EAST AFRICAN COMMUNITY

DISASTER RISK REDUCTION AND MANAGEMENT STRATEGY

(2012 – 2016)

FINAL DRAFT

EAC SECRETARIAT

ARUSHA, TANZANIA

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Executive Summary

The Partner States of East African Community (EAC) are prone to natural hazards such as floods, droughts, landslides, earthquakes, lightning, as well as human-induced disasters of conflicts, urban fires, and environmental degradation among others. Drought is the most common hazard both globally and also at the EAC sub-region. With increased frequency and intensity of extreme climate and severe weather events, the impacts of disasters will continue to retard developmental activities as resources for development are diverted to finance disaster emergencies. Thus, disaster risks have negative impacts on the security of lives and economies of our Partner States.

A look at the existing Disaster Risk Management mechanisms at the EAC sub-region reveals that, there are inadequate resources and capacities set aside to effectively prevent, prepare and respond to disasters neither at the country level nor at the sub-regional level. However, all the Partner State has got some disaster management mechanisms and institutions at various levels of capacities but mostly focusing on disaster response other than Disaster Risk Reduction. The knowledge and comprehension of disasters to the general public is still low thus making it difficult to prevent and reduce severe consequences of disasters to the community.

Many countries and communities have realized the need to move from reactive (response actions) disaster risk management which has been based on emergency and crisis management to a proactive (Prevention actions) which is based on analysis of vulnerability, risk evaluations, and situational assessments with a view to mitigate disasters impacts before disaster occurs. This paradigm shift calls for effective application of early warning systems, effective communication and knowledge sharing in order to increase the resilience of the communities.

The EAC Partner States shares many terrestrial and aquatic trans-boundary systems and ecosystems which call for a concerted effort to protect and conserve in view of the increasing environmental disasters. The key vulnerability elements of climate change impacts, population growth, food insecurity, and dwindling resources will need to been addressed via the DRR approach across the region. The EAC Secretariat being cognizant of this need initiated the development of a regional Disaster Risk Reduction and Management to comprehensively address the aforesaid issues and propose joint interventions to reduce or significantly arrest disaster trends in the region.

The EAC DRRM Strategy has been compiled through the First Task Force Meeting held in Bujumbura, Burundi in June 2012, the National Consultative Meetings in all of the Partner States in August 2012, the Second Task Force Meeting held in Arusha, Tanzania in August 2012, and the Validation Stakeholder Meeting in Arusha, Tanzania in October 2012.

This Strategy is presented four chapters: Chapter 1 provides the background and overview of the Strategy. Chapter 2 explains the review of DRRM practice and capacities in the EAC Partner States including the applicable experience and lesson learned. Chapter 3 covers the vision, mission, objective, principles, strategies and associated strategic actions for the DRRM of the EAC Sub-Region. Chapter 4 proposes the implementation mechanism and the implementation plan. Finally, the strategy proposes areas of joint projects to first track the implementation of this strategy. We thank the Japanese Government through JICA for this support.

The Vision, Mission, Objectives and the Guiding Principles

Vision:

To be a region of resilient communities in which Natural and human Induced hazards do not negatively impact on Socio-economic Development.

Mission:

To facilitate sustainable integration of Disaster Risk Reduction and Management practices into development plans and strategies of EAC Partner States.

Objectives:

- *To provide framework for collaboration and partnership for the EAC Partner States in Disaster Risk Reduction and Management;and*

- *To facilitate and strengthen the Disaster Risk Reduction and Management activities of the EAC Partner States in line with the Hyogo Framework for Action (HFA) 2005-2015, the Africa Regional Strategy for Disaster Risk Reduction and those successor documents.*

Guiding Principles:

- *The EAC DRRM Strategy will focus on addressing both natural hazards and human induced disasters;*

- *The DRRM is not stand-alone sector or programme and the DRRM process is required to coordinate and collaborate with the other development sectors. The EAC DRRM Strategy will focus on effective DRRM activities through mainstreaming the DRRM in the development issues.*

- *The EAC Partner States has limitations of financial resources for the DRRM activities. The EAC will promote the research activities for indigenous knowledge within the community and low cost measures in order to adopt and cope with disasters.*

- *Individual EAC Partner State has limitations of resources for coping with the cross-border issues and large scale disasters by oneself. The EAC DRRM Strategy will provide formulation of the cross-border cooperation/collaboration mechanism among the Partner States.*

- *DRRM has implications for many sectors of the economy and society, meeting the challenge of the DRRM cannot be solely a Partner States Government's initiative. The EAC will pursue a collaborative approach by all relevant stakeholders including the Partner States governments, inter-governmental organizations, communities, the private sector, non-governmental organizations and development partners.*

Acronyms and Abbreviations

AfDB	African Development Bank
AU	African Union
CBOs	Community Based Organizations
CFR	Case Fatality Rate: CFR
CSOs	Civil Society Organizations
DRC	Democratic Republic of Congo
DRR	Disaster Risk Reduction
DRM	Disaster Risk Management
DRRM	Disaster Risk Reduction and Management
DRRMU	Disaster Risk Reduction and Management Unit
EAC	East African Community
EW	Early Warning
EWS	Early Warning System
FEWS NET	Famine Early Warning Systems Network
HFA	Hyogo Framework for Action
ICPAC	IGAD Climate Prediction and Applications Centre
ICT	Information and Communication Technology
IGAD	Intergovernmental Authority on Development
IPCC	Intergovernmental Panel on Climate Change
ISDR	United Nations International Strategy for Disaster Reduction
JICA	Japan International Cooperation Agency
JIMC	Joint Intervention Management Committee
MDGs	Millennium Development Goals
NGOs	Non-Governmental Organizations
NEPAD	The New Partnership for Africa's Development
OPM	Office of Prime Minister
SADC	South Africa Development Community
RECs	Regional Economic Communities
SWOT	Strength, Weakness, Opportunities, and Threats
UN	United Nations

UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
UNISDR	United Nations Office for Disaster Risk Reduction
UNOSAT	United Nations Institute for Training and Research Operational Satellite Applications Programme
USAID	United States Agency for International Development
WCDR	World Conference on Disaster Reduction
WMO	World Meteorological Organization
<Burundi>	
PRGC	Prevention des Risques et Gestion des Catastrophes (Risk Prevention and Disaster Management)
<Kenya>	
MRDM	Ministry Responsible for Disaster Management
NDCC	National Disaster Coordination Committee
NDMA	National Drought Management Authority
NDMP	National Disaster Management Policy
NDOC	National Disaster Operation center
NEMA	National Environment Management Authority
<Rwanda>	
DDMC	District Disaster Management Committee
DMTF	Disaster Management Task Force
MIDIMAR	Ministry of Disaster Management and Refugee Affairs
MINALOC	Ministry of Local Government
MINIRENA	Ministry of Natural Resources
NLC	National Land Commission
RBC	Rwanda Biomedical Center
REMA	Rwanda Environment Management Authority
<Tanzania>	
DMD	Disaster Management Department
EPRU	Emergence Preparedness and Response Unit
ESR	Emergency Situation Room

NEMC	National Environment Management Council
PMO	Prime Minister Office
STDRP	Strengthening Tanzania Disaster Response Project
TMA	Tanzania Meteorological Agency
ZEPRP	Zanzibar Emergency Preparedness and Response Plan
<Uganda>	
NECOC	National Emergency Coordination and Operation Centre
NEMA	National Environment Management Authority
OPM	Office of Prime Minister

Terminologies and Concepts

Biological Hazard:	Process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances 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.
Building Codes:	A set of ordinances or regulations and associated standards intended to control aspects of the design, construction, materials, alteration and occupancy of structures that are necessary to ensure human safety and welfare, including resistance to collapse and damage.
Capacity	A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster. Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management. Capacity may also be described as capability.
Climate	The statistics of temperature, humidity, atmospheric pressure, wind, precipitation, atmospheric particle count and other meteorological elemental measurements in a given region over long periods.
Climate Change	A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.
Climate Change Adaptation	Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Such adjustment may be preventive or reactive, private or public, autonomous or planned.
Climate Change Mitigation	Human interventions to reduce the sources or enhance sinks of greenhouse gases.
Climate Variability	Seasonal shifts in mean climatic conditions such as temperature and precipitation.
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. A disaster is a function of the risk process. It results from the combination

	of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.
Disaster Mitigation	Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.
Disaster Risk Management (DRM)	The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural and manmade hazards and related environmental and technological disasters. This comprises all forms of activities including structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.
Disaster Risk Reduction (DRR)	The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid or to limit the adverse impacts of hazards, within the broad context of sustainable development.
Early Warning	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.
Early Warning System	A functional system for generation and provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response.
Emergency Management	The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps.
Climate Impact Assessment	The practice of identifying and evaluating the detrimental and beneficial consequences of climate change on natural and human systems
El Niño Southern Oscillation (ENSO)	A complex interaction of the tropical Pacific Ocean and the global atmosphere that results in irregular episodes of changes in sea surface temperatures accompanied by either above or below average rainfall in the tropics and Pacific Rim countries resulting to La Nina and El Niño conditions associated with droughts and flooding respectively.
Food Security	Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food

	to meet their dietary needs and food preferences for an active and healthy life, FAO World Food Summit, 1996, Rome.
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. 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.
Global Warming	Intensifying greenhouse effect resulting from anthropogenic actions, where the consequence is an increase in the concentration of greenhouse gases, aerosols or their predecessors in the atmosphere, which absorb part of the infrared radiation emitted by the Earth's surface, thus increasing the average temperature on the planet and causing adverse climatic phenomena.
Hazard	A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation. Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydro meteorological and biological) or induced by human processes (environmental degradation and technological hazards). Hazards can be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity, frequency and probability.
Hydro-Meteorological Hazards	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.
Mitigation	Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.
Natural Hazards	Natural processes or phenomena occurring in the biosphere that may constitute a damaging event. Natural hazards can be classified by origin namely: geological, hydro meteorological or biological. Hazardous events can vary in magnitude or intensity, frequency, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.
Natural Disaster	An extreme event in which a natural hazard interacts with individual and community exposure and vulnerabilities to trigger negative social and economic impacts on a scale that is beyond the coping capacity of the affected population.

Non-Structural Measurement	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.
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.
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 capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.
Response	The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.
Risk	The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic disruption or environmental damage) resulting from interactions between natural or human-induced hazards and vulnerable conditions. Conventionally risk is expressed by The notation Risk = Hazards x Vulnerability. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability. Beyond expressing a possibility of physical harm, it is crucial to recognize that risks are inherent or can be created or exist within social systems. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share the same perceptions of risk and their underlying causes.
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 on.
Socio-Natural Hazard	The phenomenon of increased occurrence of certain geophysical and hydro-meteorological hazard events, such as landslides, flooding, land subsidence and drought, that arise from the interaction of natural hazards with overexploited or degraded land and environmental resources.
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;
Sustainable Development	Development which meets the needs of the present without compromising the ability of future generations to meet their own needs.
Technological hazards	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 conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.

Chapter 1: Background and Overview of the Strategy

1.1. Background

Global observations on natural hazards indicate that there is a global increase in the number of disasters and their total economic impacts. A number of severe weather and extreme climate-related events in recent years have led to disasters of devastating consequences to many societies, thus arousing even keener interest of the general public and policy makers.

The East African Sub-Region is prone to natural hazards such as floods, droughts, earthquakes, landslides, strong winds, lightning and their secondary impacts of diseases and epidemics. Drought, floods, landslides and epidemics are the most frequent disasters in the Sub-Region. In order to address and effectively minimize impacts of disasters in the region, legal and institutional frameworks are necessary along with the other capacities required for this purpose. Furthermore, the East African Community (EAC) is part of the global community and hence needs to integrate Disaster Risk Reduction (DRR) into its programmes and planning in line with the Hyogo Framework of Action (HFA) and the Africa Regional Strategy for DRR.

Many countries and communities have realized the need to move from reactive (response actions) disaster risk management which has been based on emergency and crisis management to a proactive (Prevention actions) which is based on the analysis of vulnerability, risk evaluations, and situational assessments with a view to mitigate disasters impacts before they occur. This paradigm shift calls for effective application of early warning systems, effective communication and knowledge sharing in order to increase the resilience of the communities.

The EAC Disaster Risk Reduction and Management (DRRM) Strategy will focus more on this proactive model and will also focus on prospective (future actions) which requires prevention, risk analysis to be part of development planning, programs and projects. It is one of the ways to consolidate sustainable development in the partner state and in the region as a whole.

In the EAC Sub-Region, rainfall distribution and the physiographic of the region plays an important role in determining where certain types of hazards are more prevalent. For example, the Lake Victoria Region is known for its very active and convectional weather resulting in heavy thunderstorms, lightning and flooding in the low lying areas.

Mean annual precipitation in the EAC Sub-Region is indicated in **Figure 1**. Most part of Kenya is arid or semi-arid land, and central part of Tanzania is low-rainfall area. The annual average precipitation is 1,272mm in Burundi, 630mm in Kenya, 1,212mm in Rwanda, 1,071mm in Tanzania and 1,081mm in Uganda. The annual precipitation of Kenya is about half that of other countries.

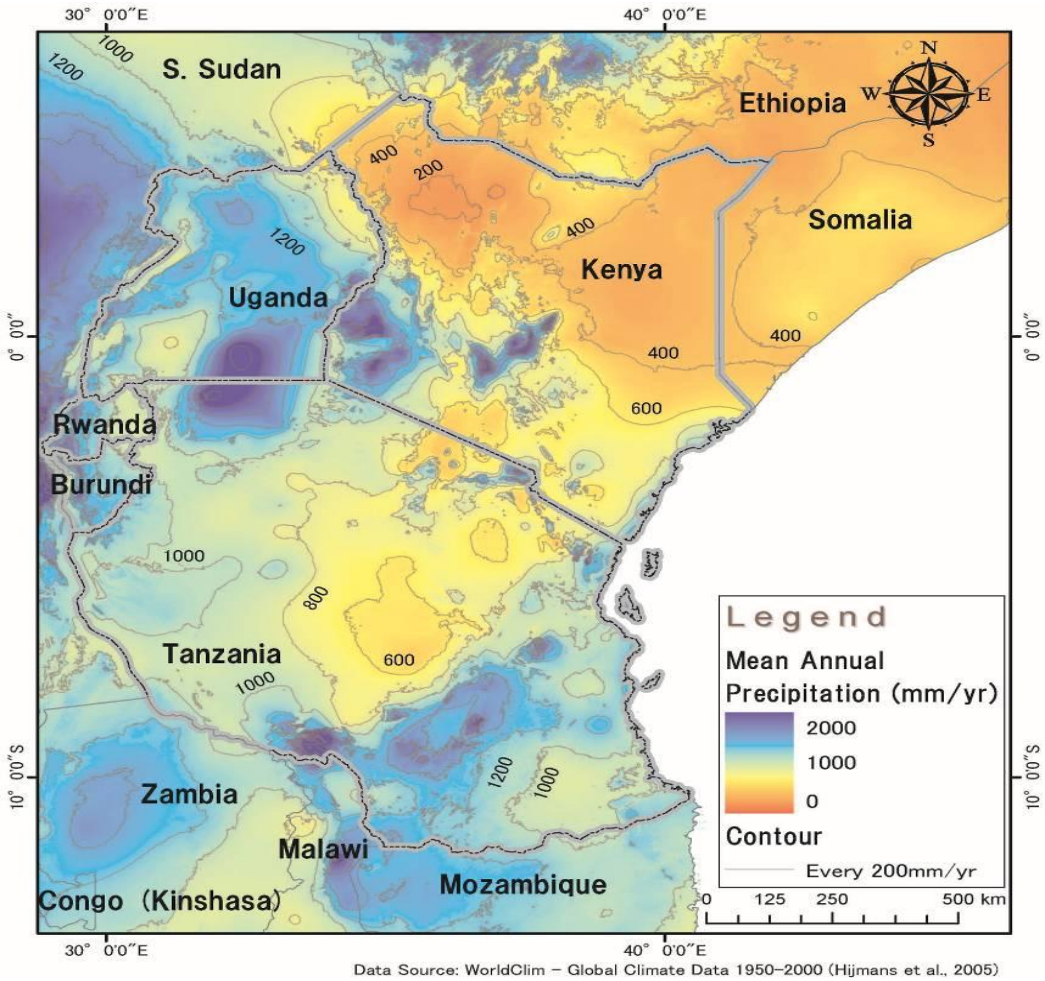


Figure 1: Mean Annual Precipitation in the EAC Sub-Region

1.2. Disaster Risk Management Cycle

DRM is a cyclical process (**Figure 2**). When reasonable measures to deal with natural disasters are carried out, the situation of natural disaster risk could be kept, and the DRM cycle is sustainable. This cycle contributes to stabilizing social conditions. However, lack of measures on disasters causes a rise in natural and manmade disaster risk and impedes economic growth. Thus, mainstreaming and implementing DRM is an important factor for sustainable development (**Figure 3**).

Figure 2: Disaster Risk Management Cycle

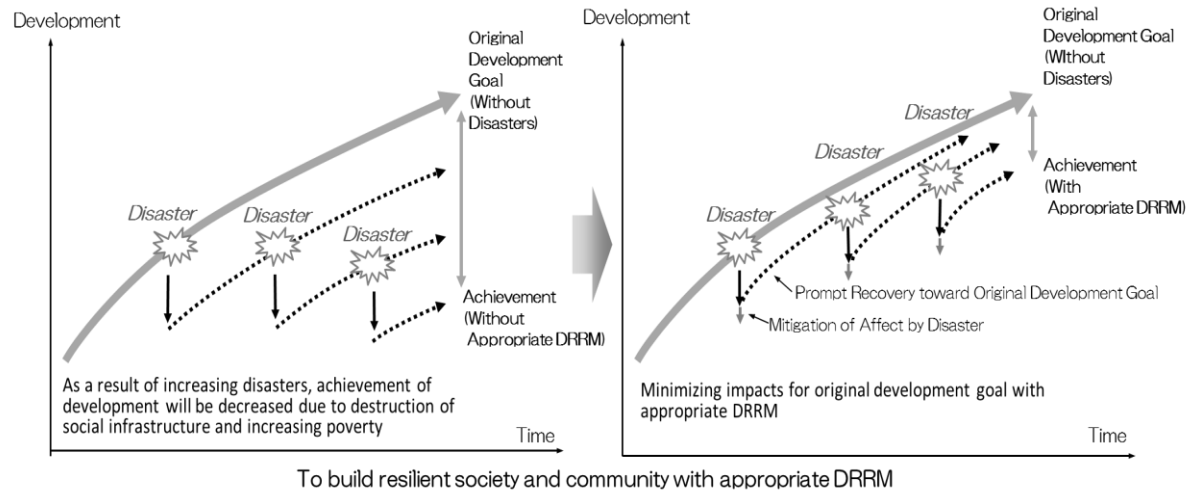


Figure 3: Affect to Development Plan induced by Disasters

1.3. Context to DRRM Strategy

The EAC aims at widening and deepening co-operation among the Partner States in, among others, political, economic and social fields for their mutual benefit. To achieve the aims, EAC has mid-term development strategies. The latest one is "The 4th EAC Development Strategy 2011/12-2015/6)".

In this EAC 4th development strategy, DRRM is prioritized in objective 4 on "Promotion of Regional peace and Security" and objective 6 on "Sustainable natural resource management, environmental conservation, and mitigation of effects of climate change across the East African Region". In the former one, coordination and strengthening of disaster management center was referred, and in the latter one, implementation of the African Regional Strategy for Disaster Risk Reduction and the Hyogo Framework for Action was referred.

