the Rwandan population with detrimental effects on the population's disaster resilience. It relegates the poorest of the poor to subsistence livelihoods, poor housing conditions, settlements built in hazard-prone areas such as steep slopes or along riverbanks and valleys, and oftentimes cause people's lack of access to social services and inadequate financial capacity to meet day-to-day living needs, and not to mention the lack of capacity to cope when disaster strikes.

Cultural factors also worsen the already grim scenarios for the most vulnerable, like for instance; families refuse to relocate to safer areas because they hold strong cultural or traditional bond with their abode or communities where they belonged, lived and cherished all their lives. Physical vulnerability is yet another key challenge in Rwanda. The EDPRS II and several other documents have emphasized that land is the 'scarcest resource' in Rwanda. Due to limited land, people tend to settle in steep slopes, saturated hillsides, flood plains or low-lying valleys which are often catch basins of water flowing from upstream. Improper and uncontrolled land use practices exacerbate physical vulnerabilities in the already rugged terrain of most parts of the country.

Growth and rapid urbanization have also overtaken Rwanda's land use planning foresight. Urban settlements in the Capital Kigali, for instance, sprouted fast that it now challenges its built-environment, land use, settlement and physical planning of the city. In the absence of a disaster risk assessments and risk profiles, infrastructures are likely to be erected without DRR considerations let alone compliance to disaster risk reduction standards (i.e. residential houses are built in areas highly vulnerable to natural hazards).

## **1.2. NATIONAL CATCHMENT BASINS/WATERSHEDS**

The main catchment basins described below are those delineated taking into account the better future management of water resources. Therefore, the country water resource is subdivided into the following nine catchment basins:

### **1.2.1. CONGO RIVER BASIN, LAKE KIVU**

It is an area of about 2,425 km<sup>2</sup> holding some control on the waters of Lake Kivu through the numerous small catchment areas that drain into the lake. A smaller partitioning for reasons of better access of stakeholders to the catchment area, would only compromise the already limited control over the catchment water resources. It extends over four districts with Sebeya River in the north in combination with the lava region from where no apparent surface drainage takes place.

The Sebeya River has a major problem with its sediment load which has evidently increased over the last decennium or so. Moreover, a series of minor catchments from Rubona (near Gisenyi) to Rwamatamu (south of Kibuye) are all quite similar in nature in the sense of erosion

control and excessive population pressure leading to inappropriate agricultural practices from the highlands down to the shores of Lake Kivu. The divide with the next downstream catchment is located at the first Rusizi Hydropower Plant (Rusizi I) which constitutes a clear separation between the lake and the Rusizi River.

#### **1.2.2. CONGO RIVER BASIN, RUSIZI RIVER: CRUS**

This 1,004.85 km<sup>2</sup> area is considered a single management unit that consists of Rusizi River on the border between Rwanda and the DRC which is exploited for hydropower, Rubyiro River which is extensively used for rice production; and Ruhwa River which originates in the Nyungwe Forest and constitutes a natural border between Rwanda and Burundi. The upper reaches of the Ruhwa River are subjected to artisanal gold mining activities with excessive erosion and likely pollution (mercury) as a consequence. The outflow of the catchment is at the confluence of the Rusizi and Ruhwa Rivers where the three nations Rwanda, DRC and Burundi share their border.

#### **1.2.3. NILE RIVER BASIN, NYABARONGO RIVER -UPSTREAM: NNYU**

This catchment covers a surface area of 3,347.57 km<sup>2</sup>. It is an elongated catchment area sloping down from south to north with three main tributaries; Mwogo River which originates in the south eastern corner of the catchment and becomes the Nyabarongo at its confluence with the Mbirurume River; Rukarara River which originates in the south west in the Nyungwe forest reserve. It features substantial potential for micro hydropower development and is claimed to be the source of the river Nile. It falls in the Mwogo River at its downstream end; Mbirurume River which also originates at high altitude near the Nyungwe forest reserve somewhat north of the source of the Rukarara River and the upper Nyabarongo River itself. The Upper Nyabarongo catchment has no dependency on any upstream catchments; hence water flow and quality are defined within the catchment itself.

The outflow of the catchment is at the confluence of the Mukungwa and Upper Nyabarongo Rivers where the Nyabarongo turns and takes a south easterly direction.

#### **1.2.4. NILE RIVER BASIN, MUKUNGWA RIVER: NMUK**

This catchment (1,887.1 km<sup>2</sup>) contains the volcanic lava region in the North-West and drains in a southerly direction. The main characteristics of the catchment are: surface water flow from the lava region these flows are important and interrelated with the groundwater flows from this same region. It is characteristic for these surface flows that they 'disappear' entirely to 'resurface' at specific locations which may even change over time; groundwater reserves from the lava region; they are known to be important but not well understood; and series of a large wetland (Rugezi marshland) draining subsequently in Lake Bulera and then into Lake Ruhondo from which outflow originates the Mukungwa. River that flows in a southern direction to its confluence with the Nyabarongo River.

The Mukungwa catchment has no dependency on any upstream catchments; hence water flow and quality are defined within the catchment itself.

The outflow of the catchment is at the confluence of the Mukangwa and Upper Nyabarongo Rivers where the Nyabarongo turns and takes a south easterly direction.

#### **1.2.5. NILE RIVER BASIN, LOWER NYABARONGO RIVER: NNYL**

This 10,532 km<sup>2</sup> catchment receives part of its resources from the Mukungwa and upper Nyabarongo rivers. Especially the latter seems to deliver a substantial sediment load due to erosion. Seasonal distribution of flows is a combined regime of both major headwater basins. This catchment receives the inflow from the upper Nyabarongo and the Mukungwa and Conveys it in a south easterly direction. The main features of the catchment are: Nyabarongo River that drains the entire western part of the catchment through a number of small and rather steep secondary valleys. The wide valley of the Nyabarongo is extensively used for agricultural production; Nyabugogo River that drains the entire eastern part of the catchment partly through the Muhazi Lake (about 800 km<sup>2</sup> catchment) which functions as a flood buffer. The Nyabugogo valley is extensively used for agricultural production throughout the year; Muhazi Lake holds important potential for tourism which is currently exploited rather timidly at some selected locations. With the policy of the 50 m protection zone around lakes (which is not consistently applied for Muhazi Lake) there is limited agricultural use of the water resource along the lake shores; major urban centre of Kigali with substantial demand for domestic and industrial water supply mainly provided through groundwater abstraction at several locations in the Nyabarongo valley.

The industrial activities and the high population density within the Kigali urban area are having an impact on surface and groundwater quality; Notwithstanding the buffer function provided by Lake Muhazi, the Nyabugogo is very prone to flooding with frequent and major problems in the vicinity of Kigali where urban expansion and natural flooding of the valley bottom are difficult to reconcile.

The outflow of the catchment is at the confluence of the Nyabarongo and Akanyaru rivers where these waters continue their downstream journey as the Akagera River.

