Afar National Regional State (ANRS) IRM Sensitive

Disaster Risk Management 2020-2024 Strategy

Implementation Guideline
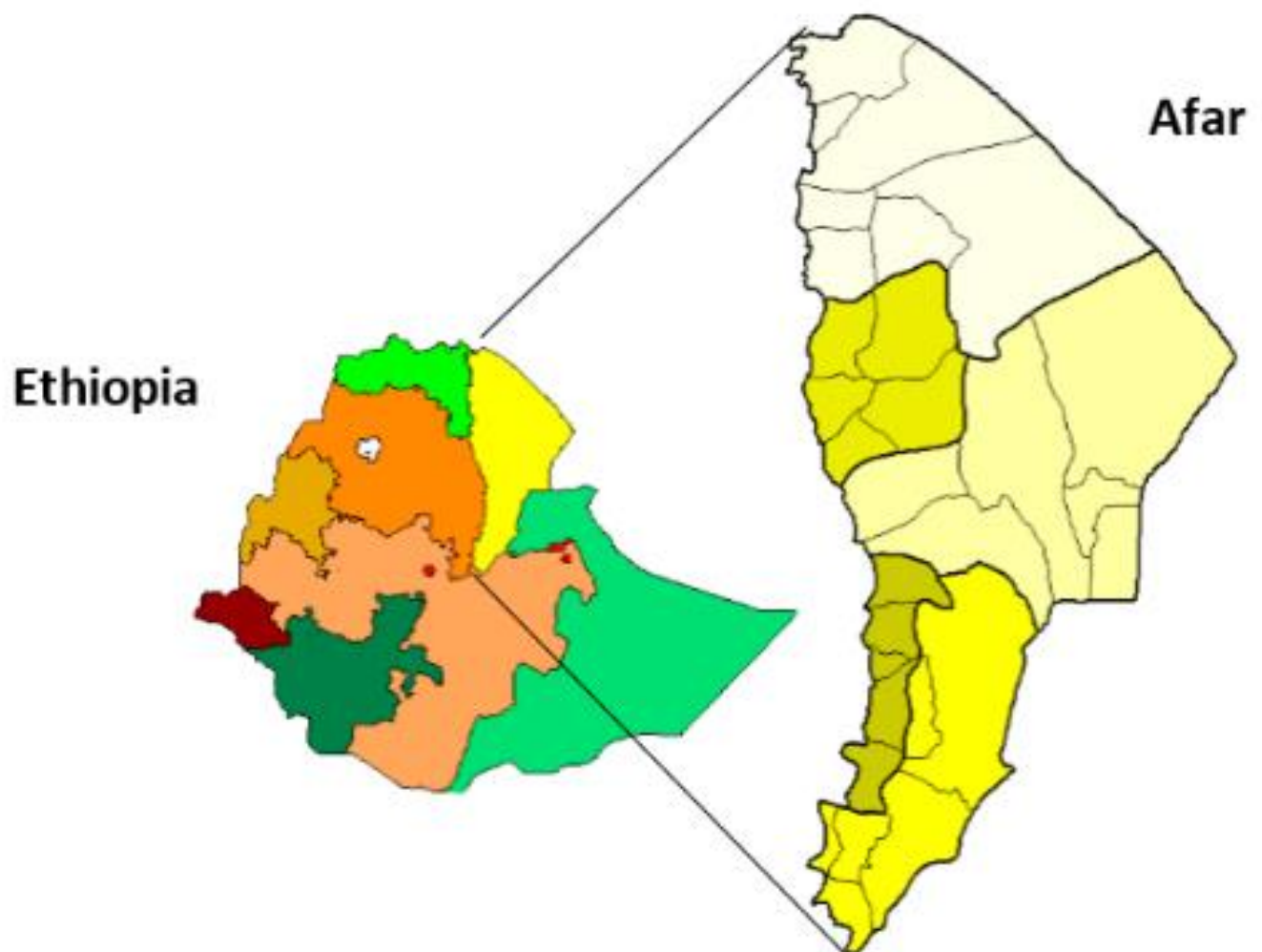
Table of Contents

Acknowledgements

Preamble

The Regional Strategy Plan Implementation Guideline for Integrated Disaster Risk Management for the period of 2020-2024 is a long desired document based on the global and regional commitment of the Region of Afar and its vision on disaster management. The strategy plan reflects the basic principles of the SAARC Framework on Disaster Management.

We all are aware about the specific programs of Disaster Prevention and Food Security Programs Coordination Office to minimize the disaster risk at the community level and country as well. The DPFSPCO engaged in a process to finalize 5 years regional IRM sensitive DRM strategy plan. The DPFSPCO activities and disaster management program activities, acclaimed by world communities and since it is incepted as a pioneer one. It indicates the commitment of ANRS to introduce all hazards, all risks mitigation approaching a well-planned and under a well-established institutional framework.

The key focus of the Regional Strategy Plan Implementation Guideline for Integrated Disaster Risk Management is to establish institutional accountability in preparing and implementing disaster management plans at different levels of the regional and local sectors. Development Strategy Plans incorporating Disaster Risk Reduction and Hazard Specific Multi-Sectoral Plans have made this plan an exclusive tool for reducing risk and achieving sustainable development.