Based on this desire to integrate DRR and Management into EAC planning and programmes, the process for formulating a Sub-Regional DRRM Strategy started with the EAC First Meeting of the Sectoral Council on Environment and Natural Resources in October 2011. The objective of the meeting was to consider the progress made in the implementation of the previous decisions and directives of the Council and the Summit on environment and natural resources.

In the meeting, the Sectoral Council noted the following:

(i) Commended the EAC Secretariat for the initiative of recognizing and prioritizing the need for a disaster risk management function at the regional level;

(ii) Took note with appreciation of the support received from the UNISDR to the EAC Secretariat on Technical Assistance on DRR;

(iii) Took note of the progress made on disaster risk management at the EAC Secretariat through the signing of the EAC/UNISDR Memorandum of Understanding;

(iv) Directed the EAC Secretariat to mobilize resources to establish the Disaster Risk Management function;

(v) Directed the EAC Secretariat to convene a meeting of experts on disaster risk management to review the status of disaster risk management and consider the draft

terms of reference for the EAC Disaster Risk Management Strategy;

(vi) Directed the EAC Secretariat to establish a clear mechanism for working together and sharing information on DRR at the national, regional and international level and in particular addressing drought and flood disasters in the region;

(vii) Directed the EAC Secretariat to establish a formalized structure at the EAC Secretariat to address Disaster Risk Reduction and Management in the region; and

(viii) Directed the EAC Secretariat to ensure that the Disaster Risk Management function reports to the Office of the Secretary General.

Following the meeting above, "Disaster Risk Reduction (DRR) Meeting for the Establishment of an EAC Sub-Regional Platform" was held in June 2012, as well as "Task Force Meeting For Development of DRMS" was held at the same time in June 2012 in Burundi.

The consideration of the priority areas for the implementation of the EAC DRR framework were below;

i) Priority 1. Development of an EAC DRRM Strategy

ii) Priority 2 Resource Mobilization for integration of DRRM into EAC plans and programmes

iii) Priority 3. Establishment of Sub-Regional DRR Platform

iv) Priority 4. Operationalization of a Disaster Risk Management Unit within the EAC Secretariat

v) Priority 5. DRR capacity development in the EAC Sub-Region

The "National Consultative Meetings on the Development of an EAC Disaster Risk Reduction and Management (DRRM) Strategy" were held in all of the EAC Partner States from 7th to 15th August 2012."The Second Task Force Meeting on the Development of an EAC Disaster Risk Reduction and Management Strategy" was held in 20th – 22nd August 2012.

In line with these meetings above, a draft Strategy was reviewed in the "Stakeholders Validation Workshop on the EAC Disaster Risk Reduction and Management Strategy" in October 2012.

1.4. Hyogo Framework for Action (HFA) 2005 – 2015

The international community has set targets for global sustainable development and poverty reduction under Agenda 21 in the Millennium Development Goals (MDGs)[*3]. The Hyogo Framework for Action (HFA) 2005-2015 also mentioned sustainable development. The HFA, ***"Building the resilience of Nations and Communities to disasters"*** was the negotiated outcome of the World Conference on Disaster Reduction (WCDR) which took place in Kobe, Japan on January 2005 and attended by 168 governments. Since then, the HFA became the World blue print for DRR whose expected outcome is the substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries.

Three strategic goals were agreed upon to guide the implementation of the HFA as;

1. *Integration of DRR into sustainable development policies and planning.*
2. *Development and strengthening of institutions, mechanisms and capacities to build resilience to hazards*

3. *The systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programmes*.

HFA proposed five (5) key priority areas for DRR implementation and identified actions as bench marks for the governments. Five (5) key priority areas are as follows:

Priority Area 1 Governance and policy:

To ensure that DRR is a national and local priority with a strong institutional basis for implementation

Priority Area 2 Risk identification and Early Warning:

To identify, assess and monitor disaster risks and enhance Early Warning (EW)

Priority Area 3 Use knowledge, innovation and education:

To build a culture of safety and resilience at all levels

Priority Area 4 reducing the underlying risk factors:

On environment, Climate Change, food security, gender, financial risk-sharing mechanism and land-use planning

Priority Area 5 Strengthen disaster preparedness for effective response:

Guidelines and Indicators package

Required actions in the above key priority areas are shown in ANNEX 1.

1.5. The Africa Regional Strategy

The Africa Regional Strategy for Disaster Risk Reduction was formulated through the initiatives of the African Union (AU), the New Partnership for Africa Development (NEPAD) and the United Nations International Strategy for Disaster Reduction (ISDR), and consequently negotiated and approved by the African countries in 2004. Subsequently, the Programme of Action for the Implementation of the Africa Strategy was developed and adopted in 2005. The Programme of Action was prepared with the overall goal to *"reduce the social, economic and environmental impacts of disasters on African people and economics, thereby facilitating the achievement of the MDGs and other development aims in Africa".*

Like the HFA, the Strategic Areas of Intervention were identified as;

1. Increased political commitment to DRR.
2. Improved identification and assessment of disaster risks.
3. Increased public awareness of disaster risk reduction.
4. Improved governance of DRR.
5. Integration of DRR in emergency response management.
6. Overall coordination and monitoring of the implementation of the Strategy.

DRR actions and plans of Regional Economic Communities (RECs), members of the AU, in the above strategic areas have remarkable significance for Africa DRR Strategy. The Africa Regional Strategy for DRR mentioned that RECs and other stakeholders have key roles to play in the implementation and monitoring of the Strategy.

1.6. Socio-Economic Impacts by Disasters in the EAC Partner States

The EAC is a regional intergovernmental organization, which consists of the Republics of Kenya, Uganda, the United Republic of Tanzania, the Republic of Rwanda and the Republic of Burundi. The total population and annual population growth rate in the EAC Sub-Region is about 133 million and 2.6 %, respectively[*1]. The total population in the EAC Sub-Region is more than 10% of the entire African region

EAC Sub-Region is prone to natural hazards. As proof, the annual percentage of the population that is affected by droughts, floods or extreme temperature events in the EAC Sub-Region is higher than the median of the world (EAC: about 2.8 %, median of the world: 0.3%, average 1990-2009)[*2]. To make matters worse, the number of natural disasters in the Africa region has increased in recent decades. The Intergovernmental Panel on Climate Change (IPCC) pointed out that extreme precipitation event risks in the EAC Sub-Region will increase. Therefore, the necessity of DRRM is high in the EAC Sub-Region.

As mentioned above, drought and floods are the most frequent disasters in the Sub-Region. Loss of human life by these disasters is a serious problem. Moreover, the disasters affect economic activity. For example, the floods of 1997/1998 in Kenya associated with El Niño caused widespread damage across the country. In total, the flood displaced thousands of people and disrupted the livelihoods of about 1.5 million Kenyans[*28]. Furthermore, the 1997/1998 floods seriously damaged the water infrastructure and transport networks. The destruction of water and sanitation infrastructure could cause the prevalence of water-related diseases such as malaria, cholera, diarrhea and typhoid. In the case of 1997/1998 floods, rift valley fever came after the floods. Agriculture is also affected by floods, which destroy farmland, food processing factories, stored food and transport networks. The 1997/1998 floods caused food commodity prices to drastically increase[*29]. The total costs arising from the 1997/1998 floods have been estimated at Ksh 70 billion (~USD 1.0 billion) by the World Bank. It is estimated that extreme floods and drought events have the potential to reduce Kenya's Gross Domestic Product (GDP) by about 2.4% per annum[*30].

For case of Rwanda in a period of ten months (Dec/2010-Sept 2011), disasters produced a complex web of impacts, which spans many sectors of the economy. During this same period, Rwanda registered 43 losses of lives and 73 people were seriously injured. Besides, 1854 houses were destroyed by heavy rains in rural areas, 2,989. 9 Ha of crops were damaged and 100 school classrooms were completely destroyed in different parts of the country. As a result, the cost of the intervention activities in terms of disaster response and recovery to assist the victims was estimated to more than 515,520,000 Rwandan francs (~825,920 USD) (MIDIMAR reports, May -September 2011).

Droughts have also significant impacts on regional economies. Especially, rain-fed agriculture, which is the dominant form of agriculture in the EAC Sub-Region, is affected seriously by droughts. In the 2003 drought period, wholesale maize prices in most urban markets in Tanzania considerably increased[*42], and the crop production index in 2003 Tanzania decreased to about 85% of that in 2002[*2].

From the information above it is clear there is need DRRM in order to sustain socio economic development of EAC Sub-Region

1.7. Existing EAC Instruments for Strengthening and Supporting the DRRM Strategy

1.7.1. Treaty for the Establishment of the EAC

The objectives of the community is to develop policies and programmes aimed at widening and deepening co-operation among the Partner States in political, economic, social and cultural fields, research and technology, defense, security and legal and judicial affairs, for their mutual benefit as spelt out in Article 5 of the Treaty. The Treaty also provides for the strengthening and consolidation of co-operation in agreed fields that would lead to equitable economic development within the Partner States and which would in turn, raise the standard of living and improve the quality of life of their population. Disasters have been known to retard and even reverse socio-economic development. They are cross-cutting and cross border issues as well. This is one field that the Partner States must come together and consolidate efforts to overcome their negative impacts.

1.7.2. Protocol on Environment and Natural Resources

The wide scope covered by the EAC Protocol on Environment and Natural Resources creates a sound foundation for disaster risk reduction by addressing the underlying risk factors in developing and planning of the environment and natural resources for socio-economic development. It provides a proactive way of reducing risk and vulnerability and hence increasing the resilience of the communities. Training communities to live in harmony with nature and natural ecosystems is currently being promoted as an ecosystem-based approach in disaster risk management.

Article 23 and 24 focus on combating desertification and mitigating effects of drought and effects of climate change. Article 35 on environmental disaster preparedness and management also stipulates the need for the Partner States to collaborate both in preparedness and response in order to effectively address Environmental disaster emergencies. Disaster Risk Reduction and Management (DRRM) Strategy will help to concretize the operations of the protocol on environment and natural resources.

1.7.3. Climate Change Policy, Strategy and Master Plan

The adverse impacts of climate change being aggravated by increasing average global temperatures are threats to the livelihoods of people in almost all sectors of the economy in the EAC Sub-Region. Severe droughts, floods, landslides and indeed extreme weather phenomena are occurring with greater frequency and intensity in the region. This is impacting on all development sectors such as water, agriculture and food security, infrastructure and transport, energy, health and threatening all the other drivers of economic development. To address these impacts, the EAC secretariat developed a Regional Climate Change Policy and Strategy Master Plan as frameworks to integrate and harmonize regional activities in response to climate change in the EAC Sub-Region.

The main objective for these climate change tools is to institute and implement measures

which will improve the adaptive capacity and resilience of the East African Sub-Region to the negative impacts of climate change. This will be achieved through DRRM including Early Warning, Preparedness, Emergency Response and Post-Disaster Recovery programmes. DRR is a critical tool for climate change adaptation and hence the DRRM Strategy bears strong link to the already existing climate change adaptation instruments in the region.

1.7.4. EAC Food Security Action Plan

East Africa largely depends on rain fed agriculture making rural livelihoods and food security highly vulnerable to consequences of climate variability and change. The agriculture sector provides the main occupation for over 80% of East Africans. Agriculture and livestock production in East Africa is hampered by its reliance on unreliable rainfall and the absence of water storage facilities compounded by poor land use practices and antiquated technology and farming methods. These sectors are likely to be hit harder as droughts and floods worsen, while temperatures and growing seasons change in the future.

In view of the above, the EAC has developed a Food Security Action Plan to address food insecurity in the region in line with the provisions of the EAC Treaty as set out in Chapter 18 Articles 105 -110. One of the main objectives of the EAC as set out in the treaty is the achievement of food security and rational agricultural production. The EAC- Food Security Action Plan will guide coordination and implementation of the joint programmes and projects emanating from this plan. The DRRM Strategy will also provide useful options for addressing food insecurity in the region.

1.7.5. Strategy on Peace and Security

Article 124 of the Treaty for the Establishment of the EAC, recognises the need for peace and security within the East African States. The same article spells out wide-ranging approaches for implementation in order to have a stable and secure environment within the region. This kind of environment is geared towards promoting development and harmonious living of the people of East Africa.

This Strategy goes a long way in enhancing the EAC spirit of co-operation in regional peace and security, which brings into reality the collective responsibility in provision of security by the Partner States. It covers collaboration on cross border crimes, auto theft, drug trafficking, terrorism, money laundering and other crimes. This will provide a good and conducive environment in which peace will flourish and security of persons and property will be guaranteed hence fostering development.

This initiative in the EAC Secretariat offers an excellent opportunity for development of a regional disaster response plan with clear mandates and responsibilities. The linkages for the existing mechanisms are considered in the DRRM Strategy.

1.7.6. The 4TH EAC Development Strategy (2011-2016)

The EAC Secretariat is executing its fourth development Strategy since the signing of its founding treaty. This document defines the regional priorities and strategic areas to focus on within the stipulated timeframe. It also guides the Secretariat and its Organs in defining their annual work plans. The current EAC development Strategy has given priority to the implementation of the HFA and the Africa regional DRR Strategy and its plan of action. This EAC Disaster Risk Reduction and Management Strategy have based its establishment on

these two global and regional disaster management tools.

1.8. Rationale for DRRM Strategy

Recent disaster global observation data indicates that the number and victims of natural disasters tends to be increasing. The rise of disaster risk has negative impacts on the security of lives and economy. It should be noted that most of the disasters being experience are weather and climate related. They are therefore expected to increase with climate change. Under this severe situation, the necessity of comprehensive legal and institutional frameworks for natural disasters has increased. Thus, the EAC decided to formulate the "EAC DRRM Strategy". This Strategy aims to minimize the impacts of disasters and to integrate the DRRM into its programmes and planning in line with the HFA and the Africa Regional Strategy for DRRM.

Developing a proactive strategy requires judicious utilization of accurate and timely information from research activities, studies and collected data on hazards including meteorological data.

In development of the Strategy, it is understood that disaster risks result from the interaction among natural, technological or conflict induced hazards and vulnerability conditions. The EAC DRRM Strategy will focus on addressing both natural and human induced hazards/disasters.

Chapter 2: Review of Disaster Risk Reduction and Management in the EAC Partner States

The EAC sub-region like any other region in the world is suffering from Disasters that are caused by natural and manmade hazards. In combating these Disasters each Partner state has established Disaster Risk Reduction and Management (DRRM) institutions, enacted several legislations and formed DRR Platform from National Level to Community level. DRRM is implemented by various Government and Non Governmental Organization (NGO), International Organization and Community Based Organizations (CBO). From the assessment carried out during this study it has been realized much of the activities are on response side rather than preparedness. There is a need to move therefore from response to preparedness in order to reduce Disaster and build a community that is resilient to Disaster.

2.1 Status of Disasters in the EAC Partner States

The East Africa region is prone to natural hazards of such floods, droughts, earthquakes, landslides, strong winds, lightening and their secondary impacts of diseases and epidemics. Drought and Floods are the most frequent disasters in the region. Episodes of droughts and floods in the equatorial east Africa region associated with climate change are on the rise in terms of frequency, magnitude and intensity. The region is equally predisposed to manmade disasters such as urban fires, environmental degradation, water pollution, HIV and Aids and outbreaks of disease epidemics.

This section highlights the common disasters in the region.

2.1.1 Common Hazards Across the Sub-Region

(1) Droughts

Drought is one of the most common and significant disasters in the EAC Partner States. Especially, in the northern part of the region, Kenya and Uganda have been severely affected by droughts. For instance, eighty (80) % of the land of Kenya is arid and semi-arid land. Drought patterns in Kenya indicate a severe drought every twenty five to thirty years and a less severe drought every ten to fifteen years. There is another moderate drought which is normally followed by a good amount of rain every five to seven years.

In the 2008-2010 droughts in Kenya, damages and losses were estimated to be 12.1 billion USD, and the cost for recovery and reconstruction were estimated to be 1.77 billion USD. Also the drought affected 3.7 million people and significant reduction in economic growth of the country.

Since mid-July 2011, a severe drought has been affecting the entire East Africa Sub-Region including the Horn of Africa area. Said to be "the worst in 60 years", the drought has caused a severe food crisis across Somalia, Djibouti, Ethiopia and Kenya that threatens the livelihood of 9.5 million people[*19].

Photo 1 The 2009 Drought in Northern Kenya: Source http://wwalert.wordpress.com/tag/severe-drought-in-kenya/

In Uganda, severe droughts have occurred in the Karamoja region, North Eastern Uganda, due to a combination of dry spells and high temperatures in June-July, Karamoja experiences serious crop failures every five years. It is anticipated that the extension of the Sahara Desert further south will make Uganda more prone to drought. The 1993/1994 famine in Uganda caused mainly by drought affected over 1.8 million people in the 16 districts.

In Tanzania, drought occurs roughly every four years, and affects more than 3.6 million people. The most frequently hit regions are mainly from the north to central areas. In 2008, Zanzibar experienced severe drought in which about, 300,000 people were affected. As a consequence of this drought the Government of Tanzania has to spend huge budget to respond to the food shortage.

In Burundi, drought is a hazard that Burundi has faced since 1998. Especially, in the northern part, the situation has worsened from 2000. Drought reached the threshold of national disaster level based on the number of deaths and refugees of famine. And people went into exile in Rwanda and Tanzania due to starvation.

In Rwanda, recurrent drought incidences over the past decades, between 1998 and 2000 and annually from 2002 to 2005, have caused a serious deterioration in food security. Moreover, in 2004, when water levels in the northern lakes ebbed due partly to prolonged drought, the reduced hydropower supply caused the first major electricity crisis in the country. Thus drought has an adversely impact on key sectors.

Drought affects many key sectors, such as manufacturing, education, national security, tourism, health and nutrition, water and sanitation, agriculture and livestock, environment and forestry, energy, and so on. Therefore, economic losses and damages caused by droughts should be considered for all of the sectors above.

(2) Floods

Flood is also one of the most common and significant disasters in the EAC Partner States. Floods occur due to natural factors like flash floods, river floods, and coastal floods.

Kenya's record of flood disasters indicate the worst floods recorded in 1961-1962 and 1997-1998, the latter ones being the most intense, widespread and severe. During the season, the flooding was associated with the El Nino phenomenon, a weather pattern that affects most parts of the world.

The El Nino phenomenon causes increased rainfall in some areas and drought in others thus changing the normal weather patterns.

Photo 2 Flash floods in Dares-Salaam, Tanzania
Source: Disaster Management Department

Northern and eastern parts of Uganda are prone to floods. In Tanzania, floods occurred 15 times from the 1980's. The number of deaths is 54 persons and 800,271 people were affected. In recently Tanzania has experienced increased urban flooding, which is mainly due to climate change. Areas prone to disasters in Tanzania are Morogoro, Dar es salaam, Kilimanjaro and Coast region for Tanzania mainland and Urban West Region for Zanzibar.

In Burundi, flood is ranked third in the inventory of hazards and disasters.

The largest one occurred around Lake Tanganyika from 1961 to 1964. The water level of Lake Tanganyika rose 4 meters to 777.6 meters in May – June 1964. Bujumbura and other municipalities around Lake Tanganyika, the port of Bujumbura, and roads around Lake Tanganyika were flooded. This flood severely disturbed the economic activities around Lake Tanganyika. In 1983 and 1986, Bujumbura experienced a severe flood. The flood caused huge economic losses and the losses were estimated over 1 billion Burundian francs.