#### **1.2.6. NILE RIVER BASIN, AKANYARU RIVER: NAKN**

This catchment takes its source high in the Nyungwe Forest in south-western Rwanda from where it follows a steep slope along the Rwanda – Burundi border in an easterly direction. Upon reaching the south central area, the Akanyaru river changes dramatically from a rather steep mountain stream into a river meandering in a very flat and wide valley and turning north along the border to enter into Rwanda about 30 km prior to its confluence with the Nyabarongo. The Akanyaru catchment has no dependency on any upstream catchments; hence water flow and

quality are defined within the catchment itself but a substantial part of this catchment is located in Burundi.

The outflow of the catchment is at its confluence with the lower Nyabarongo from where the Nyabarongo and Akanyaru continue as the Akagera River.

#### **1.2.7. NILE RIVER BASIN, UPPER AKAGERA RIVER: NAKU**

This catchment is the continuation of the Nyabarongo and Akanyaru rivers. The upper Akagera River meanders through a wide and extremely flat valley in a south easterly direction until it reaches the border between Rwanda and Burundi where it takes an easterly course until reaching the Rusumo falls. The Upper Akagera catchment has inflow from Akanyaru and Nyabarongo rivers with a substantial pollution risk from the Nyabarongo. The outflow of the catchment is at Rusumo Falls to the lower Akagera.

#### **1.2.8. NILE RIVER BASIN, LOWER AKAGERA RIVER: NAKL**

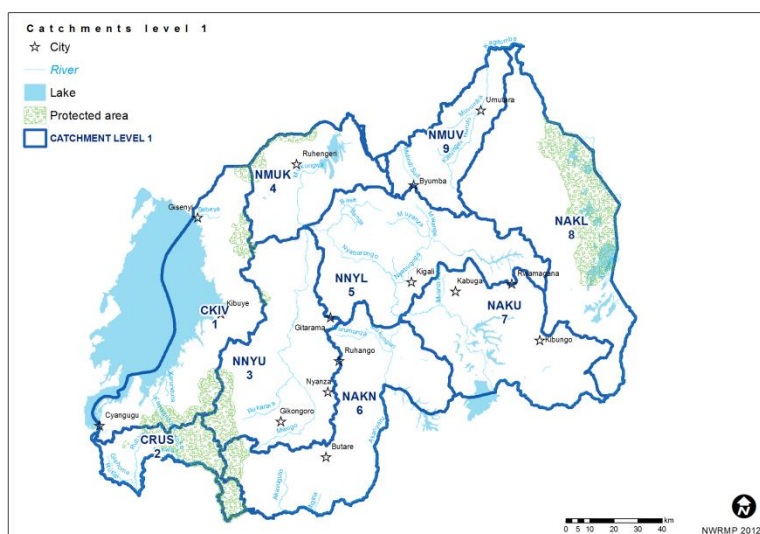
This catchment drains the flow from the Upper Akagera and the Ruvubu rivers. The Lower Akagera features the same hydro morphology of a river meandering through a wide and extremely flat valley with numerous lakes that function as buffers during extreme flow or otherwise drain into the river. The river forms the boundary between Rwanda and Tanzania for its entire course to the North from where it takes a sharp turn East towards Lake Victoria. The Lower Akagera catchment has inflow from the Upper Akagera and the Ruvubu rivers; hence pollution and flow regime modifications of these watercourses will have a direct impact on the Lower Akagera.

The outflow of the Lower Akagera is at the confluence with the Muvumba River from where the Akagera takes an easterly course in the direction of Lake Victoria.

#### **1.2.9. NILE RIVER BASIN, MUVUMBA RIVER.: NMUV**

The South Western part of this catchment is drained by the Mulindi River that drains towards the North to Kabala in Uganda where the river makes a U-turn and returns into Rwanda as the Muvumba which follows a north easterly course towards its confluence with the Akagera River. The outflow of the Muvumba / Kagitumba is at the confluence with the Akagera where it leaves the Rwanda national territory following the border between Uganda and Tanzania in an easterly direction towards Lake Victoria.

**Figure: The catchment management units proposed for the Rwanda NWRMP.**



### 1.3. Flood and landslides impacts

The impact from any flooding or landslide event will vary based upon a number of factors: source of water; location of water flow; duration/intensity of rainfall or source release; topography; presence and/or effectiveness of flood control systems; changes in land use; vegetation; etc. In any event of floods or landslides, the following are the sectors which are likely to be affected: Human settlement and shelter, Health and nutrition, water and sanitation, education, agriculture and food, infrastructure, and crosscutting issues.

#### 1.3.1. Human Settlement and Shelter

Populations living within the 5 km buffer from the main river systems and wetlands will lose their dwellings either due to high levels of water or structures collapsing due to excess rainfall. Most of the dwellings are built of poor quality building materials and are susceptible to flood and landslides damages.

#### 1.3.2. Health and Nutrition

There is injury and death associated with either people being trapped in rapidly moving waterways or caught unaware during slow rate of rise conditions or for individuals attempting to cross (in vehicles or on foot) submerged pathways. In addition, there should be public health hazards from contamination of potable water sources; damage to sanitation systems; long-term presence of standing water; vector infestation such as risk of malaria, waterborne diseases (Cholera), hygiene related diseases (Dysentery), and Acute Respiratory Infections as a result of exposure.

At last, snakes, rodents and other insects may retreat to the same dry areas as the human population, resulting in further risk of snakebites, plague and other related risks. Populations may have limited access to health facilities due to damages on road and health infrastructure. This will to a larger extent affect stocking levels of medical supplies (e.g. medicines, cold chains) and will particularly impact on important programmes. In addition, there is risk of increased malnutrition among the under five children due to lack of food for supplementary feeding

### **1.3.3. Water and Sanitation**

There is a high risk of water contamination of drinking water due to flooding of sanitation facilities such as latrines and septic tanks. Affected populations will therefore be rendered susceptible to various water borne diseases i.e. cholera, dysentery and hygiene related diseases (scabies and other skin diseases). There is also a high risk of lack of clean water for household chores such as cooking and cleaning

### **1.3.4. Education**

When floods and landslides occur and when the school calendar is just beginning or midway through the first term, there is a risk of school children missing out on a major part of the curriculum. There is also a likelihood of some pupils not being able to attend school as they may be cut off due to floodwaters and damaged infrastructure. Pupils may also be cut off as a result of the families being completely displaced due to damages to their habitations. In some instances displaced populations, including school teachers, may occupy school buildings as emergency shelter forcing temporary closure of the schools that might otherwise be on highland and not directly affected by the emergency.

### **1.3.5. Agriculture and Food Security**

Most of the food stocks for consumption are kept either in the dwellings or in grain bins that may have been submerged or damaged by rainfall, flood waters and landslides. Existing planted crops may be submerged or washed away resulting to total loss and/or decreased yield. Flooding of crop fields may cause the farmers to plant new crops. This may result into reduced yield due to loss of germ plasm of adapted traditional varieties as well as decreased soil productivity due to loss of micronutrients that would have been washed away.

In addition to direct loss of livestock in flood affected areas, there is also a risk of an increase in livestock diseases due to movement from the flood affected areas. There are at the same time positive aspect, usually when flood water recedes as there is residual matter that is deposited.