Traditionally we are used to manage the natural hazards but the need for addressing the emerging issues like CCA, DRR, ERM and human induced hazards in national policy and plans was very much required. For the first time, a regional document on disaster management has included both natural and human induced hazards in its action plan involving government and non-government organizations, and private sector in a comprehensive way.

The implementation guideline has been prepared in a participatory way having several consultations with stakeholders and established a road map of effective partnership with the organizations working in local, national and regional levels. It is expected that this implementation guideline will contribute towards developing and strengthening regional and national as well as local networks. We would like to acknowledge the guidance and suggestions from the Secretary of the Disaster Prevention and Food Security Programs Coordination Office in improving this implementation guideline. We are also grateful to the Honorable Members of Inter-bureau Disaster Management Coordination Committee for their views and recommendations on the plan.

We would like to express our sincere gratitude to CARE Ethiopia, all sectorial bureaus of ANRS, Semera University and Different UN as well as NGOs who have contributed a lot for developing and finalizing this implementation guideline. We also extend our thanks to our development partners including the NGOs for their cordial support in enriching this document.

Forward

The scale and impact of Afar weather events make it the most disaster prone state in Ethiopia. Regional and local Disaster Prevention and Food Security Programs Coordination Office and the Afar Disaster management Committee play a vital role in managing and responding to disasters and supporting fellow Afar through these events.

The Disaster Risk Management Policy clearly articulates disaster management stakeholders must be ready and equipped to help the community prevent, prepare, respond to and recover from both natural and man-made disasters. This IDRM implementation guideline has been developed to provide guidance to regional and local disaster management stakeholders with regard to their functions, obligations and legislative requirements under the policy.

This guideline outlines a comprehensive end-to end process for the steps to be undertaken through each of the phases of disaster management, specifically addressing roles and responsibilities of disaster management stakeholders, prevention and mitigation strategies, preparedness arrangements and considerations for planning, the activation of response arrangements, the recovery process and financial arrangements.

The guideline is enhanced by a suite of toolkit items that ensure disaster management stakeholders are fully supported in the planning and management of disaster management requirements.

In the spirit of continuous improvement, the guideline will be reviewed and updated to reflect the changing needs of stakeholders and the collaborative nature of ANRS disaster management arrangements. This ongoing process will capture lessons identified and ensure this document remains a relevant practical resource.

Afar Disaster Prevention and Food Security Programs Coordination Office is tasked with creating safe and resilient communities and to minimizing the impact and consequences of emergencies on the people, property, environment and economy of Afar. To achieve this shared outcome for the state, Afar Disaster Prevention and Food Security Programs Coordination Office works side by side with our many stakeholders and partners. It is together that we deliver on this responsibility and together that we recognize the critical relationships and roles we all perform.

I thank all stakeholders for their contribution to the development of the guideline and their continued support and commitment towards our community's disaster resilience.

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Abbreviations and Acronyms

ANRS	Afar National Regional State
CBDRM	Community Based Disaster Risk Management
CBO	Community Based Organization
CCA	Climate Change Adaptation
CFW	Cash-For-Work
DANA	Damage Assessment and Needs Analysis
DIA	Disaster Impact Assessment
DIMS	Disaster Information Management System
DOS	Department of Statistics
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EDP	Economic Development Plan
EIA	Environmental Impact Assessment
EOC	Emergency Operations Centre
EPP	Emergency Preparedness Plan
EU	European Union
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GHG	Green House Gases
GIS	Geographic Information System
GO	Government Organization
HDI	Human Development Index
HFA	Hyogo Framework for Action
ICT	Information and Communications Technology
IOM	International Organization for Migration
IRP	International Recovery Platform
ISDR	International Strategy for Disaster Reduction
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resource Management
M and E	Monitoring and Evaluation

MDG	Millennium Development Goal
NGO	Non-Governmental Organization
RBDRM	Regional Bureau for Disaster Risk Management
SAR	Search and Rescue
SDGs	Sustainable Development Goals
SF	Sendai Framework
TA	Technical Committee
UNISDR	United Nations International Strategy for Disaster Reduction
UN-OCHA	United Nations Office for the Coordination of Human Affairs
USAID	United States Agency for International Development
WASH	Water, Sanitation, and Health
WFP	World Food Program
WHO	World Health Organization
WDRMO	Woreda Disaster Risk Management Office

Definitions of Key Terminologies used in the Implementation Guideline

Following are the main definitions which are applicable to this document (UNISDR, 2009):

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

Adaptation: The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Adaptive capacity: The ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences (IPCC, 2014).

Capacity: The combination of all strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.

Capacity Development: The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions.

Climate Change: a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcing, or to persistent anthropogenic changes in the composition of the atmosphere or in land use.

Community Based Disaster Risk Reduction: a process in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks reducing their vulnerabilities and enhancing their capacities.

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

Coping Capacity: The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters.