Photo 3 Kayosha River after Flood in Bujumbura Burundi, Source: JICA Survey Team

The damage by the flood in 1983 was destruction of houses, deterioration of machinery and equipment in industrial areas, destruction of stocks of companies, and the port of Bujumbura

Floods are also common in Rwanda, and they have increased in frequency over the past decade. From January to September 2012 flood disaster took life of 34 people, 1920 houses have been totally destroyed and 2387.7 has of maize, beans, banana and rice have also been destroyed. All these among others resulted in the damage of infrastructure, agricultural losses, led to environmental degradation, population displacement and fatalities.

Floods cause death due to drowning, and floods destroy public health facilities such as water resources and sanitation facilities. Floods also trigger outbreaks of water borne diseases and malaria, hence compounding community vulnerability to health hazards. Besides, floods also cause physical damage by washing away structures, crops, animals and submerging human settlements. Thus floods also affect many key sectors. Effects of floods are shown below.

- Loss of livelihood including destruction of crops, death of farm animals, loss of fishing equipment, loss of other working equipment.
- Destruction of settlements and houses
- Destruction of infrastructure mainly roads, telecommunication lines and power lines.

• Erosion of productive layers of the soil rendering the soil less productive.
• Loss of food reserves
• Death and injury of both population and animals
• Mental and physical stress (e.g. anxiety, depression, loss of security, domestic problems)
• Health –related problems (contamination of water resources, sewage problems etc.)
• Nutrition problems- lack of food as the floods destroy food reserves
• Increased diseases and epidemics especially water related ones like diarrhea, dysentery, typhoid, and cholera due to contamination of water resources.
• Increased conflicts over water resources

(3) Landslides

Photo 4 Landslide in Uganda; Source http://www.kfm.co.ug/news/over-3000-people-at-risk-in-bududa.html

Landslides and mudslides are rapid movement of a large mass of mud, rocks, formed from lose soil and water. And also slow mass movement of soils is included. It usually follows heavy rainfall and high ground water flowing through cracked bed rocks and earthquakes and leads to movement of soil or sediments. Landslides and mudslides are very difficult to predict but their frequency and extent can be estimated by use of information on the area's geology, geomorphology, hydrology, climate and vegetation cover as well as traditional knowledge.

In Uganda, landslides are one of the most significant hazards; especially the area around the Mt. Elgon area is prone to landslides. Even this year, 25 June, 2012, a landslide occurred and 8 people were killed. The worst event occurred in 2010, when heavy rainfall triggered a landslide that killed over 300 people. In Kenya, the situation around the Mt. Elgon area is almost the same.

In Burundi, landslides fall into the background of natural hazards and disasters in recent decades, and socio-economic impacts have been increasing. In 1996, Bujumbura was almost cut off from the rest of the country because landslides blocked the National Highways 1, 4 and 7.

Photo 5 Landslide in Rwanda; Source: Ministry of Disaster Management and Refugee Affairs, Rwanda

The landslide that occurred along National Highway 7 damaged 2 vehicles and killed a passenger.

In Tanzania, landslides are common in loose steep hilly lands and account for 0.9 % of all disaster occurrences in the country.

Thus landslides are likely to occur in a steep slope area such as Mt. Elgon, Mt. Kenya, Mt. Kilimanjaro, and steep slopes along the Great Rift Valley. And they affect socio-economic development by blocking main roads or damage other infrastructures.

(4) Lightning

In terms of climate change, the recurrence of extreme weather and climatic events in the Partner States is increasing in intensity and frequency as a result of climate variability and climate change. In association with increasing excessive precipitation in the region, also damage caused by lightning has been increasing.

According to the World Meteorological Organization (WMO), Uganda has one of the highest rates of lightning strike deaths in the world and its capital Kampala has more days of lightning per year than any other city.

In June, 2011, lightning struck a primary school killing 20 pupils and their teacher and injuring almost 100 people more. The school building had no lightning rod for ground strikes. Around the end of June, 2011, at least 31 people died due to sporadic bolts of lightning in Uganda.

In Kenya, in the beginning of July, 2011, eight (8) members of one family died after lightning struck their grass-thatched house in the Rift Valley Province. In the end of June, 2012, three students were killed on a street, and in the beginning of July, a man and two women were killed while walking barefoot on a road and several people got injured. In Tanzania, in the beginning of June, 2012, six (6) family members were killed by lightning in their house. A heavy downpour started in the night accompanied by strong winds. An ensuing lightning struck the grass-thatched house in which six people were taking shelter.

In Rwanda, at the end of September 2011, with the heavy downpour, lightning struck 71 people among them 16 died at the place; and 55 were seriously injured. All of these happened in a period of three months only (November, 2011 – February 2012). Even if Rwanda is generally prone to lightening; some districts are more vulnerable than others likely Nyamasheke, Rutsiro, Rulindo, Musanze, Nyabihu and Rubavu (MIDIMAR, 2012) In Burundi, in the middle of February 2011, 12 students and a teacher were killed and others were seriously injured by lightning. And in October 2010, one priest and three of his church members were killed in a church during Mass. Moreover, a few days later, 3 people died following another lightning incident which destroyed at least 37 houses.

Thus damage by lightning has been increasing in the region recently.

(5) Epidemics

- Malaria

According to the *World malaria report 2011*, there were about 216 million cases of malaria (with an uncertainty range of 149 million to 274 million) and an estimated 655,000 deaths in 2010 (with an uncertainty range of 537,000 to 907,000). Malaria mortality rates have fallen by more than 25% globally since 2000 and by 33% in the WHO African Region. Most deaths occur among children living in Africa where a child dies every minute from malaria[*13].

In the EAC Partner States, malaria is one of the greatest threat epidemics. Most of the Partner States are in high risk areas for malaria according to the *World malaria report 2011*. Only around 40% of the population in Kenya lives in malaria free areas.

Between 2000 and 2010, malaria admissions to hospitals and health centers with inpatient services declined by more than half in Rwanda and the United Republic of Tanzania (Zanzibar), but by smaller proportions in Kenya. Uganda and Tanzania (mainland) reported increases in malaria admissions.

In Burundi, evolution of malaria has always been progressive from 800,000 cases in 1993 to 3,000,000 in 2000 with recurring epidemics even today. The cost of medicines and mosquito nets significantly affect household incomes.

- HIV/AIDS

Sub-Saharan Africa is more heavily affected by HIV and AIDS than any other region of the world. An estimated 22.9 million people are living with HIV in the region – around two thirds of the global total. In 2010, around 1.2 million people died from AIDS in sub-Saharan Africa, and 1.9 million people became infected with HIV. Since the beginning of the epidemic, 14.8 million children have lost one or both parents to HIV/AIDS.

The social and economic consequences of the AIDS epidemic are widely felt, not only in the health sector but also in education, industry, agriculture, transport, human resources and the economy in general. The AIDS epidemic in sub-Saharan Africa continues to devastate communities, rolling back decades of development progress[*14].

Adult HIV prevalence exceeds 5% in Burundi, Kenya, Tanzania, and Uganda. It is 3% in Rwanda.

- Cholera

These days, cholera is a serious disease in Africa, with over 95 percent of all cases worldwide over the past two decades occurring in Africa. Cholera was one of the most devastating diseases, killing millions. But over time, the virulence of dominant strains of the disease has abated, and mortality rates have dropped sharply, particularly since a highly effective oral rehydration therapy was mastered. However, outbreak of cholera sometimes occurs even now in the EAC Partner States.

In Rwanda, in 2007, a cholera epidemic affected 3 regions and 918 cases were reported, including 17 deaths (case fatality rate: 1.85%). In August 2011, cholera killed 12 people in an outbreak in western Burundi, where more than 600 people are infected.

In Tanzania, cholera is a regular visitor to many communities in the country. One of the major outbreak occurred in 1992 when 18,526 cases including 2,173 deaths were recorded. (Case Fatality Rate: CFR 11.7%) In 1997, an epidemic which started at the end of January in Dar es Salaam accounted for 40,249 cases and 2,231 deaths (CFR 5.54%) in Tanzania.

Since 1971, Kenya has suffered several waves of cholera occurrence. From 1974 to 1989, Kenya reported cases every year with an average case fatality rate of 3.57%. Its largest epidemic started in 1997 and lasted until 1999, with more than 33,400 notified cases, representing 10% of all cholera cases reported from the African continent in the same 3 years.

According to the international federation of Red Cross and Red Crescent societies, the first cholera epidemic was reported in Uganda in 1979. In the history of the epidemic, 1998 remains the year when the biggest outbreak was recorded, with over 30,000 cases detected in almost all districts of Uganda. The most recent outbreak was reported in July 2012, with an influx of refugees from Democratic Republic of Congo (DRC) to western Uganda, 2 people killed and 14 people were admitted as of 6 September 2012.

- Ebola

The Ebola virus was first associated with an outbreak of 318 cases of a hemorrhagic disease in Zaire. Of the 318 cases, 280 of them died—and died quickly. That same year, 1976, 284 people in Sudan also became infected with the virus and 156 died.

The viruses that cause Ebola and Marburg are similar in terms of infecting both monkeys and people. The outbreaks of these diseases are often self-contained, however, because they kill their hosts so quickly they rapidly run out of people to infect.

The Zaire strain of Ebola virus has a mortality rate of 88 percent, which is higher than either the Sudan strain of the Ebola or the Marburg virus[*15].

The latest outbreak in the EAC Partner States occurred in Kibaale district, Uganda, on 3 August 2012. A total of 24 probable and confirmed cases including 17 deaths were reported since the beginning of the outbreak as of 3 September 2012.

2.1.2 Other Hazards

1) Earthquakes

Tectonic activity associated with the Great East African Rift System produces earthquakes in the Rift valley and the adjacent highlands. Uganda is the most affected country by earthquakes in the EAC Partner States. The western and central parts of Uganda are prone to seismic activity. In 1994, a strong earthquake measuring 6.2 on the Richter scale hit districts in the Rwenzori region, and affected over 50,000 people.

In Rwanda, western parts are prone to seismic activities. In 2008, Rusizi and Nyamasheke (both in the western province) were severely hit by a 5.9 earthquake causing 39 deaths, more than 600 injuries and more than 2,000 people were left homeless.

In Burundi, the country is indeed on the line of the western Great Rift Valley. And there is a clear correlation between centers of earthquakes and the layout of the Rift Valley particularly in the area of Bujumbura. The earthquake of 22 September 1960 caused extensive damage. It was preceded by many premonitory quakes and its epicenter was near Bujumbura.

In Tanzania, the Great Rift Valley traverses the country forming eastern and western rift valley branches. The earthquake prone areas are along the area of Great Rift Valley.

Kenya has not experienced a serious earthquake in the recent past. However its location within the Great Rift Valley makes the country susceptible to earthquakes.

2) Volcanic Activities

There are some volcanoes along the Great Rift Valley. Kenya has several volcanic mountains, mostly extinct. The latest eruption was in 1921, and occurred in Mt. Barrier.

In Tanzania, Ol Donyo Lengai erupted in 2010. This is one of the most active volcanoes in Tanzania, and there are many records of eruption. Volcanic activity in the mountain caused daily earth tremors in Kenya and Tanzania beginning on July 12, 2007. The latest to hit parts of Nairobi city was recorded on July 18, 2007 at 8:30pm (Kenyan time). The strongest tremor measured 6.0 on the Richter scale.

The western part of Rwanda has a chain of both inactive and active volcanoes. In 2002, Nyirangongo volcano erupted in Eastern DRC and caused damage, 400,000 of the Congolese population fled to Rubavu District bordering Goma. Thus eruptions in DRC are threats to not only Rwanda but also Uganda and Burundi.

3) Tsunami

Tsunamis and earthquakes are closely linked since tsunamis are caused by earthquakes along the ocean floor. The tsunami of 26 December 2004 was the largest ever recorded in the Indian Ocean, triggered by the 3rd largest earthquake in 100 years measuring 9.2 moment magnitude. The epicenter of the earthquake was off Banda Aceh on the Indian Ocean coast of the island of Sumatra in Indonesia.

Most of eastern Africa was spared massive damage from the waves due to (a) distance from the epicenter (>6000 km), (b) the dissipation of energy of the tsunami by shallow banks in the middle of the Indian Ocean (the Seychelles banks, Saya de Malha and Cargados Carajos Shoals) and (c) at least for Kenya and Tanzania, the first and largest waves hit at low tide. In Kenya and Tanzania these factors resulted in the waves being experienced as tidal surges of 1-1.5m amplitude lasting 5-10 min. Damage recorded for eastern Africa include 11 deaths in Tanzania and 1 in Kenya, of people walking and swimming over shallow intertidal flats being trapped by advancing and receding tidal surges[*16].

4) Pest Infestation and vermin

These are unwanted and destructive insects and animals that attack food or livestock both during the growing and post-harvest seasons. Pest numbers increase due to one or a combination of ecological factors including among others, temperature, monoculture, introduction of new pest species, weak genetic resistance, poor pesticide management, bad weather patterns, and migration. Pests lead to damage of plants and harvested crops, consequently leading to food shortages, famine and economic stress. In Uganda, there was an outbreak of cassava mosaic virus in 1997, and it resulted in serious infestation

The increasing incidences of coffee pests and their consequent control and management have significantly constrained economical production of coffee in Kenya. These coffee pests mainly include arthropods (insect pests), pathogenic micro-organisms (diseases) and weeds. Oeke et al., (1995) estimated that from the total attainable production of eight crops (coffee included) worth US$580 billion, about 42% or US$ 240 billion was lost due to insect pests (15%) followed by pathogens (13%) and weeds (13%). In 1998, a total of US$ 34 billion worldwide was spent by farmers on protecting plants from insect pests and diseases (Yudelmon et al., 1998) [*46].

In Uganda, a project called “Sustainable Vermin Control: Hoima and Masindi Districts of Uganda” was conducted by Uganda Conservation Foundation. Crop raiding by baboons, bush pigs, and other wildlife is the biggest source of conflict between rural communities and protected areas (PA) management authorities. This conflict situation is particularly acute in areas of high and/or increasing population density, which is the prevalent situation in and around the protected areas of Hoima and Masindi District. These areas tend to be small islands of biodiversity, with many impoverished people practicing subsistence farming right up to the edge of the forests and the parks. Whenever wildlife destroys crops, any positive attitude the resident community members have towards conservation is compromised. This results in a lack of support for the protection of these forests from the local communities, jeopardizes conservation efforts, and reductions in productivity of the agricultural lands. An undesirable side effect is that children are missing attendance at schools through the necessity to guard the crop areas from problem animals in the daytime. [*47]

5) Conflicts

The causes of war, civil unrest, and generalized insecurity may lie in social tensions arising from failures of governance, competition for scarce resources, or factors originating in the regional or global polity and economy. Such tensions may become polarized around social, political, ideological, religious, cultural, gender, ethnic or national identities and their eruption into violent conflicts may be precipitated, deliberately or otherwise, by internal or external acts or events. Areas of conflict often correspond with areas of environmental degradation, chronic food insecurity and overpopulation.

For instance, in 2007/8, Kenya suffered its worst internal conflict infamously referred to as the Post-Election Violence (PEV). Over 1,300 people were killed in the conflict and some 600,000 displaced. Some of the displaced persons ended up in camps while others escaped to begin livelihood activities elsewhere. The violence saw the country's economic growth rate revised from the projected 7% to below 2%.

In Uganda, the major conflicts have included the war in 1979 that ousted the government of Iddi Amin, the 1980-1986 armed struggles that took place mainly in the central parts of Uganda, and the 1986-2007 armed conflicts in northern and eastern parts of the country. Other forms of unrest have taken place in form of cattle rustling in the Karamoja area. In Tanzania there has been some case of conflicts between farmers and livestock keepers, mainly in Morogoro and Manyara regions.

6) Livestock Diseases

Rift Valley Fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans. Infection can cause severe disease in both animals and humans. The disease also results in significant economic losses due to death and abortion among RVF-infected livestock[*17].

East Coast Fever is probably the most important livestock diseases in Africa, causing an annual loss of 1.1 million cattle and $168 million, as of 1992. It is found in Sudan, South Africa, the Democratic Republic of Congo, Swaziland, Zimbabwe, Zambia, Tanzania, Kenya, and Uganda[*18].

Rinder pest is a highly contagious and deadly viral disease with the potential to devastate cattle and other cloven hoofed animals. Peste Des Petits Ruminants (PPR) is a rinderpest-like disease of sheep and goats which causes high mortality and is spreading at an alarming rate.

Contagious Bovine Pleuropneumonia (CBPP) is a very debilitating or deadly, acute or chronic respiratory disease of cattle and other large ruminant species. Other diseases include Rabies, Anthrax, Blackleg, and Trypanosomiasis. In Tanzania, common livestock diseases that decimate animals in the country are rinderpest, foot and mouth, anthrax, Contagious Bovine Pleural Pneumonia (CBPP) and others.

7) Environmental Degradation

This phenomenon results from poor land use patterns and other practices that lead to waste and destruction of ecological patterns. Environmental degradation is exemplified by overgrazing, destructive tilling practices on sloping landscapes, monoculture, unguided and uncontrolled use of fertilizers and pesticides, bush burning, overfishing, deforestation.

In Uganda, wetland degradation occurs as a result of drainage, over-harvesting and burning for brick making, dairy farming, and crop cultivation as well as settlement and development projects like industries. Encroachment on protected areas has resulted in destruction of habitats and loss of fauna and flora. The deep waters of Lake Victoria are de-oxygenated

partly due to the depletion of the phytoplanktivorous haplochromine grazers by introduced Nile perch, indicating a need for exhaustive studies before the introduction of foreign species. Fish production in Uganda is also suffering from effects of the water hyacinth which was probably introduced by humans.

8) Wild and Urban Fires

Fire hazards include the unplanned and massive burning which may cause destruction of equipment, settlements, property and life. Among the many factors that cause fire hazards are haphazard electric wiring, poor construction standards, accidents, arson and uncontrolled burning of bush or waste materials bush burning. Fires are common in industries, congested human settlements, institutions of learning and market places. The risk of fire hazards is likely to be higher with increasing exploitation of oil, gas and petroleum resources which are highly inflammable. It calls for preparedness and management of fire hazards calls for intensification of sensitization and public awareness campaigns.

In Kenya, fires are a major risk especially in industries, forests, poorly planned buildings and settlements, overcrowded areas and, where most houses are temporary in nature.

In Burundi, markets Ngozi and Gitega, the capital cities of the provinces, were totally devastated by fires can be talked as examples. No vehicle was remained at the end of the fires in the entire province. This explains how urban fire is a major risk. In Bujumbura city, urban fires of electrical origin are increasing.

In Rwanda, fires incidents are few but have caused considerable damage during their occurrence. Notable incidents include a forest fire in 2009 that spread to the top of the mount Muhabura in the Volcanoes National Park, consuming 150 hectares of the park. Another more recent incident was the outbreak in Nyagatare District that consumed 30 hectares of forest and farms.

In Tanzania, a number of urban fire incidents have been reported, mainly originating from electrical shock. Fire is a major risk in most of the unplanned settlement where there is no good access in case of a fire outbreak.