### 1.3.6. Infrastructure

Flood and landslides affect critical infrastructure and essential services through inundation, some areas becoming inaccessible due to basic support infrastructure such as boreholes, culverts, bridges, sections of roads and other transportation structures being washed away. There is also the risk of communication infrastructure either being submerged in mudslides or in water, or damaged by hailstorms. There is also a potential of disrupting electricity supply which may cause high voltage electrocution where the areas affected are near high voltage electricity carrying pylons.

### 1.4. Historic Flood and landslide Records

Over the last two decades, the frequency and intensity of natural hazard-induced disasters, particularly floods and landslides, have significantly increased (See table 1). These disasters have caused the loss of lives, the displacement of affected population as well as damage to infrastructures (roads, bridges, houses, schools, and other properties), crops and a serious environmental degradation.

Floods and landslides usually originate from heavy rainfall, which causes rapid and unpredictable surges in the flow of rivers downstream mainly in rain season (from March to June). The two predominant types of floods are: (i) localised floods caused by exceptionally heavy rains and run-offs; and (ii) widespread floods caused by overflowing rivers and their tributaries. They also cause physical damage by washing away structures, crops, animals and submerging human settlements.

Therefore, Landslide usually follows also heavy rainfall and high ground water flowing through cracked bed rock and earthquakes and lead to the movement of soil or sediment. The most vulnerable areas prone to landslides and floods include the Districts of North-western provinces such as Nyabihu, Rubavu, Musanze, Burera and Gakenke. The table below shows the districts affected by year.

**Table 1: Disasters in Rwanda for the period 2002 to 2012<sup>2</sup>**

Disaster	Date	Total Affected persons
Flood	2002	20,000
Flood	2003	7,106
Flood	2007	4,000

<sup>2</sup>EM-DAT: The OFDA/CRED International Disaster Database - [www.em-dat.net](http://www.em-dat.net)–Université Catholique de Louvain - Brussels – Belgium; corrected with MIDIMAR data.



Flood	2008	11,346
Flood	2011	3,608
Flood	2012	11,160

**Table 2: Disaster Damages caused by floods, Landslides and heavy rains (Jan –Dec 2011)**

District	Disaster type	Died	Injuries	Damaged Houses	Land (ha)
BURERA	Floods	1			
NYABIHU	Floods	1		19	86.9
NYAGATARE	Floods				65
	<b>TOTAL FLOODS</b>	<b>2</b>		<b>19</b>	<b>151.9</b>
BURERA	Landslide	7	1		
NYABIHU	Landslide	17	2	3	
RUTSIRO	Landslide	1		14	
	<b>TOTAL LANDSLIDE</b>	<b>25</b>	<b>3</b>	<b>17</b>	

Floods, climate-induced hazard is one of the top disasters which occurred in Rwanda over the past two decades and affected over 60,000 people<sup>3</sup>. This demonstrates how climate change is exacerbating disasters in the country.

**Table 3: Disaster Damages caused by floods, landslides and heavy rains by District (Jan –Dec 2012)<sup>3</sup>**

District	Disaster type	Died	Injuries	Damaged Houses	Land (ha)
NYABIHU	Floods	2		80	563
RUBAVU	Floods	4	10	516	320.5
	<b>TOTAL FLOODS</b>	<b>6</b>	<b>10</b>	<b>596</b>	<b>883.5</b>
NGORORERO	Landslide	2		19	54
NYABIHU	Landslide	5		147	305
	<b>TOTAL LANDSLIDE</b>	<b>7</b>	<b>0</b>	<b>166</b>	<b>359</b>

<sup>3</sup>See Table 1 above for the data source.

**Table 4: Disaster Damages caused by floods, landslides and heavy rains to Infrastructures and other properties by district (Jan –Dec 2013)<sup>4</sup>**

District	Disaster type	Deaths	Injuries	Damaged Houses	Land (ha)
GASABO	Floods			49	
KARONGI	Floods	5		2	
KAYONZA	Floods				
KICUKIRO	Floods			8	
MUSANZE	Floods			39	395
NYABIHU	Floods	2		35	4
NYARUGENGE	Floods	3		20	
NYARUGURU	Floods	2			
RUBAVU	Floods	3		65	
	<b>TOTAL FLOODS</b>	<b>15</b>	<b>0</b>	<b>266</b>	<b>411</b>

BURERA		2		19	
GAKENKE	Landslide	2		41	
GASABO	Landslide	2	3	47	
GICUMBI	Landslide	3		52	
KARONGI	Landslide	5		1	
KICUKIRO	Landslide			22	
NGORORERO	Landslide			4	
NYAMAGABE	Landslide			8	
NYARUGENGE	Landslide	4	4	87	
RUBAVU	Landslide	2	3		
RULINDO	Landslide	12	7	79	
RUTSIRO	Landslide	3	1	18	

<sup>4</sup>Source: Database of MIDIMAR

RUHANGO	Landslide			48	12
<b>TOTAL LANDSLIDE</b>		<b>35</b>	<b>18</b>	<b>426</b>	<b>12</b>

From January to October 2013, a cumulative total of 50 people died; 18 people injured, 692 houses destroyed; 423 ha of crops have been washed away within ten (10) months. In backward years from 2002 to 2012 for example we recorded, 57220 population affected by only flood. Therefore, among others 2002 recorded above 20,000 population affected by flood.

## II. SCENARIOS AND PLANNING ASSUMPTIONS

**Most Likely**

The effect of the 2014/2015 floods and landslides is likely to range from moderate to high in many districts of the country. Around 50 to 70% of the households residing within floods and landslides prone areas in Ngororero, Nyabihu and Rubavu Districts especially along Sebeya River will be adversely affected.

In Health sector, 146,047 people (26,008 households) are likely to be affected by floods from three out of 30 districts. It is also assumed that some of these affected persons will completely be displaced and will access health services from nearby health facilities.

In Water and Sanitation sector, 150,642 people are likely to be affected in three out of Thirty Districts. It is assumed that the 7200 persons will completely be displaced and will require temporal shelter. This entails that water and sanitation services for the displaced will be required during and after the floods and landslides episode.

In Agriculture and Food Security sector, it is anticipated that 185,000 persons in these three Districts will be in need of food relief amounting to 27,988 MT of cereals for the period of five (5) months starting from March to July 2014. These are mainly populations whose fields and general livelihood sources will be affected by floods and landslides. This also takes into consideration the aspect of rising food prices which will exacerbate the already floods and landslides impacted population residing in the urban centers identified as being at risk of floods and landslides.

In Infrastructure sector, it is assumed that all the three districts which will be affected by the 2014-2015 floods and landslides will experience infrastructure damage in one way or another. It is anticipated that flooding and landslides will cause damage to road embankments, electricity poles and drainage structures such as bridges, culverts and other river crossings respectively. The main priority will be to provide technical assistance and ensure that stop-gap measures are put in place to guarantee accessibility and swift return to normality. Priority will also be given to feeder roads which are likely to be affected and crossings leading to essential facilities such as markets, clinics and schools.

In Human Settlement and Shelter sector, it is anticipated that 7200 persons (1309 households) will be displaced and will need temporal shelter and other essential household items.

In Education sector it is anticipated that 25 schools in 3 Districts will be affected by the floods and landslides. The schools will require temporary learning facilities and materials in order to continue functioning during the period of the floods and

	<p>landslides.</p> <p>Government will facilitate relocating populations residing in perennial floods and landslides prone areas to higher grounds depending on available resources. This will involve identification of suitable sites and providing these sites with basic infrastructure such as roads, bridges, latrines, and health and education facilities. Households will be provided with the Non Food Items (NFIs) such as sleeping mattresses, blankets, mosquito nets, water containers, cooking utensils and firewood. In addition households will be provided with relief food.</p>
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The most likely emergency to befall the country are the floods and landslides which are likely to occur during the 2014/2015 rainy season. In planning for the scenarios identified in each of the sectors, risk analysis was undertaken based on historical rainfall data for past flood and landslide years (2012-2013 seasons), spatial data analysis on the main river systems, elevation information. Furthermore, current and updated sector specific data was also used. Spatial and risk analysis was done using ARCGIS 10 to develop risk maps of potential flood and landslide affected areas.

This contingency plan is developed to address floods and landslides as these are the most likely emergencies that the country will deal with during the coming rainy seasons. Floods and landslides tend to cause multiple impacts on infrastructure, Education, Health, Water and Sanitation and Agriculture.

<b>Type of Hazard/disaster</b>	<b>Floods and landslides</b>
<b>Likelihood</b>	Almost certain
<b>Magnitude</b>	High (North-Western parts of the country and the city of Kigali) Moderate ( Southern Province) Low (Eastern part of the country)
<b>Impact</b>	Medium for most locations on Infrastructure, health, food security, water and sanitation, generally on livelihoods and education
<b>Location and Geographical Area highly prone to floods and landslides</b>	Western Province (Rubavu, Nyabihu, Ngororero, Karongi, Rutsiro, Rusizi and Nyamasheke), Northern Province (Musanze, Burera, Gicumbi and Rulindo); Southern Province (Muhanga, Nyamagabe, Nyaruguru) , City of Kigali (Nyarugenge district), Eastern Province( Bugesera District)
<b>Triggers</b>	High levels of rainfall (above normal rainfall), the intensity of rainfall, rising water levels in the river basins (Nyabarongo, Mukungwa, Sebeya, Akanyaru, Nyabugogo), rate of drainage, landuse and landcover type, human activities and Water springing from the ground
<b>Time Frame</b>	January 2014 –December 2015

## **2.1. Scenario development**

Based on the spatial and risk analysis, the following was the most likely scenario to unfold should floods and landslides occur during the coming rainy seasons:

### **III. PREPAREDNESS, RESPONSE AND RECOVERY ACTIVITIES (SECTOR BY SECTOR)**

#### **3.1. Strategies, Guiding principles, Roles and Responsibilities**

##### **3.1.1. Objective**

The main objective of the National Contingency Plan for floods and landslides has been stated in the introduction of this document and is reinforced by sectors based specific objectives i.e. support the timely and coordinated response to anticipated floods and landslides in the 2014-2015 heavy rainy seasons, thus effectively minimising the impacts of the floods and landslides on human population, livelihoods, properties and the environment.

##### **3.1.2. Strategy**

Mobilize all available resources and deploy them in timely manner to flood and landslide affected areas. This will involve implementation of activities in the following areas;

###### **3.1.2.1. Capacity Building**

As part of strengthening resilience among communities and strengthening the planning ability, training on preparedness planning in selected flood and landslide prone districts will be carried out. This training will focus on risk analysis, assessment and reporting as well as response and recovery requirements.

###### **3.1.2.2. Response plan**

In terms of response, concrete sector response plans are developed stating categorically what preparatory actions need to be carried out before, during and after the emergency with built in flexibility to provide for changes in the situation. The response plans also identify gaps where Government will require external support from cooperating partners.

###### **3.1.2.3. Early Warning/Information Flow**

The Ministry of Disaster management (MIDIMAR) will work closely with Rwanda Natural Resources Authority (RNRA) and the Rwanda Meteorological Agency (RMA) among others, to

ensure that the situation is being monitored as it is unfolding. Regular bulletins preferably on weekly basis generated by RMA will be circulated as a way of sharing information as the triggers begin to show that the situation is getting worse. MIDIMAR which is a coordination mechanism will be called regularly to update the stakeholders on the situation as well as progress on disaster preparedness activities.

### **3.1.3. Guiding Principles**

Humanitarian emergency response will be guided by the principles of neutrality, humanity and impartiality. The response will do no harm and will be based on restoration of affected populations to their former lifestyle without exaggerating and getting populations used to lifestyles they cannot sustain after the emergency. As a guide therefore the government through MIDIMAR will undertake to provide as much detailed information as possible regarding the affected populations so that the correct amounts of assistance could be provided. The assistance will also be guided by the fact that this is not development work but short term assistance with possible early recovery programmes.

### **3.1.4. Management and Coordination Arrangements**

The various coordination forums will continue their coordination activities under the usual overall coordination of the Ministry of Disaster Management.

- The Government through MIDIMAR shall coordinate the implementation of the contingency plan in close collaboration with the National Disaster Management Executive Committee (NDMEC) and other partners,
- At national technical level, the national disaster management technical committee (NDMTC) shall support technically in implementing the activities spelt out in the Contingency Plan,
- Within the UN System, the United Nations Agency in charge of disaster management under the auspices of the UN Resident Coordinator will implement and coordinate the activities among the UN Agencies before, during and after the disaster. This will be done together with the National Platform for Disaster Risk Reduction members (NPDRR) which includes the Red Cross movements and both international and national Non-Governmental Organisations and MIDIMAR/UN Joint Intervention Management Committee (JIMC) chaired by the Minister of Disaster Management and Refugee Affairs and co-chaired by the representative of the United Nations in Rwanda.
- District Disaster Management committees (DDMCs) in collaboration with District Disaster Management Officers (DDMOs), Sector Disaster Management Committees (SDMCs), Disaster First Responders Teams will conduct rapid assessments and dissemination of related findings on floods and landslides. The Assessments and

dissemination should and shall be done within the framework of disaster management in Rwanda.

- The responsible Authority of incident command will be holding press briefings every week to update the general public on the floods and landslides situation as it evolves around the country as well as the measures being undertaken to address the situation.

### **3.1.5. Key Responsible Institutions in case of floods and landslides Hazards/disasters**

This contingency plan will highlight the risk status and actions to be undertaken by each of the responsible Institutions. In Disaster Management, Diplomatic Missions, the United Nations, International Government and Non-Governmental Organizations are important actors in preparing for, responding to and recovering from floods and landslides disaster. They are involved, along with the civil society, at all level of Disaster Risk Management; their implications is by definition multi-sectoral and are integrant part of the disaster management mechanism for natural and man-made hazards.

#### **3.1.5.1. Roles and Responsibilities**

The overall responsibility of coordination shall be with the MIDIMAR in general. The District and Sector Disaster Management Committees shall be the local coordination and implementation bodies. There shall be no independent activities carried out by any organization outside or without the knowledge of the named coordination and implementation bodies.

The National Disaster Management Policy of 2012 places the responsibility of disaster management on the “shoulders” of each one of concerned institutions, including the Disaster floods and landslides victims themselves. It is with this in mind that all cooperating partners such as the UN agencies, donors, non-governmental organisations both local and international are called upon to provide assistance during the emergency of contingency plan.