9) Invasive Alien Species

Invasive alien species (IAS) may be defined as a species that becomes established in a new environment, then proliferates and spreads in ways that are destructive to native ecosystems, human health and ultimately human welfare. Invasive species usually spread and colonize new sites because the natural controls that keep them in check in their native homelands, such as disease and predators, do not exist where they are introduced in a new habitat. IAS is found in nearly all major taxonomic groups of organisms under the following categories:

- Micro-organisms, such as bacteria and plankton;
- Plants, such as trees, shrubs and vines; or
- Animals, such as insects, reptiles, amphibians and mammals

In Uganda, the direct economic costs of invasive species are estimated to run into many billions of Uganda shillings annually. [*48]

Kenya has experienced a number of biological invasions, some of which have had significant consequences on socio-economic status (Keil, 1988). Notable examples include the larger grain borer (Prostephanus truncatus) (Hodges et al., 1983; Muhihu and Kibata, 1985), the water hyacinth (Eichhornia crassipes) (Hill, Cock and Howard, 1999) and Prosopis spp. [*49]

Many invasive alien plant species occur in Tanzania. The majority of these grow along rivers, near settlements and in towns and villages where they were used as ornamental plants in gardens or used to create hedges. Several highly invasive species have been observed in formally protected areas, including even the Serengeti National Park, Ngorongoro Conservation Area, Selous Game Reserve (World Heritage Sites). These include species such as Black Wattle Acacia mearnsii, Giant Sensitive Plant Mimosa pigra, Lantana Lantana camara, Seringa Melia azedarach, Pricky Pear Opuntia sp, Pine Tree Pinus sp., Gum Tree Eucayltus sp., and the aquatic weeds Water Lettuce Pistia stratiotes and Red Water Fern Azolla filiculoides. [*50]

10) Climate refugees

There is a new phenomenon in the global arena called "Climate Refugees". A climate refugee is a person displaced by climatically induced environmental disasters. Such disasters result from incremental and rapid ecological change, resulting in increased droughts, desertification, sea level rise, and the more frequent occurrence of extreme weather events such as hurricanes, cyclones, fires, mass flooding and tornadoes. All this is causing mass global migration and border conflicts. These phenomena are already referred above; therefore, this phenomenon should be skipped. [*51]

Other minor hazards but with heavy impacts at community levels are; Allergens, Nodding Syndrome, Terrorism, Strong Winds, Land Marine and Transportation Accidents, Mining Accidents, Industrial Accidents, Civil Strife and Cattle Rustling

2.2 Statistical Analysis

Disaster records in the EAC Partner States reported to EM-DAT are shown in **ANNEX 2**. Reported disasters are drought, flood, storm, landslide, epidemic, earthquake, insects, conflicts, accidents and fire[*1]. According to the data, the total occurrences of floods and epidemics were more than one hundred. The total occurrence of droughts was one third that of epidemics and floods, but the total victims of droughts was remarkably higher than other disasters.

Figures 4 shows occurrence of disasters and number of victims in each state from 1980 to 2010. The number of victims by droughts is increasing in every state. Epidemics and floods follow droughts. On the other hand, occurrence of epidemics or floods is increasing in every state. Floods Kenya occurred multiple times in a year. Floods in Kenya in 1961-62 and 1997-98 were the national worst flood [*2]. The total of affected people and economic loss by floods in 1997-98 are 900,000 and US$11,800,000, respectively. Floods in Rwanda have increased in frequency over the past decade[*28].

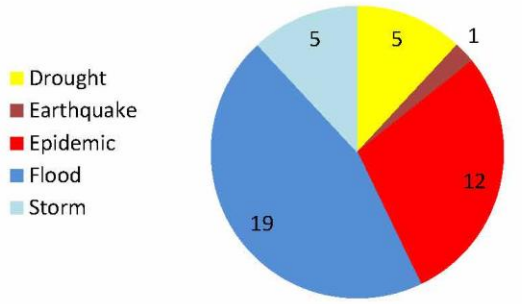
Kenya, Tanzania and Uganda are affected by floods, and the number of victims is enormous. Also floods occurred in Rwanda and Burundi; however the number of victims is not so large.

Droughts occurred about once every three years. However, droughts simultaneously occurred in several countries, and the victims were numerous. Thus, disaster is one of the cross border issues. Therefore, sharing disaster information within the EAC member states is very important.

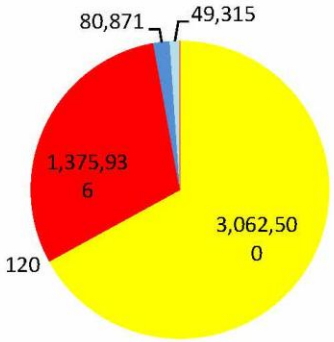
In Rwanda, occurrence of disasters and the number of victims by disasters are relatively smaller than other EAC Partner States. However, Rwanda is the most densely populated country in the EAC member states, and population pressure continues to increase. Therefore,

land use plan will become one of the most important tools for DRR in Rwanda. Also a land use planning is an important tool for every EAC Partner State considering development of urban areas and concentration of population to urban areas in the Partner States.

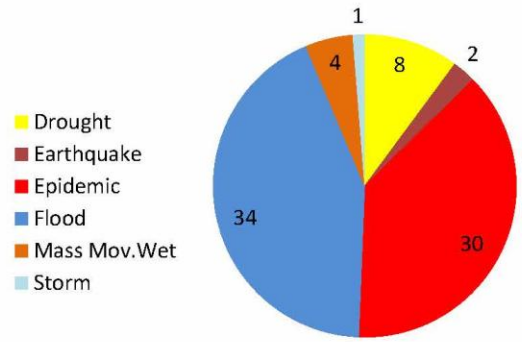
Occurrence of Disasters from 1980 to 2010

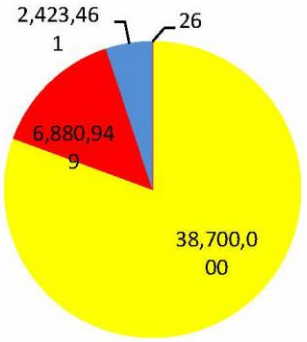


Number of Vinctims from 1980 to 2010

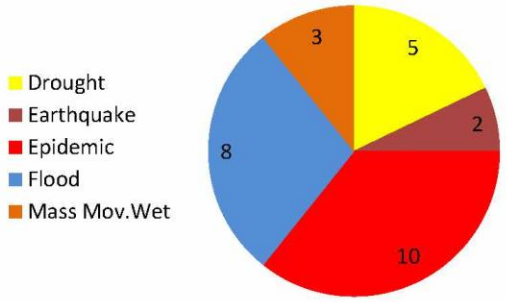


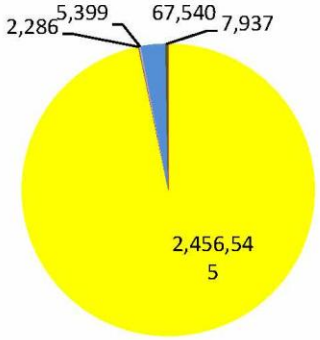
BURUNDI





KENYA





RWANDA

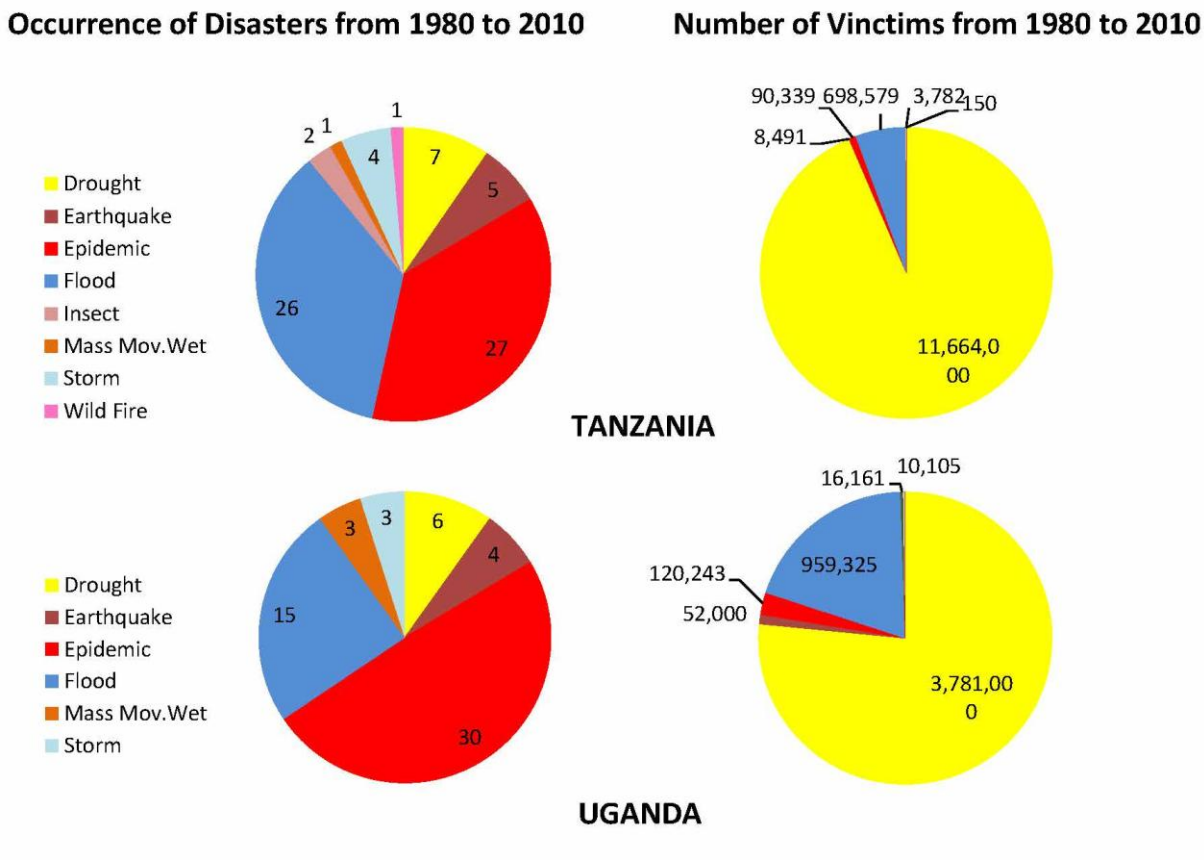


Figure 4: Occurrence of disasters and number of victims in the EAC Sub-Region from 1980 to 2010

2.3 Disaster Risk Reduction and Management Mechanisms in Key Priority Area of Hyogo Framework for Action in the EAC Partner States

There are several mechanisms in place in the Partner states for DRRM. The mechanism has been assessed based on five key priority areas of HFA that is Government and policy and strategies, Risk Identification and Early warning systems, Knowledge innovation and Education, Reducing Underlying Risk factors, and Strengthen Disaster Preparedness for Effective Response

2.3.1 Governance and Policy

Some individual partner states of the EAC Sub-Region have developed policies, legal framework, institutional frameworks and National Platforms of DRR to address DRR.

1) Policy and Legal Framework

Table 1 shows the national policies on DRR of the EAC Partner States. Although all the EAC Partner States have policies on DRR, the policies in some countries are not ratified yet by their cabinets.

There are other national policies, strategies, plans and laws related to the DRRM policies in the Partner States as indicated in the **ANNEX 3. ANNEX 4** shows DRM organizations based

on new DRM policies of the EAC Partner States. The legal frameworks of DRRM in the Partner States are under formulation except in Tanzania where there is an act of parliament, "Disaster Relief Coordination Act no. 9 of 1990".

Country	DRR Policy	Formulated /approved year	Content/Current Situation
Burundi	National Policy for Risk Prevention and Disaster Management[*21]	Policy formulated and approved by Cabinet 2008 but not approved by Parliament	There is the National Strategy for Risk Prevention and Disaster Management and National Action Plan 2012-2015
Kenya	National Disaster Management Policy of Kenya (NDMP) [*22]	February 2011 the latest version formulated	Proposed and not approved yet as of 2012 This policy provides a framework for integrating existing related legislation as well as sector specific mandates, policies, strategies, contingency plans and disaster management tools.
Rwanda	National Disaster Management Policy [*38]	Approved in 2009	Draft of revision of National Disaster Management Policy exists as of June 2012 and submitted to the cabinet for approval
Tanzania	National Disaster Management Policy for Tanzania mainland (Existing Policy is being reviewed)[*40,*41] Also there is an Disaster Management Policy in Zanzibar	Approved in 2004 (It is being Reviewed) Zanzibar Policy was approved in 2011	This policy and National Operational Guidelines for Disaster Management 2003 regulates the outline of disaster risk reduction policy at all administrative levels. A new policy is proposed as of 2012.
Uganda	National Policy for Disaster Preparedness and Management[*44]	Formulated in 2010 and approved in May 2011. [*45]	This policy urges the Office of the Prime Minister – Department of Relief, Disaster Preparedness and Management to develop through a consultative process and present to Cabinet and Parliament a National Disaster Preparedness and Management bill.

Table 1: The representative national policy for DRR

2) Institutional Frameworks

At present, all the Partner States have an institutional framework for disaster management. On the basis of these disaster management frameworks, the disaster risk management frameworks are proposed in Burundi, Kenya, Rwanda and Tanzania and newly approved in

Uganda. These proposed or approved institutional frameworks of the Partner States are as follows:

In Kenya and Rwanda, the ministries for disaster prevention exist (Ministry of State for Special Programmes in Office of the President in Kenya and Ministry of Disaster Management and Refugee Affairs (MIDIMAR) in Rwanda). In Uganda the Directorate for Relief, Disaster Preparedness and Refuges in the Prime Minister's Office is the organization for disaster prevention while in Tanzania, the Disaster Management Department in the Prime Minister's Office for mainland and the Disaster Management Department in the Second Vice President's Office for Zanzibar are the responsible organization for disaster prevention. In Burundi, The directorate of civil protection in the Ministry of Public Security is responsible for disaster management.

In the all Partner States, there are disaster management committees at local levels. In Kenya, there are disaster management committees at national level, county level district level and community level[*22].

In Tanzania, disaster management committees exist at national regional, district, ward and village levels[*41]. For Tanzania Mainland and there are disaster management committees at National, District, and Shehia level for Zanzibar. Non-Governmental Organizations (NGOs) also participate in the committees for continuous observation of disaster risks.

In case of Uganda, there are national disaster management committees, district disaster management committees, and sub-county/ward/village committees[*45].

In Rwanda, the National Disaster Management Executive Committee, District Disaster Management Committees (DDMC) and Sector Disaster Management Committee (SMDC) exist. The Committees provide relevant and timely information to the MIDIMAR for all matters related to DRRM. As a joint coordination mechanism, the MIDIMAR/the UN Joint Intervention Management Committee (JIMC) is proposed in Rwanda. JIMC is chaired by the Minister of Disaster Management and Refugee Affairs. JIMC has an advisory role to the National Disaster Management Executive Committee (NDMEC). In addition to that Rwanda has the National Disaster Steering Committee composed by relevant Ministries involved in disaster management including Ministry of Disaster Management and Refugee Affairs (MIDIMAR), Ministry of local government (MINALOC), Ministry of Natural Resources (MINIRENA), Ministry of infrastructures (MININFRA), Ministry of internal security (MININTER), Ministry of agriculture (MINAGRI) and Ministry of defense (MINADEF).

In Burundi, a National Committee, provincial and communal committees are in place to follow-up disaster management.

Institutional frameworks of the EAC Partner States are indicated in **ANNEX 5.**

3) National Platforms for Disaster Risk Reduction

National platforms for DRR are already formed at all the EAC Partner States. **Table 2** shows the title of the platforms and the participants.

State	National Platforms and National Focal Points
Burundi	**The National Platform for Risk Prevention and Management Disaster (La Plate Forme Nationale de Prévention des Risques et de Gestion des Catastrophes)[*21]** Secretariat: Ministry of Public Security(General Directorate of Civil Protection) -Focal points of ministries concerned with the technically DRRM -Public sector -International and local NGO -UN agencies
Kenya	**National Platform for Disaster Risk Reduction (NPDRR)[*26]**

State	National Platforms and National Focal Points
	Secretariat: Ministry of State for Special Programmes; Office of the President -Line Ministries -UN agencies -NGOs -Academic institutions -Media -Other stakeholders
Rwanda	**National Platform for Disaster Risk Reduction (NPDRR)**[*38] Secretariat: Ministry of Disaster Management and Refugees Affairs -Focal points of all Ministries part of the National Disaster Management Executive Committee -International donors -UN agencies -International organizations -International and national NGOs -Red Cross movement organizations -Civil Society Organizations -Private sector -Media -Sub-national DM Institutions -Local authorities (through Ministry of Local Government MINALOC)
Tanzania	**National Platform for Disaster Risk Reduction**[*7] Secretariat: Office of Prime Minister (Disaster Management Department) -Central and local government -Government and private institutions -UN agencies -Media -International and national development organizations -Religion/faith groups -NGOs and Community Based Organizations (CBOs) **Sub- National Platform for Zanzibar** Secretariat : Office of the Second Vice President (Disaster Management Department) -Ministries -Local government -UN Agencies -NGOs and CBOs -Media
Uganda	**National Platform for Disaster Risk Reduction (Inter-Agency Technical Committee)**[*44] Secretariat: Office of the Prime Minister (Directorate of Relief, Disaster Preparedness and Refugees) -All Line Ministries -UN agencies -NGOs -Relevant stakeholders -Media

Table 2 National Platforms and Secretariat of each EAC Partner States

2.3.2 Risk Identification and Early Warning

The starting point for reducing disaster risk and for promoting a culture of disaster resilience lies in the knowledge of the hazards and the physical, social, economic and environmental vulnerabilities to disasters that most societies face, and of the ways in which hazards and vulnerabilities are changing in the short and long term, followed by action taken on the basis of that knowledge.

1) Risk Assessment and Identification

Risk assessment is the determination of quantitative or qualitative value of risk related to a concrete situation and a recognized threat (also called hazard).

National and local risk assessments based on hazard data and vulnerability information for key sectors are available in Kenya.[*7] The risk assessments are scattered in different sectors and institutions. Therefore, these institutions need to be coordinated to share their information with other stakeholders. Currently the government has received assistance from the UNDP and has consulted with Kenyatta University to draw up a national risk assessment and vulnerability maps for Kenya[*7].

In Tanzania, DMD under Prime Minister Office (PMO) carried out a National Disaster Vulnerability Assessment in 2008. Assessment was conducted on multi-level administrative disaster management organizations, man-made disasters, disasters due to climate change, damage from geologic conditions, ecological disasters. DMD also conducts Comprehensive Food Security and Nutritional Assessment with National Food Security Team under the Ministry of Agriculture. These assessments are conducted with aid from the donors. At the moment the Disaster Management Department under the UNDP is carrying on Risk Vulnerability and Capacity Assessment in 15 districts. Tanzania faces following problems on risk assessment.

- Lack of a system to know of disaster occurrence and its damage and put them together at the central level. Only the National Bureau of statistics Tanzania collects the information about the damage regularly.
- Risk assessment results are not fully utilized for intervention and planning purpose due to inadequate financial resources[*7].
- Ability to assess the full range of consequences and vulnerabilities, especially secondary impacts, comparative economic analysis and assessing non-monetary costs[*7].

In Rwanda, identifying disaster high risks zones on flood and landslides were carried out in the Government Action Plan 2011-2012 by Dec. 2011[*32]. Disaster Risk Assessment also on floods and landslides was conducted in three districts which are Burera, Masanze and Nyabihu.

In Uganda risk assessment is sector based, the Ministry of Agriculture conducts food security and agriculture related risk assessment, the Ministry of Water and Environment handles weather, floods and drought, NEMA and the Department of Disaster Preparedness and Management deal with landslides, the Ministry of Energy deals with seismic waves, and the Ministry of Health deals with disease and epidemics. Reports on those matters are submitted to the National DRR platform with recommendations of possible actions. Inter – agency risk assessments are also carried out when need arises, for example the National food security assessments organized by the National Food security sub-committee among others.