INSTITUTION	ROLES AND RESPONSIBILITIES	CONTACT
Ministry of Disaster Management (MIDIMAR)	<ul style="list-style-type: none"> <li>✓ The major responsibility of the Ministry of Disaster Management will be to coordinate the humanitarian response to ensure that there are no duplications for effective humanitarian response.</li> <li>✓ The other main responsibility of the Ministry of Disaster Management and Refugee Affairs (MIDIMAR) will be to receive information, processing it and disseminating it to the stakeholders through the various channels</li> <li>✓ The MIDIMAR will be responsible for organizing periodic briefings for stakeholders, raising community awareness,</li> <li>✓ The MIDIMAR will also be responsible for the mobilization of initial supplies and logistics to enable the cooperating partners come on board in responding to the floods and landslides emergencies</li> <li>✓ Put in place all necessary actions required to prepare, respond and recover to a hazard;</li> <li>✓ Ensure that involved public institutions receive relevant information (including early warnings) to efficiently prepare, respond and recover from floods and landslides,</li> <li>✓ Update and activate contingency plan for flood and landslide</li> </ul>	<p>Philippe HABINSHUTI</p> <p>Director of Disaster Management and Program Coordination Unit</p> <p>Phone: +250788554124</p> <p>Email: nerinshuti@yahoo.com</p>
Ministry of Natural	<ul style="list-style-type: none"> <li>✓ Develop a comprehensive risk analysis for floods and landslides</li> <li>✓ Identify and map floods and landslides hazards,</li> </ul>	Deputy Director General for

INSTITUTION	ROLES AND RESPONSIBILITIES	CONTACT
Resources (MINIRENA)	<ul style="list-style-type: none"> <li>✓ Conduct vulnerability analysis and a capacity assessment for floods and landslides;</li> <li>✓ Put in place all necessary actions required to prepare, respond and recover to a hazard,</li> <li>✓ Work with all relevant public institutions to ensure that they are well prepared to respond a disaster linked with a specific hazard including by continuing to operate;</li> <li>✓ Allocate sufficient resources to achieve these goals</li> <li>✓ to assess, monitor and disseminate information related to a specific hazard</li> <li>✓ Ensure that Rwanda is well equipped to prepare, respond and recover from floods and landslides</li> <li>✓ Gazette flood basins,</li> </ul>	<p>Integrated Water Resources Management:</p> <p>Kabalisa Vincent de Paul</p> <p>Tel: +250785545307</p>
National disaster Management Technical Committee (NDMEC and NDMTTC)	<ul style="list-style-type: none"> <li>✓ The various Ministries have the primary responsibility of providing goods and services to the citizens with the emergency</li> <li>✓ The various ministries will therefore be required to intervene in the implementation of sector specific activities related to the prevention, mitigation, humanitarian response and emergency in case of floods and landslides</li> <li>✓ The NDMEC/NDMTTC will take responsibility in collaborating with the Ministry of Disaster Management and Refugee Affairs to monitor, assess, respond and report on risk levels and actions being taken to minimize adverse effects of floods and landslides,</li> </ul>	<p>Floods and Landslides response management team (list in annexes)</p>

INSTITUTION	ROLES AND RESPONSIBILITIES	CONTACT
National Platform for Disaster Risk Reduction (NPDRR)	<p>The United Nations and NGOs have responsibilities as the donor of last resort to ensure that they use all mechanisms such as flash appeals, consolidates appeals to mobilize resources for the emergency. It shall be expected that the UN agencies and NGOs will use their cluster approach as a mechanism around which response to humanitarian response will be organized. The UN and NGOs on a case by cases basis will activate the clusters to ensure that all resources required are mobilized using their international networks.</p> <p>The NGOs are implementing partners. Their major responsibility will be the last mile delivery of humanitarian assistance. They will also be responsible for mobilizing resources in collaboration with the cluster leads. The NGOs shall be responsible for coordinating the NGO forum.</p> <p>The private sector through its corporate social responsibility and as good corporate citizens, the private sector will be expected to contribute to the humanitarian response in every way possible. It will be expected that as per tradition, the private sector will come to the aid of Government as part of</p>	NPDRR (annexed) JIMC Liaison officer

INSTITUTION	ROLES AND RESPONSIBILITIES	CONTACT
	their responsibility to the citizens of this country.	
District and Sector Disaster Management Committees, First Responders Teams	<ul style="list-style-type: none"> <li>✓ Conduct Prompt assessment in case of floods and landslides incidents</li> <li>✓ Disseminate relevant information and assessment findings to relevant and concerned entities</li> <li>✓ Provide quick assistance and first aid to affected people,</li> <li>✓ Assist in search and rescue operations</li> <li>✓ Raise community disaster awareness and be involved in Early Warning systems for floods and landslides</li> </ul>	District Mayors

### 3.1.6. RAPID ASSESSMENTS AND DISSEMINATION OF INFORMATION

Rapid assessments and dissemination of related findings should and shall be done within the framework of disaster management in Rwanda in conjunction with the, District Disaster management Committees (DDMCs) under the overall coordination of the Ministry of Disaster Management.

In this regard, the Government of the Republic of Rwanda will not take kindly to individual organisations that may choose to unilaterally carry out assessments and later on disseminate their findings without Government clearance.

In order to minimise information gaps between different stakeholders during an emergency situation, the Government through Permanent Secretary or Disaster Management and Programme Coordination Directorate will be holding press briefings every week on Monday at 19 hours to update the general public on the floods and landslides situation as it evolves around the country as well as the measures being undertaken to address the situation.

### 3.2. ACTIVITIES BEFORE, DURING AND AFTER EMERGENCY

#### 3.2.1. Road Infrastructure Sector

**Table: Activities To be Undertaken Before An Emergency**

No.	Activities	Facilitator	Supported by	By when
1	Sensitization of the three District	RTDA/MININFRA	MIDIMAR	Immediate
2	Development of an early warning system for potential failures of culverts and Bridges through a Bridge management system	RTDA/MININFRA	MIDIMAR	Immediate
3	Preventive/routine maintenance on rural, feeder and district roads	RTDA/MININFRA	MIDIMAR	Immediate/on-going
4	Clearing and desalting of waterways and drainages structures	DDMCs/DISTRICTS	MINALOC	Immediate/on-going
5	Replacement and maintenance of Guardrails on flood prone crossings	RTDA/MININFRA DDMCS/DISTRICTS	MIDIMAR MINALOC	Immediate

6	Assessment and monitoring of conditions of bridges and road service levels through Bridge and road conditional surveys.	RTDA/MININFRA	MIDIMAR	Immediate/On-going
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**Table: Activities to be undertaken During an emergency**

No	Activities	Facilitator	Supported by	By when
1	Monitor performance of prone crossings and effect of water levels	RTDA/MININFRA, Eng. regiment/RDF	MINIRENA MIDIMAR	Immediate/On-going
2	Provide expertise to assess damage	RTDA/MININFRA	MIDIMAR	Immediate/On-going
3	Provide Guidance on how to remedy damage	RTDA/MININFRA	MIDIMAR	Immediate/On-going
4	Provide temporary crossings and access routes	RTDA/ Eng. regiment/RDF	MIDIMAR MINADEF	Immediate/On-going
5	Provide information through warning signs	RTDA	RTDA/RMA/MININFRA	Immediate/On-going
6	Provide information on alternative routes	RTDA/ DISTRICTS	RTDA/MININFRA/Eng regiment	Immediate/On-going

**Table: Activities to be undertaken after an emergency**

No.	Activities	Facilitator	Supported by	By when
1	In-depth assessment of flood and landslides impact on road infrastructure and crossings	RTDA/MININFRA/Eng. Regiment	MIDIMAR	Immediate after the disaster
2	Review of performance of various structures after Floods and landslides	RTDA/MININFRA/ Eng. Regiment	MIDIMAR	Immediate after the disaster
3	Identification of remedial needs and intervention methods for damaged infrastructure	RTDA/MININFRA /Eng. Regiment	MIDIMAR	Immediate after the disaster
4	Prioritization of damaged road infrastructure/bridges	RTDA/MININFRA/ Eng. Regiment	MIDIMAR	Immediate after the disaster
5	Generate Cost estimates and	RTDA/MININFRA/ Eng.	MIDIMAR	Immediate

	mobilize resources	Regiment		after the disaster
6	Planning and implementation of recovery Phase	RTDA/MININFRA Eng./ Regiment	MIDIMAR	Immediate after the disaster
7	Monitoring and Evaluation of recovery phase	RTDA/MININFRA MIDIMAR Eng. /regiment	MIDIMAR	Immediate after the disaster

### 3.2.2. Human Settlement and Shelter Sector

**Table: Activities to be undertaken before an Emergency**

No.	Major Activities	Main actor	Supported by	By when
1.	Sensitization of DDMCs	MIDIMAR	DDMCS/DISTRICTS	Immediate
2.	Site selection and planning	MIDIMAR/ /Districts	RRC, JIMC	January, 2015
3.	Assessment to know what resources are available and where	MIDIMAR	RRC, UNICEF;	July, 2014
4.	Identify implementing partners: tentative allocation of responsibilities is agreed	MIDIMAR	UNDP/JIMC	Immediate
5.	Propositioning of supplies	MIDIMAR	Red Cross	January 2014
6.	Training on Site planning and management	MIDIMAR	RED CROSS,	Dec, 2013
7	Periodic review of the sector response plan to update it based on the changes in the scenarios and the planning assumptions	MIDIMAR	RED CROSS	Every 2 months
8	Defining criteria for shelter needs identification and family/household' items distribution	MIDIMAR	RED-CROSS,	Immediate

**Table: Activities to be undertaken during an Emergency**

No.	Activities	Main Actor	Supported by	By when
1	Assess household needs and resources. Establish numbers requiring assistance and groups with special needs	RHA/MININFRA	DDMCS/DISTRICTS RED-CROSS; UNHCR	Immediate
2	Decide on household items required for families and individuals	RHA/MININFRA	MIDIMAR, DDMCS/DISTRICTS,	Immediate
3.	Provision of household items	NGOs, , UNICEF,RRC	DDMCS, NGOs	Immediate
4.	Site management	MIDIMAR	DDMCS, NGOs	



**Table: Activities to be undertaken after the emergency**

<b>No.</b>	<b>Activities</b>	<b>Main Actor</b>	<b>Supported by</b>	<b>By when</b>
1.	In-depth assessment	DISTRICTS	MIDIMAR; NGOs/RRC	After 2 month
2.	Identification of resettlement area	MIDIMAR	DISTRICTS, NGOs	After 2 months
3.	Mobilise resources for resettlement	MIDIMAR	DISTRICTS, NGOs	After 2 months
4.	Road Infrastructure development in the newly established settlements	RTDA/MININF RA	MIDIMAR	After 2 months
5.	Evaluation of the implementation of the resettlement plan	MIDIMAR	DISTRICTS, NGOs	<b><i>After 6 months</i></b>

### 3.2.3. Health and Nutrition

The overall goal is to provide health care to the affected population in order to prevent and reduce excess mortality and morbidity due to floods/drought; and promote a sustainable healthy life.

**Table: Activities to be undertaken before an Emergency**

No.	Activity	Main Actor	Supported by	By When
1.	Conduct a drug and inventory and identify gaps	MoH	WHO, NGOs	Nov, 2014
2.	Strengthen NEPPC&MC,DMMU coordination and communication	MIDIMAR/MoH	Collaborating Partners	Dec, 2014
3.	Improve the information management to capture data from the districts	MoH	Collaborating partners	Nov,2014
4.	Preposition drug requirements	MoH	WHO/UNICEF	Nov, 2014
5.	Community sensitization on personal hygiene, safe drinking water,	MoH	UNICEF, WHO	Ongoing
6.	Map out inaccessible areas in the districts	MoH	DDMCs, MINEDUC, NGOs	Nov-Dec 2014
7.	Environmental Manipulation to prevent outbreaks	REMA, District	NGO's	Nov 2014 continuous

**Table: Activities to be undertaken During an Emergency**

No.	Activity	Main Actor	Supported by	By When
1.	Inform about disease outbreaks	MoH	WHO, UNICEF, NGOs	24 hrs
2.	Conduct assessment and report back to districts-national level on medical requirements	MIDIMAR /MoH	NGOs, WHO, UNICEF	72 hrs
3.	Mobilize resources (drugs, water, medical supplies etc)	MIDIMAR/ MoH	WHO, UNICEF, NGOs, USAID	1 week

4.	Coordinate the distribution of drugs and medical supplies	MoH	UNICEF, NGOs, USAID	1 week
5	Mobilize medical teams	MoH	DDMCs, NGOs, WHO, UNICEF	Dec, 2014

**Table: Activities to be undertaken after an Emergency**

No.	Activity	Main Actor	Supported by	By When
1	Support integrated disease surveillance and reporting, especially measles and polio surveillance.	MoH	WHO, UNICEF, NGOs,	April - Dec,2014
2	Health education to communities (on good hygiene practice, waste disposal, etc).	MoH	WHO, UNICEF, NGOs	Throughout the year
3	Technical supervision and support visits	MoH	WHO, UNICEF, NGOs, USAID	Dec-June,2015
4	Support sustained delivery of essential health services such as immunization, child growth monitoring, maternity, HIV/AIDS, TB including through outreach where appropriate.	MoH	MoH, Collaborating partners, NGOs	Dec ,2013 –June, 2015
5	Support the provision and distribution of essential drugs, vaccines and supplies including mosquito nets.	MoH	MoH, WHO, UNICEF Collaborating partners, NGOs	Dec –Jan 09

### 3.2.4. Water and Sanitation

The overall objective of the sector response plan is to reduce mortality and morbidity cases due to WASH-related diseases triggered by the envisaged floods in Rwanda through the provision of safe water and sanitation services to the affected population.

**Table: Activities to be undertaken before the emergency**

Pre-positioning of WASH emergency preparedness and response supplies including chlorine and/or water purification tablets in the disaster/flood prone districts before the emergency starts.