In Burundi, multi-hazard risk assessment was conducted, and 10% of schools and hospitals have been assessed. On the other hand, national standards for casualty assessment have not yet established.

2) Hazard Maps

A hazard map is a map that highlights areas that are affected or vulnerable of a particular hazard. They are typically created for natural hazards, such as earthquakes, volcanoes, landslides, flooding and tsunamis. Hazard maps are useful in disaster management in order to address prone areas to hazards

In Rwanda mapping of vulnerability and hazards in disaster prone areas were carried out in the Government Action Plan 2011-2012 by March 2012[*32] by the Ministry of Disaster Management and Refugee Affairs.

In Tanzania, the National Land Use Framework Plan 2008-2028 is planning to implement

hazard/risk mapping (planning stage). In Zanzibar, Disaster Risk and Capacity Needs Assessment was done in 2008 which gives the risk and vulnerability map of Zanzibar on disaster issues. Participatory needs and capacity assessment has been done in 85 Shehias while currently the assessment is carried out in 50 other Shehias of Zanzibar (as of October 2010) [*7].

In Uganda hazard maps for wetlands, environment, forests, earthquakes, landslides, drought and floods are in place but not updated regularly. Earthquake hazard maps were developed in 1994, Wetlands in 1997-2000, environment in 1999, forest in 1999-2001, landslides in 2002 and is currently being updated for the Mount Elgon region, and drought/ floods are being developed[*43]. The disaster profiles and maps will be updated at least once every 3 years[*44].

In Kenya, hazard maps are in place in terms of geographic maps but the UNDP is supporting the development of hazard specific maps through Kenyatta University.

In Burundi, maps are available for drought, floods and earthquakes.

The hazard maps mentioned above are not available on the internet apart from Uganda (http://41.210.160.198:8081/). Easy access to the hazard maps should be established.

3) Early Warning Systems (EWSs)

A warning system is any system of biological or technical nature deployed by an individual or group to inform of a future danger. Its purpose is to enable the deployer of the warning system to prepare for the danger and act accordingly to mitigate or avoid it.

In Burundi, the Ministry of Agriculture and Livestock provides the EWS in collaboration with agencies of the United Nations system. It publishes a monthly newsletter that aims to prevent a severe food crisis and to relate to the assessment of food security[*20]. In addition, EWSs exist in some sectors such as drought, flood, rainfall, landslides, epidemic and environment.

In Kenya the EWS on drought links to a drought correspondence plan at 22 arid and semi-arid areas. Moreover, community level drought EWSs exist at 28 arid and semi-arid areas[*6].

In Rwanda the EWSs are in place on food security, flood, rainfall, landslides, epidemic, environment and earthquakes. There are other initiatives in a United Nations Development Programme/ United Nations Environment Programme (UNDP/UNEP) Project called "Reducing Vulnerability to Climate Change by Establishing Early Warning and Disaster Preparedness Systems and Support for Integrated Watershed Management in Flood Prone Areas" which was begun in July 2010[*33].

In Tanzania, there are various kinds of EWS to monitor various kinds of hazards. The systems in the government include Tanzania Meteorological Agency (TMA), Seismology Unit in Ministry of Energy and Minerals, Emergence Preparedness and Response Unit (EPRU) in Ministry of Health and Social Welfare, Plant Protection Unit in Ministry of Agriculture and Food Security. Non-governmental systems include Famine Early Warning System Network (FEWS NET). Moreover, the Disaster Management Department (DMD) of Zanzibar plans to have an Emergency Situation Room (ESR) and capacitated by the UNDP of which one of its functions is to be a central point for all sectors for issuing early warnings in the country. DMD of Zanzibar is further planning to have a comprehensive data base of disaster related information[*7].

In Uganda, the main institutions for EWSs are the Department of Relief, Disaster

Preparedness and Management, the Department of Meteorology, Ministry of Agriculture, Animal Industry and Fisheries, Ministry of Health, Ministry of Water and Environment and the Local Governments[*43]. EWSs exist on food security, drought, flood, rainfall, landslides, epidemic and environment sectors.

Some countries develop EWSs with assistance from international donors. In case of a joint work with international donors, there is a possibility that the international donors with take the initiative in the work in countries that do not have adequate skills to implement EWSs by themselves. Therefore, implementation of a project which builds the implementation capacity of The EAC Partner States for EWSs will be beneficial.

4) Disaster Communication and Information Flows

Disaster communication and information flow is an important aspect of the DRR. However, the critical part is the timely dissemination and flow of the early warning information.

In Burundi, there is a plan to establish a communication unit in the National Platform on Disaster Prevention and Management[*7].

Even though information service with local dialects is available in Kenya, one of the key constraints is accessibility to some of the remotest part of the country due to bad terrain and poor road network[*7]. In terms of EAS, in cases of alert/ emergency rapid and coordinated action should be taken. In the remotest part of the country, there is no information system except road network, therefore bad terrain and poor road network interrupt the accessibility to the service[*7].

In Tanzania, weather forecast produced by Tanzania Meteorology Agency are conveyed through daily TV and Radio broadcast[*7]. Zanzibar has distributed 16 radio calls systems for the Disaster Focal points at District level so as to communicate any disaster event in their districts. A problem on disaster information sharing in Tanzania is lack of a consolidated database or website where various stakeholders and the general public can disseminate and access data and information on disaster risk management. Normally information on disasters is shared with stakeholders, community at risk and the general public through formal communication, disaster platform, press release, radio and television programs and so on[*7]. Another problem in Tanzania is inadequate resources for installation of a country wide disaster communication system (funds, technical know-how and IT equipment).

There is also a need to develop other means for information sharing like the Annual Government Report on Disaster Prevention and Response, Database; Web based information on disasters and so on. This should go on parallel with educating the public on the importance of making follow up on various kinds of disaster information[*7].

In Rwanda there is daily TV and Radio weather information produced by Rwanda Meteorological Center. Additionally, the Ministry of Disaster Management and Refugee Affairs (MIDMAR) has distributed more than 400 cell phones to sectors in charge of social affairs for the reporting of potential disaster and for disaster occurrence. This is done through an initiative called Disaster and Emergency Communication System supported by World Food Programme (WFP) that aims at communicating timely and effectively all information related to disasters by using mobile phones and servers.

ANNEX 6 shows information flows for EWSs and responsible organizations.

2.3.3 Knowledge, Innovation and Education

Disasters can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience, which in turn requires the collection, compilation and dissemination of relevant knowledge and information on hazards, vulnerabilities and capacities.

Table 3 is a list of education and awareness programmes for community people and students in the EAC Partner States.

In Burundi, the United Nations Children's Fund (UNICEF) and Ministry of Education are planning to integrate DRR into education[*5].

In Kenya, public awareness rising is being done through the administrative units, and the media is also helping out in the awareness raising programme. A survey on needs on flood education was conducted[*6]. A number of NGOs both international and local are also involved in the awareness in awareness rising at community level[*7].

Postgraduate courses introduced at tertiary institutions and DRR integration into the lower level education system is being conducted.

Tanzania conducts various kinds of programmes and workshops for its government personnel and media. A list of these programmes and workshops are as follows.

- Implementation of Strengthening Tanzania Disaster Response Project (STDRP) and Establishment of Disaster Management Training Centre (DMTC) (by United States Agency for International Development (USAID) financial support)[*39]
- Implementation of Disaster Risk Reduction related training to Media and town planners' personnel (DMD Zanzibar) [*7]
- Development of a curriculum about disaster risk reduction/preparation of manuals for related staff
- Zanzibar local communities were involved in the sharpening of the Disaster Risk Reduction Policy via consultative meetings which met at every Shehia, through Shehia Disaster Management Committees the same mechanism is used in the formulation of the Zanzibar Emergent Preparedness and Response Plan (ZEPRP). Their roles and responsibilities are articulated clearly in the policy and Disaster Management Act[*7]
- DMD also organized and participate in live broadcast radio and TV programmes that were the year's theme (Making cities resilient- My city is getting ready) these were discussed among the panelists and viewers through phone calls[*7]
- Development of an Integrated Disaster Management Training Manual (IDMTM).

In higher education, the University of Dodoma and Ardhi University in Tanzania Provide Bachelor and Master courses on DRR respectively[*7].

In Kenya, there are courses offered at undergraduate and post graduate level in local universities such as Masinde Muliro University, Kenyatta University and Jomo Kenyatta University of Agriculture and Technology. Another form of higher education is a network called Periperi Universities. Periperi U which stands for the Partners Enhancing Resilience to People Exposed to Risks Universities. The universities are a continent-wide network for education, training and research in disaster risk reduction. Some universities in Kenya, Tanzania, Uganda and some other African countries are included in the network.

The DMD of Zanzibar plans to integrate/mainstream disaster risk reduction concepts in the primary and secondary school curricula Through the UNDAP 2011-2015 and the Zanzibar Strategy for Growth and Reduction of Poverty 2010-2015[*7]. It should be noted that the abilities to implement these kinds of activities are not sufficient in Tanzania Therefore; Tanzania joins the, South Africa Development Community (SADC) and African Union (AU) to receive support from them.

In Rwanda, the DRR has been integrated in to the education system at secondary school and regular public awareness campaign conducted through media, workshops and meetings.

In Uganda, public awareness rising is being done routinely through training and education workshops, administrative units, and the media is also helping out with awareness raising programmes.

The DRR is being integrated at tertiary institutions and integration with lower level education is being conducted through the national curriculum development center.

The department of disaster preparedness has created a section in charge of awareness and early warning, fully staffed and charged with the duty to conduct technical and community education on hazards and disaster preparedness.

Country	Educational program	Awareness Programs
Burundi		-Workshops and field trips for information and sensitization campaigns (by Office of Civil Protection in cooperation with the UNDP and members of the national platform)[*5]
Kenya	-Disaster risk reduction and disaster education[*7] -There are undergraduate and post-graduate programs for disaster management	-Workshop about tsunami at five (5) counties[*6]
Rwanda	-Education on sensitization about disaster risk management (in primary and secondary schools)[*31] -Ecology and environmental sciences courses in a department on hygiene and sanitation (in many secondary schools) [*31] Disaster Management Module has been developed and integrated into secondary school curriculum.	Regular public awareness campaigns are conducted through media, workshops and different meetings.
Tanzania	-the University of Dodoma and Ardhi University have established undergraduate and postgraduate degree programs on disaster management, respectively[*7]	- A number of DRR workshops has been carried out in Tanzania. For example conducted a two days DMD Zanzibar for students of higher learning institutions of Zanzibar as a base of exchanging knowledge and information on Disaster Risk Reduction issues (October 2010)[*7]
Uganda	-Hazard studies such as climate change, environment degradation, drought and flood patterns (these programmes have not been re-oriented to address disaster risk reduction related to the hazards[*43] -A master program on DRR has been	-Hazard risk management workshops conducted for the communities living in landslide prone districts in the Mt. Elgon region, flood prone areas in the Teso region.

Country	Educational program	Awareness Programs
	introduced in Makerere University -Education on disaster risk areas such as control of environment degradation leading to landslides, floods and soil degradation[*43] -The DRR is being integrated at tertiary institutions and integration with lower level education is being conducted through the national curriculum development center.	

Table 3: Education and Awareness Programmes for Students and Communities in The EAC Partner States

2.3.4 Reducing the Underlying Risk Factors

In reducing underlying risk factors, disaster risks related to changing social, economic, environmental conditions and land use, and the impact of hazards associated with geological events, weather, water, climate variability and climate change, are addressed in sector development planning and programmes as well as in post-disaster situations.

In Rwanda, there has been a major effort to generate a National Land Use and Development Master Plan, led by the National Land Commission (NLC). A draft in August 2010 was presented to the Government[*34]. The Ministry of Natural Resources (MINIRENA) is in charge of land use[*37] ; again an instruction sheet on construction has been developed by the Ministry of Disaster Management and Refugee Affairs (MIDIMAR) in collaboration with Rwanda Housing Authority (RHA) to reduce disasters mainly caused by heavy rain with wind and storms.

In Tanzania, National Land Policy (1995) has formulated a policy about safe land supply. The village Act No. 5 of 199 determines a formulation of village land use plan by village offices. National Human Settlements Development Policy, 2000 mentions to obey the village land use plan in the section of a village development plan. The land use planning Act No. 6 of 2007 was formulated in 2007, and land use regulation can be implemented in an integrated way from the central level to the local governmental level.

In Uganda, Food security is at risk. National food silos are being constructed in some parts of the country. Uganda's wetlands have been drained for rice production. The degradation of the wetlands is partly responsible for increased flooding during rainy seasons and extreme water shortages during the dry seasons. Programmes to address floods and drought hazards include wetlands regeneration by encouraging rice growers to adapt upland rice production, the national Agricultural Research Organization is conducting research on disease and drought resistant crop varieties[*43].

Hazard mapping and registration of households at risk of landslides is being conducted, DRR has been mainstreamed into the national development plan and is being integrated with all sector plans. Mapping of Wetlands is being done by Ministry of Water and Environment in order to establish boundaries and reduce human activities in these wetlands. The exercise is multi - sectoral

In Kenya, the DRR is being mainstreamed into the national development planning and programmes and the use of DRR is being emphasized.

DRSRS provides EW on crop performance while the Ministry of Agriculture provides

information on food status in the country. There is a plan to apply building code, but the plan has not been implemented due to lack of implementing structures and not experts. Also a programme on living condition improvement has not implemented due to lack of budget[*7].

In Tanzania, there is Food Security Information Team at national level, which carries out two food security and nutrition assessment every year. Currently decentralization of food security and nutrition assessment is taking place. In June 2010 two regions (Lindi and Mtwara) have been piloted and have conducted an assessment and produced their own Food Security and Nutrition Report[*7].

In Burundi, there exists a program of food security, environmental protection, poverty reduction and climate change adaptation. Land use plan is managed by Ministry responsible for Land and Urban planning. Human settlement in flood prone area or area with questionable stability is hard to control from DRR National Platform because they have no mandate to interfere with Land acquisition. A master plan for land management is under preparation.

Regarding building code, most of buildings that are constructed in planned area follow procedure concern design and acquisition of Building permit. However, during construction there is no proper supervision to ensure the structure follows standard. Although, most of the part of Burundi is in the Great Rift Valley and seismic waves shake the area almost every day, however most of the quakes are relatively small. Therefore, generally this is not big issue as structural disaster is not significant in Burundi.

2.3.5 Strengthen Disaster Preparedness for Effective Response

At times of disaster, impacts and losses can be substantially reduced if authorities, individuals and communities in hazard-prone areas are well prepared and ready to act and are equipped with the knowledge and capacities for effective disaster management.

1) Emergency Response

Emergency response is a cross-sectoral activity (among sectors of decision-making, armed forces, police, funding, responsible ministries for each disaster, etc.), thus coordinating bodies are required in emergency situations. Coordinating bodies are often located under the Office of the Prime Minister (OPM) or ministries responsible for disaster prevention.

In case of Uganda, the National Emergency Coordination and Operations Centre (NECOC), which is established under the OPM, is responsible for the effective coordination and networking of the various emergency response institutions of the government. But this NECOC is yet to be fully operationalized. District Emergency Coordination and Operation centers exist in 60 Districts[*44].

In case of Kenya, a national disaster response plan is in place. The National Disaster Operation Centre (NDOC) was established in 1998 to deal with management and coordination of disaster response at a national level. The NDOC translates the decisions of the National Disaster Coordination Committee (NDCC) into action or instructions and ensures that those instructions are transmitted and carried out by the Ministries or Departments[*24]. On the other hand, emergency operation centers in Burundi and Tanzania have not been established yet. The Burundi Government has action plans to establish a National, Regional and Provincial Emergency Operation Centre (Un Centre National d'Opérations d'Urgences) [*21]. Tanzania has not yet establishment a National Emergency Operation Centre. However, they have developed a Tanzania Emergency Preparedness and

Response Plan (TEPRP) together with the Tanzania Disaster Communication Strategy for the mainland, while in Zanzibar, they have developed a Zanzibar Emergency Preparedness and Response Plan (ZEPRP) and Zanzibar Disaster Communication Strategy (ZDSC) [*7]. As the other emergency body, the UN agencies have formed an emergency coordination group which receives and disseminates disaster information. An emergency Coordination Group Focal Point is responsible to communicate with relevant government organs, specifically PMO soon after receiving any information on hazards and disasters[*7]. In addition, the Draft Tanzania Disaster Management Policy mentioned that disaster response teams shall be established at all levels to react to disaster and emergencies[*41]. In Rwanda, all agencies at the national and district levels will inform the concerned officials (MIDIMAR) while undertaking any new activities and submit necessary reports requested for or published by the agency [*38].

As a response plan in the EAC Partner States, the state of progress to prepare a disaster response plan is at different stages. A National Disaster Response Plan of Kenya exists[*25]. In Tanzania, DMD has finalized the development on National Emergency, Preparedness and Response Plan. In Rwanda, the Ministry of Disaster Management and Refugee Affairs also has developed the disaster risk management plan with the entire Disaster Risk Reduction cycle. Sector based response plans are in place[*32] and first responders team are being established in the whole country; apart from that the Ministry of Disaster Management and Refugee Affairs is putting in place the Strategic Stores to replace in case of emergency. In Burundi, there is a common form of Rapid Assessment Post-Disaster, but there are no response plans in Burundi. Uganda now has a National Emergency Response Plan that covers all disasters and all the relevant sectors were involved in developing this.

In the EAC, there is the EAC initiative to set up a Maritime Search & Rescue Centre for Lake Victoria supported by the African Development Bank (AfDB). The project is composed of five main components and activities namely 1) the network design and construction of Optical Fibre Cable, 2) Maritime Communication System for Safety, 3) the initial operations and maintenance of the regional Information and Communication Technology (ICT) backbone network, 4) establishment of a Special Purpose Vehicle for the Public Private Partnership model, and 5) project management (including the strengthening of the Project Coordination Unit) [*12]. These initiatives need to be strengthened.

2) Capacity Development

Capacity reinforcement to prepare and responded to national disasters is carried out in the EAC Sub-Region. In Rwanda, the capacity development plan is in place and implemented by the government agencies with support from international agencies and Partner States, for example, training on the establishment of a national disaster command system for the MIDIMAR, Disaster Management Steering Committee, Disaster Management Task Force (DMTF), District Disaster Management Committees (DDMC) was completed with the assistance of the Kenya National Disaster Operation Center (NDOC)[*35].

The MIDIMAR staff and other disaster focal points were trained on disaster management; again UN- Habitat helped in training disaster focal point on making cities' resilience.

Tanzania and the UN together implement a capacity development program for national disaster correspondence. This program enables communities to conduct emergency correspondence activities by distributing equipment for rescue with financial support from the Prime Minister's Office and Tanzania Red Cross[*7]. Kenya NDOC implements emergency correspondence activity. The centre is in charge of disaster reduction, awareness of

community people, evacuation drills and community development besides coordination of disaster responses. The NDOC has a limited capacity building program because of lack of a policy framework to allow allocation of budget and resources.

Information and Communication Systems have been developed and validated in Burundi[*7]. In case of Rwanda, development of a disaster communication system for emergencies was carried out in Government Action Plan 2011-2012 by Sep. 2011[*32]. Stores for emergency responses have been set up in some parts of the country, As a new experiment, the MIDIMAR launched a campaign of distributing cell phones to all staff in charge of social affairs at sectors with the aim to enhance communication on disasters[*36].