No	Activities	Coordinating Agency	Lead Agency	Supported by
1.	Repair of machinery and equipment including vehicles, generators, measurement instruments etc	MIDIMAR	EWSA	
2.	Pre-positioning of bowsers and or bladders	MIDIMAR	EWSA	NGOs
3	Pre-positioning of the dewatering pumps for pumping water from depressions	MIDIMAR	EWSA	NGOs
4	Assessment of water resources (including flood forecasting) and estimate of people and other assets likely to be affected	MIDIMAR	RNRA	CSO, NGOs
5.	Pre-positioning of water treatment chemicals and field water testing kits	MIDIMAR	EWSA	MoH, UN Agencies, NGOs
6.	Establishing WASH Sector/cluster information management system and updating of the who-what-where components	MIDIMAR	EWSA	UN Agencies, NGOs

**Table: Activities to be undertaken during the Emergency**

During the emergency, efforts will be done to restore access to safe water supply and sanitation in communities, health centers and schools. This will be done through repair/rehabilitation of water sources, water bladders and supply of jerry cans to needy

populations for safe transportation from water distribution points and other sources and storage of drinking water at home, health centers and schools.

No	Activities	Coordinating Agency	Lead Agency	Supported by
1.	Inter Sector/Cluster Assessments of the WASH situation carried out (both rapid and comprehensive)	<i>MIDIMAR</i>	EWSA	UN Agencies, NGOs
2.	Water supply using bowsers and bladders or emergency tanks	<i>MIDIMAR</i>	EWSA	
3.	Construction and repair/rehabilitation of water supply points (e.g., boreholes, shallow wells, etc)	<i>MIDIMAR</i>	EWSA	UN Agencies, NGOs
4.	Health and hygiene education campaigns to the affected populations	<i>MIDMAR</i>	EWSA	MoH, UN system, NGOs
5.	Construction and repair/rehabilitation of sanitation facilities in affected areas	MIDIMAR	EWSA	MoH, UN Agencies, NGOs
6.	Pumping out water in settlements that are flooded	<i>MIDIMAR</i>	EWSA	NGOs
7.	Water testing, distribution and application of chemicals for water treatment (at water sources, health centers, schools, household, etc)	<i>MIDIMAR</i>	EWSA	MOH, CSO, UN Agencies, NGOs

**Table: Activities to be undertaken after the Emergency**

The WASH Sector/cluster will support the restoration of access to water and sanitation facilities in affected communities, including schools (construction and rehabilitation of latrines, wells, pumps, hand washing stands and storage facilities). This will include the provision of support in order to prepare community and institutional level action plans for restoration of WASH services.

No	Activities	Coordinating Institution	Lead Agency	Supported by
1.	Construction and repair/rehabilitation of water points including boreholes and shallow	MIDIMAR	EWSA	MoH, UN Agencies, NGOs

No	Activities	Coordinating Institution	Lead Agency	Supported by
	wells in affected areas			
2.	Construction and repair/ rehabilitation of sanitation facilities in affected areas	MININFRA	EWSA	MoH, UN Agencies, NGOs
3.	Assessment of water resources and water supply and sanitation services	MININFRA	EWSA	MIDMAR, MINIRENA
4.	Expansion/rehabilitation of water and sewage treatment works	MININFRA	EWSA	MoH
5.	Provision of support in order to prepare community and institutional level action plans for restoration of WASH services	MININFRA	EWSA	MIDIMAR, UN Agencies, NGOs
6.	Improve the drainage systems and long-term solid waste disposal mechanisms	MININFRA	Districts	CONTRACTORS
7.	Monitoring and evaluation of the sector response plan	MIDIMAR	MIDIMAR	EWSA

## Education

The overall objective is to provide compliant shelter and limited facilities to aid the school to function during the period of the floods.

**Table: Activities to be undertaken before an emergency**

No.	Activities	Main Actor	Supported	By When
1	Form committees and appoint focal point officers at all levels to lead	MINEDUC	MIDIMAR	Immediate
2	Sensitization of DDMCs	MINEDUC	UNICEF	Immediate
2	Make agreements with other partners about roles and coordination of areas of emergency response	MINEDUC	UNICEF	Immediate
2	Site selection and planning	MINEDUC	DDMCs	January , 2015
3	Identify implementation partners	MINEDUC	UNICEF	Immediate
4	Procurement/preposition of supplies	MINEDUC	UNICEF	January, 2015

5	Defining criteria for shelter needs	MINEDUC	UNICEF,	Immediate
6	Training on site planning and management	MINEDUC	UNICEF	January, 2015

**Table: Activities to be undertaken during an emergency**

No.	Activities	Main Actor	Supported	By When
1	Carryout rapid assessment to determine the immediate needs	MOE	DDMC	January 2009
2	Identification of actual schools affected	MOE	DDMC	Late January 2009
3	Assess the needs and design solution	MOE	UNICEF, WVI,WFP Catholic secretariat	January 2009
4	Provide necessary equipment and materials to construct temporally shelters	MOE	UNICEF, WVI,WFP Catholic secretariat	January & February 2009
5	Shift the affected schools to identified safe sites	MOE	DDMC	January & February 2009
5	Provide safe water and temporally latrines, Provide chlorine	MOE	UNICEF, WVI,WFP Catholic Secretariat	January & February 2009
6	Provide school in a box and recreational kits	MOE	UNICEF	January & February 2009
7	Construct temporally classrooms and latrines	MOE	DDMC	January & February 2009
8	Assess how the plan is working and make necessary changes to improve the situation	MOE	UNICEF, WVI,WFP Catholic secretariat	February & March
9	Periodical monitoring to review situation on the ground to make corrections if need be.	MOE	UNICEF, WVI,WFP Catholic secretariat	March

**Table: Activities to be undertaken after an emergency**

No.	Activities	Main Actor	Supported	By When
1	Demobilize and shift school back	MINEDUC	MIDIMAR	April/May

	to original place			
2	In-depth assessment	MINEDUC	UNICEF	May
3	Evaluation of the implementation plan.	MINEDUC	UNICEF	May 2014
4	Carryout rehabilitation works on all school infrastructure damaged by floods.	MINEDUC	UNICEF	May 2014

### 3.2.5. Agriculture and Food Security Sector

The overall objective will be to provide awareness on flood and landslide mitigation measures to populations likely to be affected by floods in the country so as to reduce the impact on food security.