In Uganda, sector based capacity building programs exist in health, water and environment, energy and minerals. Capacity building training for national DRR technical staff is being conducted in collaboration with international and regional bodies like Intergovernmental Authority on Development (IGAD), the United Nations Office for Disaster Risk Reduction (UNISDR), the United Nations Institute for Training and Research Operational Satellite Applications Programme and United States African Command (US AFRICOM).

Capacity building training for districts is being regularly conducted by the department of disaster preparedness.

2.4 Disaster Risk Reduction and Management Activities in the National Strategic Plan

In the EAC Partner states there are several activities that are carried out for Disaster Risk reduction and Management

Table 4 (reference number:[*21, *23, *32]**)** is a list of existing activities in the National Action Plans of Partner States.

Table 4: Activities in Disaster Risk Reduction and Management Strategic Plan in the EAC Partner States

Content	Burundi	Kenya	Rwanda	Tanzania	Uganda
Establishment of Institutional Framework for DRRM	▨	▨	▨	■	■
Emergency Response and Preparedness	▨	▨	▨	■	■
Policy / Strategy Making and Implementation	▨	▨	▨	■	■
Disaster Mitigation	▨		▨	■	■
Purchase of Equipment	▨	▨			
Cooperation between National and Regional Bodies			▨	■	■
International Cooperation (EAC)		▨		■	■
Integration CCA Strategy into DRRM	▨	▨		■	■
Vulnerability Assessment	▨	▨	▨	■	■
Monitoring and Early Warning System	▨	▨	▨	■	■
Establishment of DRRM Fund	▨	▨			
DRR Awareness (Workshop, Media, etc.)	▨	▨	▨	■	■
DRR Information Dissemination	▨			■	■

Content	Burundi	Kenya	Rwanda	Tanzania	Uganda
Capacity Building, DRRM Training					
Education Program					
Community DRRM					
Integrate Gender into DRRM Plans					
Social Safety, Insurance Support for Victims					
Disaster Recovery Plan					
Mainstreaming of DRRM					

: Country with strategic plans
: Country with no strategic plan but activities conducted:
: No Activities

2.5 Existing International Projects and Programmes in the EAC Partner States

Programmes funded by international donors and organizations in the EAC Partner States are listed in ANNEX 7. The total number of international programmes in Kenya and Tanzania are the first and second largest numbers in the EAC Sub-Region, respectively. The large economy and much disaster occurrences and victims in Kenya and Tanzania are reflected in the imbalance of project numbers. However, other countries have also vulnerability for national disasters. It is expected to more actively perform DRR international programmes in Burundi, Rwanda and Uganda[*5,*8,*9,*10,*11,*12].

World Meteorological Organization (WMO) projects are conducted in cooperation with regional organizations, such as SADC and ICPAC. The Activity of EAC in this area is weak.

In the EAC Partner States, the effect from climate change causes a high concern in people. Their main concerns about climate change are the increase in occurrence of extreme weather and climatic events (e.g. floods and droughts), expansion of dry land and sub dry areas, threatening biodiversity and decrease in agricultural productivity. Some projects for correspondence to climate change are conducted by international programmes.

2.6 Disaster Risk Reduction and Management Fund

The financial condition for DRR in the EAC Sub-Region is severe. In many cases, primary funding sources for DRR and emergency response are sectoral budgets of ministries responsible or affected local governments. The subdivided and limited DRR funds are one of the challenges for "multi-sectoral" disaster management and response.

National or international funds are helpful for DRR. However, in the EAC Partner States, only Tanzania has an operational national DRR fund, which is managed by the Prime Minister's Office for Tanzania Mainland (**Table 5**, reference number:[*21,*22,*38,*41,*44]). The fund is used for disaster response, mitigation and capacity building; hence capacity at

national level is developed. But, the capacities are not transformed into the capability to respond to a disaster efficiently and effectively on the ground[*7]. There are no funds allocated from central to local government for recovery in Tanzania, thus most disaster recovery is undertaken through normal development programs[*7]. It's necessary to set aside funds in the National Budget which will directly support the local government and community facing disasters, implement some preparedness and mitigation activities.

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Current				National Relief Fund	
Proposed	Special Fund PRGC (Prevention des Risques et Gestion des Catastrophes: risk prevention and disaster management)	Disaster Relief Trust Fund MRDM and Directorates Budget Devolved funds	Disaster Risk management Fund	National Disaster Management Basket Fund (Tanzania Mainland) Disaster Management Fund (Zanzibar)	National Disaster Preparedness and Management Fund (Bill)

Table 5: Current and proposed national funds in the EAC Sub-Region

All the EAC Partner States proposed DRR funds in the National DRR strategies or policies. The National Policy of Uganda is the most motivated policy, which aims to provide for annual allocation of a minimum of 1.5 % of the annual approved budget to the National Disaster Preparedness and Management Fund[*44]. Burundi, Kenya and Tanzania, all stakeholders should contribute DRR funds. Especially, international agencies have an important role to lead them.

DRR funding status in each state is follows.

<Burundi> [*21]

Exceptional funds are released by the government to support the key ministries in the field of PRGC and affected areas. Some structures involved in emergency response are subsidized by the state. Despite the efforts of the government, the tendency to depend on aid and external funding for emergency relief is still marked. Internal resources are scheduled in the National Budget. However, these resources are limited and do not allow the government to cover the needs related to the magnitude of the disaster. The state is obligated to promptly mobilize an additional budget. Thus, the Special Fund of PRGC is proposed in the National Strategy. The Special Fund of PRGC will be funded by:

- The national budget
- Humanitarian aid
- Private sector contributions:
  - ・Factories and industries
  - ・Buildings in commercial and industrial
  - ・Owners of vehicles, motorcycles, boats and planes
  - ・Banks and Insurance Companies
  - ・Hospitals and pharmacies
  - ・Commercial establishments
  - ・Gas Stations
  - ・Funeral, etc.
  - ・Schools and private universities
  - ・Power and department stores

<Kenya> [*22]

Currently, the exchequer provides the Ministry Responsible for Disaster Management

(MRDM) with funds mainly for relief activities. Due to lack of a policy framework no funds have been provided for in the budget for the overall implementation of DRR activities, but in the sectoral budgets' funds have been provided for sectoral planning and development purposes, for example in agriculture, transport, roads, water, health, and housing. The UNDP has committed some funds to the country for disaster management programmes[*7].

The draft of National Disaster Management Policy (NDMP) proposes the following three kinds of funds.

1) Disaster Relief Trust Fund

The NDMP proposes the establishment of a Disaster Relief Trust Fund in the MRDM. Contributions to the Fund will be from the exchequer, private sector, individuals, Civil Society Organizations (CSOs), development partners and stakeholders. The Fund will be managed by a Board of Trustees and will address all phases of disasters including: management, prevention, mitigation, response, recovery, rehabilitation and reconstruction for disasters that have been declared as 'national disaster' and therefore beyond the capacity of county governments to manage.

2) MRDM and Directorates Budget

A core budget for the national disaster management directorates will be provided by the government of Kenya through the MRDM. This core budget is expected to be significantly augmented through contributions of staff, stocks, programmes and relief contributions from partner organizations and external donors.

3) Devolved funds

The county governments will budget for funding of disaster management activities from devolved funds according to their disaster needs. Laws governing such funds will be reviewed in order to provide for allocation of funds from devolved kitties for county disaster management every financial year.

<Rwanda>[*38]

Description regarding funds in the National Disaster Management Policy (submitted to cabinet in June 2012) is as follows:

The Government shall allocate a budget to equip institutions such as the MIDIMAR, Ministries/Institutions and local level for disaster risk management initiatives (prevention, mitigation, response, and rehabilitation) through specific, regular, development programs. Government institutions shall take the lead to respond to disasters at local level. The Executive Committee will mobilize relief assistance if the affected areas and communities are unable to cope with the disaster situation.

The primary source of funding for disaster responses shall come from the local administrations (districts) in affected areas. When the magnitude of the situation overwhelms the districts capacity to cope with it, the second source will be the next highest level of administration above the affected areas. The Ministry of Disaster Management and Refugee Affairs will work closely with the concerned stakeholders to provide assistance when disasters occur and collaborate regularly and mutually in all process of disaster management.

The budget allocated to disaster management by the MIDIMAR and its various partners, from governmental and non-governmental, bilateral and multilateral cooperation agencies will be used for the implementation of the Five- Year Strategic Plan.

<Tanzania>[*41]

The National Relief Fund budget exists at the central government level to support any disaster response activities across all the sectors. The response and recovery processes are conducted by respective sectors or–multi - sectorally depending on the effects caused by the disaster. The Budget for disaster response is still minimal which leads to difficulties in planning disaster recovery. Other sources of fund like insurance and the private sector have to be explored. The emergency fund is allocated in the National budget for emergency purposes in the country [*7]. It is described in the Draft of National Disaster Management Policy that the government should establish a National Disaster Management Basket Fund in which different stakeholders will be allowed to contribute to the fund.

<Uganda>[*44]

The Government has not established an emergency fund as of 2011. But, in areas emerging from disasters such as North-Eastern Uganda, the Government established a micro-finance credit scheme to support recovery efforts of the communities[*7].

The National Policy for Disaster Preparedness and Management provides following regulations regarding DRR funds.

1) Parliament shall ensure that adequate resources and facilities are provided to the Office of the Prime Minister - Directorate of Relief, Disaster Preparedness and Refugees to enable it to perform its functions effectively.

2) The policy urges the Ministry of Finance Planning and Economic Development in liaison with the Office of Prime Minister to develop and present to the cabinet and Parliament; a National Disaster Preparedness and Management Fund Bill. The bill should among others provide for annual allocation of a minimum of 1.5 % of the annual approved budget to the National Disaster Preparedness and Management Fund. The fund will be used for Disaster Preparedness and Management in the country. International and other national development partners should be encouraged to contribute to the fund. A transparent mechanism of accessing resources from the fund should be worked out.

3) The Office of the Prime Minister - Department of Disaster Preparedness, Relief and Refugees shall be responsible for the administration of the fund. The operation of this fund will be undertaken through the relevant ministry according to the existing financial regulations.

2.7 Applicable Experience and Lessons Learned

Based on global trends and experiences, DRR should embrace a holistic approach to disaster risk management, mitigation, preparedness, response and recovery. The following are the lesson learned from various disaster and International best practice.

2.7.1 Economic Evaluation on Disaster Risk Management Activities

In order to sensitize decision makers and the public on the need to increase investment in DRRM activities, the economic evaluation on DRRM activities is one of the effective tools. The following are representative results of the economic evaluation on DRRM activities:

A study, "The Cost of Delayed Response: Lessons from the 1999-2001 Drought in Kenya", conducted by disaster management experts in 2002, estimated that the drought - one of the worst in 20 years – killed at least 60 percent of livestock and caused crop failures in parts of the Rift Valley, Coast, Eastern and Central provinces, costing the government some US$343 million in food and non-food emergency aid.
Further, the study revealed that only $171 million would have been required to effectively respond to the drought had there been an effective disaster management system in place. The extra amount was attributed to poor preparedness and a delayed response[*27].

Figure 5 shows one of the examples of relationship between meteorological hazards and GDP per capita growth in Kenya and Africa region. Relationships are not so clear but after big floods GDP of Kenya decreased compared to Africa region. In Kenya Vision 2030, it says that the Economic Pillar of Vision 2030 seeks to improve the prosperity of all regions of the country and all Kenyans by achieving a 10% Gross Domestic Product (GDP) growth rate by 2012. Disasters obviously harm the achievement of the Vision.

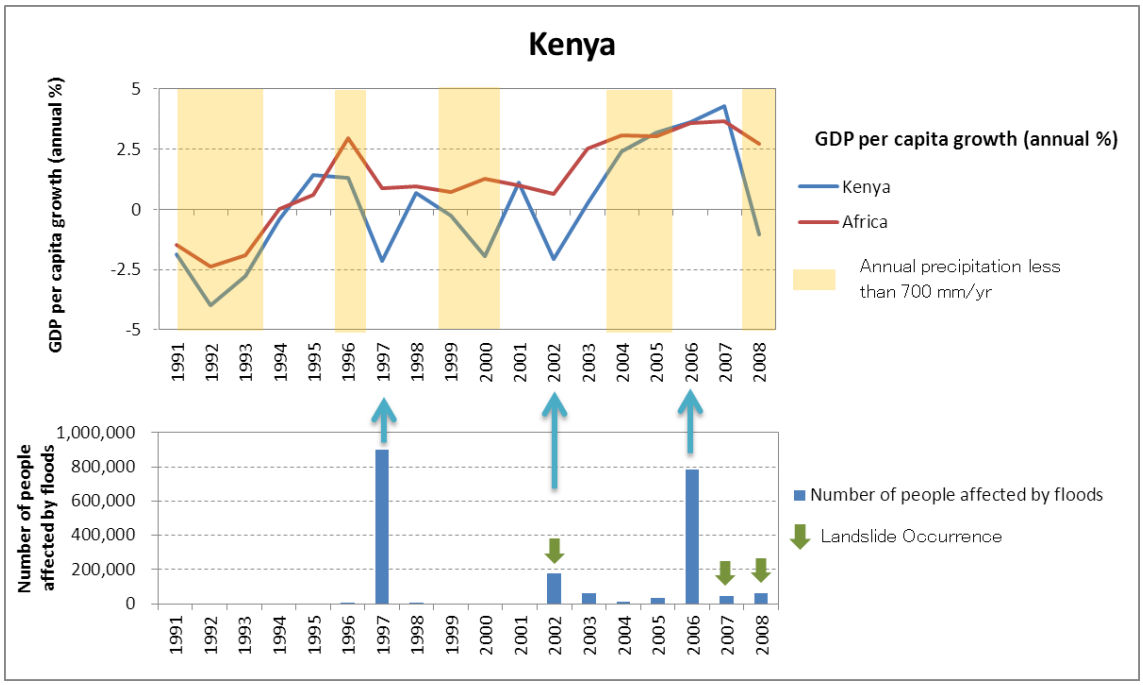


Figure 5: Relationships between Meteorological Hazards and GDP per capita growth in Kenya

2.7.2 Community-Based Disaster Risk Management Activities

Experience in Kenya

"The Programme for Community-Based Flood Disaster Management to Adapt to Climate Change in the Nyando River Basin in the Republic of Kenya" was conducted by JICA from 2010 to 2011.

The Project aims to establish a flood management system by implementing structural and non-structural measures for integrated flood management in the 24 villages of the flood prone parts of Nyando District and Kisumu District. This Programme consisted of two projects of structural measures and non-structural measures.

The project of structural measures was named "The Project for Construction of Evacuation Places and Routes", and the project of non-structural measures was named "The project for Building Capacity on Flood Disaster Management".

The structural measures aim at constructing: i) Evacuation places by providing an evacuation center, toilets, storage facilities, and a borehole; and ii) Evacuation routes by providing footbridges, culverts, and weirs. A total of 78 facilities were requested for the structural measures.

The non-structural measures included the development of and training for Community Based Flood Management Organizations (CFMOs). In addition, the non-structural measures covered public awareness campaigns via education programs and dissemination of information using radio programs and posters. The components of the non-structural measures were i) Development of Community Based Flood Management Organizations, 2) Community flood management training, 3) Technical O&M training for structural measures, 4) Education programs for disaster prevention, 5) Radio programs about flood management, and 6) Awareness campaign using posters about flood management

During the Project, the flood management system was developed within the Project Area comprising 24 villages. The number of direct beneficiaries of the Project was estimated at approximately 20,000 people who live in the 24 villages. In addition, the Project contributed to improving: i) The public's awareness of flood management; ii) Evacuation safety; and iii) Flood safety in the Nyando River Basin. The O&M system was developed as part of the non-structural measures of the Project. Community Based Flood Management Organizations (CFMOs) was developed and trained in financial management, O&M, and the activities required according to the flood disaster cycle.

One of examples of the good practices of the project, in the project of structural measures, **evacuation places with raising foundation** to avoid floods were constructed. And in the project of non-structural measures, even residences not living in pilot project areas, they recognize the existence of activities of community flood disaster management by JICA and importance of evacuation. This is one of the good results from the radio programme regarding flood management included in the project.

Thus combined programmes of structural and non-structural measures should be considered against hazards, and also structural measures such as raising foundations of evacuation places, houses, evacuation routes, and so on against flood should be considered as a part of countermeasures.

2.7.3 Multi-lateral Disaster Risk Management Activities

There are two Multinational Organizations that conducts activities in our EAC sub region. One is ICPAC (IGAD Climate Prediction and Applications Centre) and the second is Lake Victoria Basin Commission (LVBC). This sub-chapter enumerate lesson that can be learned from these activities.

a) ICPAC

IGAD Climate Prediction and Applications Centre (ICPAC) is a specialized institution of the Intergovernmental Authority on Development (IGAD).

The key objectives of ICPAC are;

- To improve the technical capacity of producers and users of climatic information, in order to enhance the input to and use of climate monitoring and forecasting products;
- To develop an improved, proactive, timely, broad-based system of information and product dissemination and feedback, at both sub-regional and national scales through national partners;
- To expand the knowledge base within the Sub-Region in order to facilitate informed decision making, through a clearer understanding of climatic and climate-related processes, enhanced research and development, and a well-managed reference archive of data and information products.

Its member countries are – Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda – as well as Burundi, Rwanda and Tanzania.

The mission of ICPAC is;

- Fostering sub-regional and national capacity for climate information, prediction products and services, early warning, and related applications for sustainable development in the IGAD Sub-Region.

The vision of ICPAC is;

- To become a viable centre of regional excellence in climate prediction and applications for climate risk management, environmental management and sustainable development.

Thus ICPAC aims to be a center of excellence for climate related issues. One of the core programmes of ICPAC is computer services and data management, including processing and computer applications. This kind of activity is quite useful to member countries. And organizations responsible for meteorology in each member country exchange data with ICPAC as necessary. This should become a good example as a center of excellence in the region.

b) Lake Victoria Basin Commission (LVBC)

The East African Community established the Lake Victoria Basin Commission formerly known as the Lake Victoria Development Programme in 2001, as a mechanism for coordinating the various interventions on the Lake and its Basin; and serving as a centre for promotion of investments and information sharing among the various stakeholders. The programme is the driving force for turning the Lake Victoria Basin into a real economic growth zone.

LVBC has conducted several programmes such as “Lake Victoria Environmental

Management Project Phase II (LVEMP II)", "The EAC/AMREF lake Victoria Basin HIV & AIDS Partnership (EALP)", "Lake Victoria Water and Sanitation (LVWATSAN) Initiatives Project", and "Mount Elgon Regional Ecosystem Conservation Programme (MERECP)". These projects/programmes are trans boundary projects/programmes around Lake Victoria and Mt. Elgon. And the purposes of the projects/programmes are to strengthen capacity to build coordination, and to promote harmonization.

These purposes are also in common with DRRM in the EAC Partner States. Therefore, these projects should be good reinforcement for the EAC DRRM.

2.7.4 Conferences Related to DRRM held in 2012

In 2012 two international Conferences were held concerning DRRM. From these Conferences various issues and experience concerning DRRM were shared.

a) The United Nations Conference on Sustainable Development

"The United Nations Conference on Sustainable Development" was held on 20 – 22 June, 2012 in Rio de Janeiro, Brazil. In the Conference, in sectors such as "Food Security and Nutrition and Sustainable Agriculture", "Sustainable Cities and Human Settlements", "Mountains", and "Capacity Building", the importance of considering DRR was emphasized. Thus "Disaster Risk Reduction" is recognized as a cross-sectoral issue, DRR/M should be integrated into the development goals of related sectors.

The outline of the discussion in the Conference is shown below.

(i) Reaffirm the commitment to the Hyogo Framework for Action 2005-2015: Building the Resilience of nations and communities to disasters and call for states, the United Nations system, the international financial institutions, sub regional, regional and international organizations and civil society to accelerate implementation of the Framework and the achievement of its goals.

(ii) Recognize the importance of early warning systems as part of effective disaster risk reduction at all levels in order to reduce economic and social damages, including the loss of human life, and in this regard encourage states to integrate such systems into their national disaster risk reduction strategies and plans.

(iii) Stress the importance of stronger **inter-linkages** among disaster risk reduction, recovery and long-term development planning, and call for more coordinated and comprehensive strategies that integrate disaster risk reduction and climate change adaptation considerations into public and private investment, decision-making and the planning of humanitarian and development actions, in order to reduce risk, increase resilience and provide a smoother transition between relief, recovery and development.

(iv) Call for all relevant stakeholders, including governments, international, regional and sub-regional organizations, the private sector and civil society, to take appropriate and effective measures, taking into account the three dimensions of sustainable development, including through strengthening coordination and cooperation to reduce exposure to risk for the protection of people, and infrastructure and other national assets, from the impact of disasters, in line with the Hyogo Framework for Action and any post-2015 framework for disaster risk reduction.

b) World Ministerial Conference on Disaster Reduction in Tohoku

The "World Ministerial Conference on Disaster Reduction in Tohoku~ Joint Endeavors for Solutions: Wisdom of the World to the Disaster-Affected Areas, Lessons of the Disaster-Affected Areas to the World~" was held on 3rd to 4th July,2012 in Tohoku, Japan. The main points of the Chair's Summary are shown below.

i) Mainstreaming disaster reduction and building resilient societies,

ii) Achieving human security putting human dignity at the center and paying due consideration to children, the elderly, disadvantaged persons, women and other vulnerable groups,

iii) Maximizing disaster reduction capability through appropriately combining structural ("hard") measures such as infrastructure and Information and Communication Technology (ICT) and non-structural ("soft") measures such as education,

iv) Forging a partnership among various stakeholders, transcending sectoral differences,

v) Addressing emerging issues such as climate change and urbanization, and

vi) Eyeing 2015 and beyond, incorporating disaster reduction in a post-2015 development framework as well as establishing a truly effective "post-Hyogo Framework for Action," based on the Hyogo Framework for Action and also on the major findings of the conference above, considering the paradigm shift after the Great East Japan Earthquake.

2.7.5 Experiences and Lessons Learned from "The Great Eastern Japan Earthquake, March, 2011"

JICA is now conducting a study on an approach to the "**Safe and Resilient Society**" based on the experiences and lessons from the "The Great Eastern Japan Earthquake".

The purpose of the study is; To obtain lessons from various disastrous events, particularly the great East Japan Earthquake and; To extract new and additional viewpoints for effective DRM applicable to International community

As a result of the study, three (3) kinds of Gaps were emerged between actual capacity of society/ community and required capacity to cope with disasters

In order to fill the gaps and build a "Safe and Resilient Society", JICA has proposed Three principles/Trinciples approach, consists of 1) Risk Literacy, 2) Redundancy, and 3) Kaizen (continuous improvement).

Risk Literacy:

- Bridge the gap in understanding for various countermeasures between different levels (central government vs. local authority, public administration vs. community)

- Recognize the limitations of countermeasures; pay more attention to two standards, Structure Standard and Recognition Standards.

Redundancy (Value Adding):

- Need to recognize the importance of including disaster risk management aspects into other sectors', such as agriculture, education, health and infrastructure by the holistic program approach, including DRRM.

- Need to incorporate DRRM into long-term development Strategy for the purpose of mainstreaming DRRM.

KAIZEN (Continuous Improvement):

- The need to deal with 3 axes, a time axis, a development phase axis and a target axis, which change continuously, simultaneously and suddenly.

- The need to continuously review and revise strategies, policies, plans and projects over generations in order to put them into practice.

Chapter 3: Strategies and Strategic Actions

The Strategy is a framework for a harmonized and coordinated sub-regional and Partner States programmes and actions to address the DRRM and guide the Partner States and other stakeholders on the preparation and implementation of collective measures to address the DRRM for the attainment of set targets and goals for sustainable development in the EAC Sub-Region.

This chapter presents the result of SWOT analysis for the EAC and Partner States on the basis of the Key priority areas adopted from HFA, basic principles of the strategy formulation, and the proposed strategies and associated actions.

3.1 SWOT Analysis

The SWOT analysis is a strategic planning method used to evaluate the **S**trengths and Weaknesses/Limitations as internal factors, and **O**pportunities and **T**hreats as external factors, involved in a project or in a business venture. One way of utilizing SWOT is matching and converting. Matching is used to find competitive advantages by matching the strengths to opportunities. Converting is to apply conversion strategies to convert weaknesses or threats into strengths or opportunities.

Addressing the DRRM to priorities of the EAC and its Partner States is linked to the ability to implement actions through existing institutions as well as advancing practical solutions. The SWOT analysis for the EAC and Partner States was undertaken on the basis of the HFA key priority areas, with the aim of ensuring that the proposed interventions and existing capacities and abilities adequately target the identified gaps and challenges. The consultations were carried out to provide information on the current affairs through a series of interviews and the data collection survey in the Partner States.

The SWOT analysis revealed a number of existing opportunities and threats in addressing the DRRM as external factors, and strengths and weaknesses of the EAC and the Partner States as internal factors. The full SWOT analysis for the EAC secretariat and the Partner states is presented in ANNEX 8. Critical weaknesses of the Partner States are summarized in **Table 6** below. A number of critical weaknesses exist including inadequate capacities in terms of equipment, finance and human resources for the DRRM activities, which inhibit the implementation of appropriate measures, and enhance the vulnerability to the disasters. The issue of capacity in terms of resources has been identified in a number of Partner States documents, including during the consultative process for the preparation of this Strategy.

HFA Key Priority Area	Critical Weaknesses
1. Governance and Policy	• Policies/strategies for DRM have not been ratified except Uganda and Tanzania. • Most of the organizations in charge of DRRM are newly established, therefore capacities such human resources, equipment and finance are insufficient. • Inadequate capacity for raising fund which can be used for disaster risk reduction activities.

HFA Key Priority Area	Critical Weaknesses
	• There are limited memorandums or treaties for cross-border issues related to DRRM.
2. Risk Identification and Early Warning	• Existing Early Warning Systems do not cover all sectors related to disasters. • Existing hazard profile maps do not cover all sectors for DRM and are not regularly updated. • There is limited standardization of hazard profile mapping. • Consolidated database or website where, various stakeholders and the general public can disseminate and access data and information on disaster risk management are insufficient. • Risk assessment results are not fully utilized for intervention and planning • Inadequate capacity of fund raising which can be used for disaster risk reduction activities. • Experts and equipment for EWS and assessment are insufficient. • Communication channels, education and information flow for hazard EW is relatively low in the EAC Partner States. • There is no elaborate Hazard EWS with good lead time • Assessment of social and other sector impacts induced by disaster in development activities are insufficient. • Preparation of monitoring and evaluation framework and guideline for the DRM activities for partner states is inadequate.
3. Use Knowledge, Innovation and Education	• There is no comprehensive curriculum to conduct DRRM education. • Some states do not have the capacity to carry out comprehensive DRRM trainings. • Public awareness campaigns for DRRM are insufficient. • There is inadequate establishment of information dissemination networks of DRRM information and knowledge. • There is inadequate collection and dissemination of good practices and lesson learned on DRRM. • There are inadequate research activities including traditional and indigenous knowledge within communities for DRRM. • Capacity for DRRM personnel and professionals is limited. • There is limited budget for DRM activities in research, awareness and education.
4. Reducing the Underlying Risk Factors	• There is inadequate implementation of the land use plans. • There is low public awareness. • There are limited research activities for environment and natural resources management related to DRRM. • Food security as well as feed security for livestock for the area prone to disasters is limited. • There is limited financial risk sharing mechanism covering community people and their properties affected by disaster.
5. Strengthen Disaster Preparedness for Effective Response	• Most of the EAC Partner States do not have enough funds for disaster response. • Most of the States do not have Standard Operation Procedure for Disaster. • Public safety and emergency contingency plans for effective response (all levels) are inadequate. • Promotion for other sector's activities such as water resources, transportation securement and food security as a priority is low.

Table 6: Weakness of EAC Partner States in DRRM

3.2 Basic Principles

The DRRM Strategy is formulated in accordance with the fundamental and operational principles of the EAC. In addition, the Strategy is guided by the following principles and concepts:

In development of the strategy, it is understood that disaster risks result from the interaction between natural, technological or conflict induced hazards and vulnerability conditions. The EAC DRRM Strategy will focus on addressing both natural and human induced hazards/disasters.

Since development is human centered and reducing disaster impacts involves regulating human actions that create the conditions in which disasters happen, disaster risk reduction should be seen as a development issue. Therefore, it is required to mainstream the DRRM in the development issues, in order to enhance resilience of society against disasters effectively. In this context, the DRRM is not stand-alone sector or programme and the DRRM sector is required to coordinate and collaborate with the other development sectors. The EAC DRRM Strategy will focus on effective DRRM activities through **mainstreaming the DRRM in the development issues,** with three (3) principles of "Risk Literacy" (understanding of risk by all stakeholders), "Redundancy" (multidisciplinary approach) and "Kaizen" (continuous revising/improvement of capacity of society to cope with disaster). Required actions for mainstreaming DRRM in the development themes and sectors are summarized in **Table 7** below:

Development Themes/Sectors	Actions for Mainstreaming DRRM
Poverty reduction including social protection issues to children, elders and disabled	• To identify constraints to adopting poverty risk assessment in development planning • Poverty profile at risks to understand the nature, incidence, severity and exposure of people to poverty and how poverty causes or worsens disaster risks • To analyze the living standards, main source of income, major consumption items, access to public services and quality, reliability and cost of services. • To analyze major disaster risk the poor face • To determine how poverty affects the onset, intensity, distribution of some types of hazards, particularly those of biological and environmental origin. • To identify strength, weakness, and the poor's survival and coping strategies
Agriculture and rural development	• To assess natural hazards that affect agriculture and rural development • To assess effect of climate change on agriculture • To assess agriculture practice that affect environmental ad natural resources and their contribution to disaster • To assess how policies and programmes for agriculture and rural development take into account issues of hazards and disaster risks that negatively impact • To assess how agriculture infrastructure is resilient to disaster • To set measure to reduce risk to agriculture and rural development from disasters

Development Themes/Sectors	Actions for Mainstreaming DRRM
Environmental management	• To assess the factors that affect environmental change • To identify major environmental hazards and study the relationship between environmental factors and natural hazards • To establish impact of natural hazards to environment • To assess the factors that cause human vulnerability to environmental change • To assess the existing environmental policies, legislation, institution and standards and check their applicability in addressing the requirements for disaster risk reduction • To conduct Risk-based Environmental Impact assessment during development of environmental management intervention and during implementation review stage.
Water resources management	• To establish major types of water related hazards and their risk characteristics • To assess contribution of hydrological processes to human exposure and vulnerability • To assess the adequacy of water sector policies, legislation and institutional arrangement • To incorporate traditional and local methods of water risk management in water resources
Land use planning	• To use land use planning in identification of acceptable risks in disaster risk reduction interventions • To prepare risk maps and use them in land use planning • To assess existing policies, and legislation on land use planning and their applicability on disaster risk reduction • To strengthen institutional framework for development that promote a culture of risk reduction in land use planning
Infrastructure development	• To assess the susceptibility of various infrastructure systems to hazard event • To create awareness of major natural hazards that pose risk to infrastructure • To ensure high survivability of key and critical infrastructure • To establish/strengthen national infrastructure assurance programmes, including protection and emergency preparedness measures • To establish/strengthen national alert system for critical measure
Gender issues	• To place risk problems within the context of broader gender and development considerations • To conduct gender-based risk assessment at the appraisal stage of development and disaster reduction intervention • To establish relationship between gender and natural hazards pattern • To establish special requirements for women and girls during disaster response and recovery • To ensure gender balance in participation in all stages of the disaster risk reduction process
HIV/AIDS and other health issues	• To study the current incidence and prevalence of the diseases include its severity • To establish relationship between natural hazards and disease burden • To conduct training programmes and information system to enhance the capacity of individuals, communities and institutions to reduce the risk of epidemic disaster

Development Themes/Sectors	Actions for Mainstreaming DRRM
Climate change adaptation	• To assess extent, probability and effect of climate change-related damage and loss • To establish potential risk impact of climate change effects, based on scenarios of future climate change, population growth and other factors • To ensure Government implement development policy and budget processes that anticipate effects of climate change • To link National adaptation programmes network to international initiatives

Table 7: Actions for Mainstreaming DRRM in Development Themes and Sectors

(i) The EAC Partner States has limitations of financial resources for the DRRM activities. The EAC will promote the research activities for indigenous knowledge within the community and low cost measures in order to adopt and cope with disasters.

(ii) Individual EAC Partner State has limitations of resources for coping with the cross-border issues and large scale disasters by oneself. Therefore, cooperation/collaboration and partnership among the Partner States are indispensable for such issues. The EAC DRRM Strategy will provide formulation of the cross-border cooperation/collaboration mechanism among the Partner States.

(iii) DRRM has implications for many sectors of the economy and society, meeting the challenge of the DRRM cannot be solely a Partner States Government's initiative. Ensuring long-term sustainability against disasters will depend on the active participation of all stakeholders across the region, understanding the impacts of the disasters, taking timely action and preparing for future impacts. The EAC will pursue a collaborative approach by all relevant stakeholders including the Partner States governments, inter-governmental organizations, communities, the private sector, non-governmental organizations and development partners.

(iv) During the first period of the EAC DRRM from 2012 to 2016, implementation of the DRRM activities shall be focused into the following activities in order to mainstream DRRM in development issues and to enhance the DRRM capacities of related institutions including communities:

- Establishment of institutional and legal frameworks in the EAC and the Partner States including enhancement of capacities of institutions,
- Disaster information management including identification of disaster risks in the EAC Sub-Region, and
- Awareness creation for DRRM in the EAC Sub-Region including the research activities.

3.3 Strategies and Strategic Actions

The EAC DRRM Strategy is proposed on the basis of the results of the above SWOT analysis, the observations from the national consultative meetings in the Partner States and the basic principles above mentioned. The EAC DRRM Strategy comprises five (5) key priority areas adopted from HFA and associated strategies and strategic actions as follows:

HFA Key Priority Area 1:

Ensure that DRR is a national and a local priority with a strong institutional basis for implementation

Strategy 1.1: Provision of framework for collaboration and partnership for the EAC Partner States in DRRM;

Strategic action:

* Establishment of a legal framework and an Implementation Programme for effective coordination of the EAC DRRM Strategy
* Establishment of the EAC DRRM platform for coordination of the national platforms of partner states
* Operationalization of a DRRM unit within the EAC Secretariat which will oversee funding mobilization and allocation of resources
* Development of adequate human capacity for the EAC DRRM unit to manage the EAC DRRM Strategy
* Development of sub-regional standard operating procedures for DRRM including memorandums and treaties for cross-border issues related to DRRM
* Mainstreaming disaster issues in all sectors of the EAC Secretariat and the EAC Partner States to accelerate the EAC DRRM activities effectively

Strategy 1.2: Support of integration of the DRRM into the EAC Partner States National Development Policies, Plans and Programmes;

Strategic action:

* Establishment of the EAC DRRM Fund for all of the activities of disaster risk management cycle
* Mobilization of resources for assistance of DRRM programmes and projects for the Partner States
* Harmonization of DRRM strategies of the Partner States, including promotion of community participation and identification of harmonized activities in DRRM in line with Climate Change Adaptation and Development Programs
* Facilitating ratification of DRRM Policy, Strategy and other frameworks among the Partner States
* Development of a regional multi-sectoral contingency plan, a response plan, a relocation/resettlement plan based on national and regional scales, considering trans-boundary problems and effects
* Aligning institutional structure to accommodate DRRM and avoidance of duplication across sectors

Strategy 1.3: Development of DRRM capacity in the EAC Sub-Region

Strategic action:

* Assessment and enhancement of capacity in finance, technology and human resources, and preparation of their inventory in the EAC Sub-Region
* Development and implementation of a capacity development plan for the EAC Sub-Region
* Assessment and adoption of local community indigenous and traditional knowledge on DRRM in the EAC Sub-Region

HFA Key Priority Area 2:

Identify, assess and monitor disaster risks and enhance early warning

Strategy 2.1: Provision of activities to identify, assess and monitor the disaster risks and enhance the early warning systems in the EAC Sub-Region

Strategic action:

* Creation of the EAC Disaster Information Center and facilitation of establishment and strengthening the Disaster Information Centers in the EAC Partner States, which collect, store and share more accurate DRRM information in and around the EAC Sub-Region
* Encouragement of enhancement of multi-sectoral early warning system in each Partner State with adequate lead time
* Establishment of the EAC Information Database for DRRM, including disaster and risk profiles, detailed hazard profile maps, strategies, programmes, early warning systems, communication systems, lessons learned, good practices, and resources in the region; which is necessary support for the Partner States in developing DRRM activities.
* Encouragement of enhancing proper communication systems in the Partner States concerning DRRM
* Assessment of social and other sector impacts induced by disaster in development activities in the EAC Sub-Region
* Assessment and assistance for promotion of ecosystem management (soil protection), urban and land planning in the EAC Sub-Region
* Assessment of small scale hazards like inter-tribal conflicts, refugees, armed conflicts which cumulatively have significant impacts on the communities
* Mobilization of resources in the EAC Sub-Region to the activities including experts, equipment and funds

Strategy 2.2: Monitoring and evaluation on the disaster risk in the EAC Sub-Region

Strategic action:

* Preparation of monitoring and evaluation framework and guideline for the DRRM activities for the Partner States and EAC secretariat
* Promotion of monitoring and evaluation on the DRRM for the EAC Sub-Region including urban and local communities considering KAIZEN (Continuous revising) in the JICA Three Principles Approach

HFA Key Priority Area 3:

Use knowledge, innovation and education to build a culture of safety and resilience at all levels

Strategy 3.1: Awareness creation on DRRM knowledge including indigenous and traditional knowledge and research promotion in DRRM Sector

Strategic action:

* Establishment of a sub-regional DRRM Center of Excellence for research and training development
* Establishment of a network of relevant stakeholders for information and experience sharing including website creation.
* Promotion of traditional and indigenous knowledge within the community to adapt and cope with disaster
* Promotion of use of modern technology in DRRM including application of space based technology

Strategy 3.2: Promotion of mainstreaming DRRM into public and school education curricula

Strategic action:

* Establishment of education networks of DRRM in the EAC Sub-Region
* Preparation and implementation of DRRM curricula, programmes and materials for education institutions
* Promotion of extracurricular activities for DRRM, including use of mass media

HFA Key Priority Area 4:

Reduce the underlying risk factors

Strategy 4.1: Promotion of research activities of environmental and natural resources management, including activities related to identification of disaster prone areas, land use planning and human settlement (especially in enforcement of human settlement regulation) as key issues in building community resilience to disasters.

Strategic action:

* Promotion of research and planning capacity
* Enhancement of land use planning and human settlement capacity
* Mobilization of resource for research activities

Strategy 4.2: Promotion of food security in the areas prone to disasters to enhance community resilience.

Strategic action:

* Assessment of the areas prone to hazards in the EAC Sub-Region
* Assistance of promotion of food security as well as feed security for livestock for the area prone to disasters
* Promotion of stock piling, food strategic reserves and taking advantage of harvests

Strategy 4.3: Promotion of community based DRRM in the areas prone to disasters.