**Table: Activities to be undertaken before the floods and landslides**

No	Activity	Coordination	Supported by whom	When
1	Implementing partner identification and Coordination and defining of roles	MIDIMAR	MACO/FAO	October
2	Farmer sensitization on flood mitigation measures involving crop/variety selection and conservation farming	MINAGRI	MIDIMAR	Before onset of the rains
3	Crop monitoring	MINAGRI	MACO	After planting
5	Identification of seed and other input sources	MINAGRI	MACO/FAO	October/November
6	Surveillance of transmittable livestock diseases	MINAGRIO	RAB, MIDIMAR	Year round

**Table: Activities to be undertaken before and during the floods**

No	Activity	Coordination	Supported by whom	When
1	<b>Mobilise resources and partners to avail food for victims</b>	<b>MIDIMAR</b>	<b>WFP</b>	<b>immediate</b>
2	Provide food to affected population(rice, maize and kawunga	MIDIMAR	WFP	immediate



**Table: Activities to be undertaken After the Emergency**

No	Activities	Coordination	Supported by whom	When
1	Rapid Food and landslides Security Needs assessment and area mapping	MIDIMAR		After floods have receded
2	Relief food operations	MIDIMAR	WFP/NGOs	After floods
	Beneficiary identification and selection	MIDIMAR	NGOs/WFP	After floods have receded
4	Support to conservation Agriculture for 12,000 HHs to enable cultivation of 0.25 Ha/HH	MINAGRI/RAB	FAO/NGOs	April,2014
5	Inputs distribution	MIDIMAR	NGOs/WFP	April,2014
6	Survey of suspected livestock disease outbreaks and mapping	MINAGRI/RAB	MIDIMAR	After the floods have receded
7	Awareness creation among livestock owners on disease prevention and control measures in affected districts	MINAGRI/RAB	MIDMAR	After survey
8	Procurement of vaccines and antibiotics for 50,000 cattle in 3 districts	MINAGRI/RAB	FAO/MACO	After Diagnostic survey
9	Livestock vaccinations and treatment for cattle	MINAGRI/RAB	MACO	After survey

### **3.2.6. Information Management and Emergency Communications**

The overall objective will be to provide an efficient and effective information management and emergency communication mechanism for response.

#### **3.2.6.1. Specific objectives**

- To determine the level of preparedness of communications authorities and service providers through awareness activities on the impending floods to occur in 2014/15 season.
- To determine the preparedness levels of the Government Ministries, NGOs both local and international as well as UN agencies on the impending floods for the 2014/15 season.

- To ensure the timely acquisition of appropriate communication equipment and expertise to improve the communication coordination during the floods.
- To co-ordinate the provisions of communication operability such as the licensing, frequency allocation and the transportation where necessary of equipment for use by direct stakeholders during the period of the floods where necessary.
- To disseminate timely and appropriate information to the affected populations via the print, voice and electronic media to create awareness of the Floods.
- To ensure timely and credible information flow to MIDIMAR from the affected districts for decision making by the relevant authorities and ministries.

Emergency communications infrastructure shall be installed as need arises and capacity built among stakeholders. Information shall flow from the districts to the national level as well as among stakeholders at the same levels.

In order to achieve this, national radio and TV stations will be involved. At local level, community radio stations will be used. Traditional methods of information dissemination shall not be ignored.

### 3.2.6.2. Implementing Organisations

- MIDIMAR
- WFP
- Rwanda Broadcasting Agency

**Table: Activities to be undertaken Before an Emergency**

No.	Activities	Main Actor	Supported By	By When
1	Informing of service providers, authorities, NGO's etc to ensure adequate preparation and maintenance of their communications equipment in the event of floods.	MIDIMAR	RBA, Media	Immediate
2	Acquisition of Equipment necessary for adequate communications during the floods.	MIDIMAR	RBA, Media	By 30 <sup>th</sup> November 2014
3	Co-ordination of communication strategies and	MIDIMAR	RBA, Media	By 30 <sup>th</sup> Oct, 2014

	Equipment, Frequencies, Licensing, Request for RBGans From ITU for 5 month period.			
4	Floods awareness campaign	MIDIMAR	RBA, Community Radio station	Immediate
5	Development of data matrix by sector	MIDMAR/U NDP	NGOs, Line Ministries, UN	Immediate
6	Development of emergency database and maps	MIDIMAR	NGOs, Line Ministries	Immediate
7	Installation of Emergency Communications in affected areas	MIDMAR	MTN,TIGO, AITEL,RBA, Community redios	By 30 <sup>th</sup> November 2014

**Table: Activities to be undertaken During the Emergency**

No.	Activities	Main Actor	Supported By	By When
1	Installation of Emergency Communications in affected areas	MIDIMAR	UN, MTN, TIGO, AIRTEL	By December 2014
2	Floods awareness campaign	MIDIMAR	RBA, Community Radio station	Immediate
3	Data Entry into data matrix by sector	MIDIMAR	NGOs, Line Ministries, UN	Immediate
4	Request for Information Management support from the UN	MIDIMAR	NGOs, Line Ministries, UN	By November 2014

**Table: Activities to be undertaken After the Emergency**

No.	Activities	Main Actor	Supported By	By When
	Review of Telecommunications and Information Management Activities	MIDIMAR	NGOs, Line Ministries, UN	By April 2015

### 3.3. Resources

#### 3.3.1. Required Resources

The following table summarises resources required for emergency management

No	Sector	Resources Required (RWF)
1	Road Infrastructure	3,000,000,000.00
2	Human Settlement and Shelter (6months)/Nkamira and Mudende	72,000,000
3	Health and Nutrition(6months)/7200	100,000,000
4	Water and Sanitation(Nkamira and Mudende infrastructures)	7,000,000
5	Education	25,000,000
6	Agriculture and Food Security/27,988 MT	6,466,200,000
7	Information Management and Emergency Communication	30,450,000
8	Logistics	3,315,884,800
	<b>Total</b>	<b>13,016,534,800.00</b>

### 3.3.2. Resource Mobilisation

As per the National Disaster Management Policy of 2012, Disaster Management is the responsibility of everyone. It is line with this that we expect all players ranging from Government Agencies, cooperating partners, the UN System, the Private Sector, Non-governmental organisations (Local and International) and those that are community based to be fully involved in the mobilisation of the required resources to implement the contingency plan:

- Cooperating partners are encouraged to indicate to Government through Disaster Management and Programme Coordination – Ministry of Disaster Management (MIDMAR) their intention/pledge to donate relief supplies well in advance in order to enable Government follow up on the matter and plan well the utilisation of such resources.
- The pledge above should contain information relating to the target sector, and the value (financial or otherwise) bearing in mind that we are already in an emergency phase of our contingency plan.

### 3.4. Notification procedures

Emergency response agencies will use all means available to notify the public within and adjacent to their jurisdictions. Notification methods include activation of the Emergency Alert System, activation of the “reverse calling” or Telephone Emergency Notification System, personal contact by responding agencies, and local broadcast media.

### 3.5. Evacuation procedures

Should the local government through Mayor of Districts (Rubavu, Nyabihu and Ngororero)

order an evacuation of persons from areas affected by flood and landslide in collaboration with Army and Police in the region,

Operational Area (OA) response agencies shall coordinate their operations through the OA Emergency Operations plan adapted to this contingency plan. All evacuation-related actions will be in accordance with those procedures and activities set in this contingency plan

### **3.6. Search and rescue procedures**

All search and rescue operations shall be in accordance with the standard operating procedures of the agency involved. All search and rescue operations shall be coordinated with engineering regiment to ensure any required additional resource assignments are prioritized and based on need.

### **3.7. Damage assessment procedures**

All initial damage assessment operations shall be conducted by the agency responsible for field notifications (DDMC, SDMC, First Responders Team) for those areas. Initial assessment results shall be immediately communicated to the MIDIMAR for accounting and for response prioritization planning.

Annex1: Floods and Landslides incident management chart