Strategic action:

* Promotion, involvement and Partnership of the Civil Society Organizations (CSOs), Community Based Organizations (CBO), and NGO including the Red Cross and the Red Crescent in Community based DRRM activities and creation of DRRM Champion (Models)
* Consideration of gender and persons with special needs in response and preparedness

* Promotion of new communication technology such as mobile phone, social media networks and radio especially in hazard early warning

Strategy 4.4: Promotion of the development of financial risk-sharing and risk transfer mechanism, particularly insurance and reinsurance against disasters.

Strategic action:

* Research of financial risk sharing and risk transfer mechanism covering community peoples and their properties affected by disasters
* Introduction of financial risk sharing and risk transfer policy with insurance against disaster, motivating insurance companies and people covered

Strategy 4.5: Promotion of Public Private Partnership

Strategic Action

* Promotion of Corporate Social Responsibilities
* Encouragement of corporates to use foundation's funds for DRRM activities

HFA Key Priority Area 5:

Strengthen disaster preparedness for effective response at all levels

Strategy 5.1: Interactive cooperation in search and rescue among the Partner States

Strategic action:

* Development of evacuation plans during emergencies
* Establishment of standardized search and rescue equipment like ambulance, etc.
* Assistance for promotion for other sector's activities such as water resources, transportation securement and food security as a priority

Strategy 5.2: Assistance of establishment of the emergency funds in respective Partner States.

Strategic action:

* Encouragement of establishment of the emergency funds for respective Partner States
* Promotion of operationalization of the emergency funds for respective Partner States

Strategy 5.3: Promotion of cross-border cooperation mechanism for the emergency response and the cross-border issues.

Strategic action

* Establishment of a cross-border cooperation mechanism and approved evidence, such as a memorandum among the EAC and the Partner States for creation of the rescue team with the sub-regional nodes for emergency response including Standard Operation Procedures, etc.
* Implementation of the cross-border cooperation mechanism among disaster related organizations and private sectors
* Promotion of harmonized cross-border DRRM initiatives through joint planning and coordination among the EAC secretariat and the Partner States

Chapter 4: Implementation Plan

Implementation plan will address the institutional arrangement for cooperation and collaboration among the sectors, the financial arrangement, the implementation plan of the DRRM Strategy with indicative cost estimate during a period from 2012 to 2016, and monitoring and evaluation of the activities of the DRRM Strategy.

4.1 Institutional Arrangement

DRRM initiatives are currently undertaken in an uncoordinated manner by various departments, institutions and organizations at the sub-regional level and in the Partner States. There is need to have a defined coordination and management structure established to oversee the implementation of the Strategy and to enhance synergies and minimize duplication of efforts. The establishment of the implementation structure will be anchored on the EAC Protocol for Environment and Natural Resources Management. This will facilitate the creation of institutional arrangements at EAC level with clear linkages to the institutions in the Partner States and the EAC organs and institutions. A similar working relation with international entities will also be established.

Organization structures for implementation of the EAC DRRM Strategy are proposed as shown in **Figure 6**.

To ensure effective implementation of the strategy, two new institutions will be created within the EAC. These are as follows:

(1) Disaster Risk Reduction and Management Unit (DRRMU) in the EAC secretariat

The DRRMU in the EAC secretariat will be established as a secretariat of the EAC regional DRRM platform with the following manners:

- The DRRMU will be under the direct supervision of the Secretary General for effective coordination and rapid response during disaster emergencies
- DRRM is a tool for climate change adaptation. As such, the DRRMU will work closely with the Climate Change Coordination Unit (CCCU) on environmental, agriculture and food security programmes.
- The DRRMU will be linked to the existing Disaster Risk Reduction Unit under the directorate of political federation which was created under the protocol of peace and security with the objective of addressing regional peace and conflicts. There is need to harmonize the activities of the two units or merge them together
- Due to the cross-cutting nature of disasters risk reduction, the unit will have direct links to all the other directorates of the EAC Secretariat for the purposes of cross sectoral coordination and advisory on disaster management issues in order to mainstream DRRM in development activities.
- The Unit will also be linked to EAC specialized institutions specifically, the Inter-University Council and the Lake Victoria Basin Commission (LVBC)

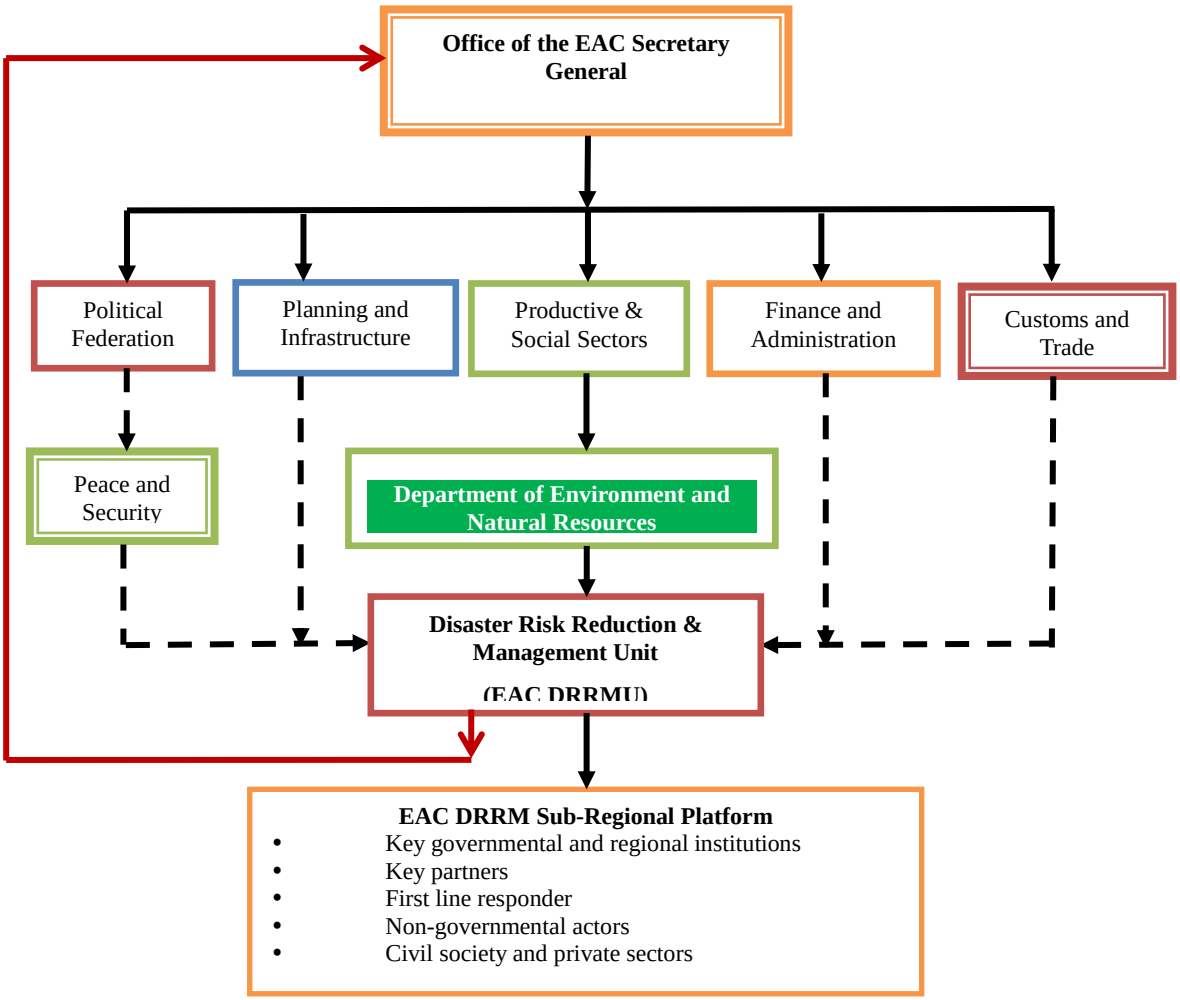


Figure 6: Organization Structures for Implementation EAC DRRM Strategy

(2) EAC DRRM Sub-Regional Platform

The platform will among other things play the major role in advocating and directing DRRM activities in the sub-region. The platform will be composed of National DRRM institutions in the Partner States, line Ministries, National NGOs, regional NGOs, the UN agencies country offices among other stakeholders.

Under the overall coordination and guidance of the EAC DRRMU, the sub-regional DRRM platform will among others undertake the following tasks:

- Creating information database for DRRM, including disaster and risk profiles, regional policies, strategies, capacities, resources and programmes; where necessary support Partner States in developing risk profiles;
- Identifying major challenges and opportunities in setting forth priority areas in addressing DRRM in the EAC Sub-Region;
- Liaising with the AUC and other partners on sub-regional DRRM assessment and reporting to the regional Africa DRRM forum;
- Benchmarking progress made in promoting DRRM and its mainstreaming into development policies, planning and programmes in each Partner State level and at sub-regional level;
- Developing result-oriented work plans of the Sub-Regional Platform for DRRM to

coordinate the DRRM activities in line with the Africa Regional Strategy and the HFA;

- Coordinating joint efforts among stakeholders (National, private and sub-regional institutions) of the Sub-Regional Platform for DRRM to reduce the vulnerability of people at relatively high risk;
- Monitoring, recording and reporting of disaster risk reduction and management actions at sub-regional, national and community levels in line with the HFA;
- Documenting lessons learned and good practices, and share the findings (including promoting twinning of Sub-Regional Platforms for DRRM) at national, regional and international levels;
- Develop, promote Partner States capacity building and resource mobilization in DRRM activities; and
- Promote knowledge management and sharing including best practices.

In order to conduct the tasks thoroughly, periodical meetings for the EAC DRRM sub-regional platform will be instituted considering the national DRRM platforms meetings.

4.2 Financial Arrangement

The Strategy proposes a disaster management window under the EAC secretariat fund to provide core financial resources for implementing its programmes and activities. This fund will serve as a principal source of financing the Strategy and as a seed funding to attract donor support.

Other sources of financing the Strategy will include complementary co-financing of related areas, such as conflict monitoring, desertification, and, agriculture, and new funding from the Partner States, development partners and the private sector. Regarding major groups, the Strategy will encourage innovative approaches that allow citizen contribution to risk reduction services. These include participatory approaches that promote inter-group partnerships in implementing the Strategy at the national and community levels.

4.3 Implementation Plan

A period from 2012 to 2016 is the first period of the EAC DRRM. Therefore, implementation of the DRRM activities shall be focused into the following activities in order to mainstream DRRM in development and enhance the DRRM capacities of related institutions including communities:

- Establishment of institutional and legal frameworks in the EAC and the Partner States including enhancement of capacities of institutions,
- Disaster information management including identification of disaster risks in the EAC Sub-Region, and
- Awareness creation for DRRM in the EAC Sub-Region including the research activities.

Based on the above principle, the implementation plan of the Strategy is proposed as shown in **Table 8** below. Indicative cost estimate of the strategic actions and summaries of the proposed projects to implement the Strategy are shown in **ANNEX 9** and **ANNEX 10**, respectively. Detailed implementation programme for the Strategy shall be developed at the initial stage of implementation as the Strategic Action (1) of the Strategy 1.1.

Strategy	Strategic Action	Estimated Cost (10^3USD) indicative	2012	2013	2014	2015	2016
HFA Key Priority Area 1: Governance and policy							
Strategy 1.1: Provision of an inter-governmental framework for collaboration and partnership for the EAC Partner States in DRRM	(1)Establishment of a legal framework and an Implementation Programme	13,268	■	■			
	(2) Establishment of EAC DRRM platform		■	■			
	(3) Operationalization of a DRRM unit within the EAC Secretariat				■	■	■
	(4) Development of adequate human capacity for EAC DRRM Unit				■	■	■
	(5) Development of regional standard operating procedures for DRRM				■	■	■
	(6) Mainstreaming disaster issues in all sectors of the EAC Secretariat and the EAC Partner States			■	■	■	■
Strategy 1.2: Support of integration of DRR into the EAC Partner States National Development Policies, Plans and Programmes;	(1) Establishment of the EAC DRRM Fund	-	■	■			
	(2) Mobilization of resources for assistance of DRRM programmes and projects for the EAC Partner States				■	■	■
	(3) Harmonization of DRRM strategies of the EAC Partner States				■	■	■
	(4) Encouragement of ratification of DRRM Policy and Strategy among the Partner states		■	■			
	(5) Development of a sub-regional multi-sectoral contingency plan, a response plan, a relocation/resettlement plan				■	■	■
	(6) Aligning institutional structure to accommodate DRRM and avoidance of duplication across sectors		■	■			
Strategy1.3: Development of DRRM capacity in the EAC Sub-Region	(1) Assessment and enhancement of capacity in finance, technology and human resources, and preparation of their inventory	500	■	■			
	(2) Development and implementation of capacity development plan for EAC Sub-Region				■	■	■
	(3) Assessment and adaptation of local community traditional knowledge on DRRM				■	■	■
HFA Key Priority Area 2: Risk identification and early warning							
Strategy 2.1: Provision of activities to identify, assess and monitor the disaster risks and enhance	(1) Creation of the EAC Disaster Information Center and facilitation of establishing and strengthening the Disaster Information Centers in the EAC Partner States	4,128	■	■	■	■	■

Strategy	Strategic Action	Estimated Cost (10^3USD) indicative	2012	2013	2014	2015	2016
the early warning in the EAC Sub-Region	(2) Encouragement of enhancement of multi-sectoral early warning system in each Partner State with adequate lead time				■	■	■
	(3) Establishment of the EAC Information Database for DRRM				■	■	■
	(4) Encouragement of enhancing proper communication system in the Partner States concerning DRRM				■	■	■
	(5) Assessment of social and other sector impacts induced by disaster in development activities in the EAC Sub-Region				■	■	■
	(6) Assessment and assistance for promotion of ecosystem management (soil protection), urban and land planning in the EAC Sub-Region				■	■	■
	(7) Assessment of small scale hazards like inter-tribal conflicts, refugees, armed conflicts which cumulatively have significant impacts on the community				■	■	■
	(8) Mobilization of resources in the EAC Sub-Region to the activities				■	■	■
Strategy 2.2: Monitoring and evaluation on the disaster risk in the EAC Sub-Region	(1) Preparation of monitoring and evaluation framework and guideline for the DRRM activities for the Partner States and EAC secretariat	80	■	■			
	(2) Promotion of monitoring and evaluation on the DRRM for the EAC Sub-Region including urban and local communities				■	■	■
HFA Key Priority Area 3: Use knowledge, innovation and education							
Strategy 3.1: Awareness creation on DRRM knowledge including traditional knowledge and research promotion in DRRM Sector	(1) Establishment of a sub-regional DRRM Center of Excellence;	170	■	■	■	■	■
	(2) Establishment of network of relevant stakeholders for information and experience sharing				■	■	■
	(3) Promotion of traditional and indigenous knowledge within the community to adapt and cope with disaster				■	■	■
	(4) Promotion of use of modern technology in DRRM including application of space based technology				■	■	■
Strategy 3.2: Promotion of mainstreaming DRR into public and school education	(1) Establishment of education networks of DRRM	340	■	■			
	(2) Preparation and implementation of DRRM curricula, programmes and materials for education institutions				■	■	■

Strategy	Strategic Action	Estimated Cost (10^3USD) indicative	2012	2013	2014	2015	2016
curricula	(3) Promotion of extracurricular activities for DRRM, including use of mass media				■	■	■
HFA Key Priority Area 4: Reducing the underlying risk factors							
Strategy 4.1: Promotion of research activities of environmental and natural resources management	(1) Promotion of research and planning capacity	-			■	■	■
	(2) Enhancement of land use planning and human settlement capacity				■	■	■
	(3) Mobilization of resource for research activities				■	■	■
Strategy 4.2: Promotion of food security in the areas prone to disasters.	(1) Assessment of the areas prone to disasters	-			■		
	(2) Assistance of promotion of food security as well as feed security for livestock for the areas prone to disasters.					■	■
	(3) Promotion of stock piling, food strategic reserves and taking advantage of harvests					■	■
Strategy 4.3: Promotion of community based DRRM in the areas prone to disasters.	(1) Promotion, involvement and Partnership of the Civil Society Organizations (CSOs), Community Based Organizations (CBO), and NGO including the Red Cross and the Red Crescent in Community based DRRM activities and creation of DRRM Champion (Models)	620			■	■	■
	(2) Consideration of gender and persons with special needs in response and preparedness				■	■	■
	(3) Promotion of new communication technology such as mobile phone, social media networks and radio especially in hazard early warning				■	■	■
Strategy 4.4: Promotion of the development of financial risk-sharing and risk transfer mechanism, particularly insurance and reinsurance against disasters	(1) Research of financial risk sharing and risk transfer mechanism covering community peoples and their properties affected by disasters	80			■	■	
	(2) Introduction of financial risk sharing and risk transfer policy with insurance against disaster motivating insurance companies and people covered						■
Strategy 4.5: Promotion of Public	(1) Promotion of Corporate Social Responsibilities	-			■	■	

Strategy	Strategic Action	Estimated Cost (10^3USD) indicative	2012	2013	2014	2015	2016
Private Partnership	(2) Encouragement of corporates to use foundation's funds for DRRM activities						
HFA Key Priority Area 5: Strengthen disaster preparedness for effective response							
Strategy 5.1: Interactive cooperation in search and rescue among partner states	(1) Development of evacuation plans during emergencies	120					
	(2) Establishment of standardized search and rescue equipment like ambulance, etc.						
	(3) Assistance for promotion for other sector's activities such as water resources, transportation securement and food security as a priority						
Strategy 5.2: Assistance of establishment of the emergency funds in respective partner states.	(1) Encouragement of establishment of the emergency funds for the Partner States	50					
	(2) Promotion of operationalization of emergency funds for the Partner States						
Strategy 5.3: Promotion of cross-border cooperation mechanism for the emergency response and the cross-border issues.	(1) Establishment of the cross-border cooperation mechanism and approved evidence						
	(2) Implementation of the cross-border cooperation mechanism						
	(3) Promotion of harmonized cross border DRR initiatives through joint planning and coordination among the EAC secretariat and the partner states						

Table 8: Implementation Plan of the EAC DRRM Strategy

4.4 Monitoring and Evaluation

The DRRM activities are multi-sectoral activities and various institutional actors have key roles to implement the EAC DRRM Strategy. Therefore, it is indispensable to monitor, evaluate and review the DRRM activities periodically, in order to harmonize various activities of DRRM, increase the risk literacy of the stakeholders and ensure the redundancies of the countermeasures against hazards.

A monitoring and evaluation framework shall be developed as an integral component to ensure the objectives are achieved and strategic actions implemented in a cost effective, coordinated and harmonized approach in the Sub-Region. The EAC Secretariat and the EAC DRRM sub-regional platform will develop a robust monitoring and evaluation framework and guideline with clear milestones and indicators for the Strategy at the sub-regional level. The EAC shall be responsible for tracking, coordinating and overseeing the implementation of the DRRM programmes in collaboration with the Partner States. Monitoring and evaluation of the national projects will be the responsibility of the Partner States. The monitoring plan will ensure collection of information for use by coordinating institutions and

key stakeholders to measure progress of implementation of the activities and facilitate timely decision making. An explicit monitoring and evaluation framework and guideline will be developed at the early stage of implementation of the Strategy, in line with the Strategy 2.2 “Monitoring and evaluation on the disaster risk in the EAC Sub-Region”.

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