Disaster: A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Disaster Declaration: the official announcement of the occurrence of a disaster by the responsible authority if the concerned body in the affected area determines that the scale/impact of the disaster is beyond its capacity to cope with effectively, thereby requiring the support of others.

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

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

Disaster Risk Reduction: The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. Note: Disaster risk reduction is therefore part of disaster risk management but does not focus primarily on (although it does link with) disaster response and recovery.

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

Disaster Risk Reduction Strategy: Is a document prepared by an authority, sector, organization or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives.

Disaster Risk Profile: the outcome of risk assessments done to determine the nature and extent of risk by analyzing hazards, vulnerabilities, and capacities that together could potentially affect exposed people, property, services, livelihoods and the environment on which they depend. The profiles form a risk analysis information system that can inform the DRM planning, contingency planning and early warning and response systems.

Disaster Phase: a period when a disaster strikes. DRM activities implemented during this period include: disseminating early warning, evacuation of at risk people, conducting search and rescue operation, providing emergency relief supplies, and conducting damage and loss assessments.

Displacement: the process of people being forced to move from their homes to other places because of a natural hazard, war/conflict, or other human-made action.

Early Warning System: The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and act appropriately in sufficient time to reduce the possibility of harm or loss. Comment: This definition encompasses the range of factors necessary to achieve effective responses to warnings. A people-centered early warning system necessarily comprises four key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the

warnings received. The expression "end-to-end warning system" is also used to emphasize that warning systems need to span all steps from hazard detection through to community 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.

Emergency Response: a series of appropriate actions and precautions, including the provision and distribution of essential food and non-food items, goods, and services aimed at saving lives and protecting livelihoods of the affected population in the event of a disaster.

Exposure: People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Hazard: A dangerous phenomenon, substance, human activity or condition 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.

Lead Sector Institution: an institution that is directly relevant to identified single or more hazards and has the responsibility and is accountable with respect to disaster risk management activities, including disaster management.

Local Disaster: a disaster that affects a single woreda or community within a woreda and the administration of the woreda concerned, either alone or with the assistance of others in the area is able to deal with it effectively.

Mitigation: The lessening or limitation of the adverse impacts of hazards and related disasters.

Mutual Cooperation: cooperation and voluntary provision of resources, services, and facilities, particularly among neighboring regional, zonal and woreda administrations to assist each other when existing resources prove to be inadequate and there is a need for additional support.

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

Post Disaster Phase: a period after the occurrence of a disaster. DRM activities during this period focus on provision of recovery and rehabilitation support to the affected communities and areas in order not only to restore social services, infrastructure, and economic activities, but also to enable them to reduce future vulnerability to similar hazards and related disasters by applying "building back better" principle in all recovery, rehabilitation and reconstruction interventions.

Pre-disaster Phase: a period before the occurrence of a disaster. DRM activities implemented during this period include: prevention, mitigation, and preparedness activities in order to eliminate or lessen the adverse impacts of hazards and related disasters.

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

Prevention: The outright avoidance of adverse impacts of hazards and related disasters.

Public Awareness: The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken individually and collectively to reduce exposure and vulnerability to hazards.

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

Regional Level Disaster: if a disaster affects more than one zone in the same region and if the region concerned is able to deal with it effectively, or if a single zone in the region is unable to deal with it effectively using local resources and capacity within its reach, thereby requiring regional intervention.

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

Rehabilitation: measures applied after a disaster which are necessary to restore normal activities and build resilience to future shocks in affected areas, communities, and economic sectors.

Relief: activity undertaken in the immediate aftermath of a disaster to save lives, protect livelihoods, and address immediate humanitarian needs, including the provisional restoration of essential services.

Residual Risk: The risk that remains in unmanaged form, even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained.

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

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

Risk: The combination of the probability of an event and its negative consequences.

Risk Management: The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

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

Social Vulnerability: those determinants of vulnerability that arise from non-physical factors (e.g., identity, economic, political, cultural, etc.) and are related to gender, age, occupation, location, etc.

Sustainable Development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Volunteer: individuals or a broad array of organizations, institutions, agencies, collectives (including charities), cooperatives, religious groups, professional and economic associations, social service providers, etc. who freely enlist or are involved in services in disaster management without expectation of return or profit.

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

Zonal Level Disaster: if a disaster affects more than one woreda in the same zone and the zone concerned is able to deal with it effectively, or if a single woreda in the zone is unable to deal with it effectively using local resources and capacity within its reach, thereby requiring zonal intervention.

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Chapter One

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1. Introduction

1.1 Background of the implementation Guideline

Disaster risk is directly linked to broader development programs. Underlying risk drivers such as poverty and inequality, poor living conditions, unplanned urbanization processes, environmental degradation, and lack of regulations and enforcement can be addressed by "best development" practice at all levels and across all sectors. Having access to basic infrastructure and services – including risk-reducing infrastructure and services, good quality housing in safe locations, secure tenure, and income and livelihoods opportunities–reduces exposure and vulnerability and therefore risk. Reducing disaster risk is about addressing basic development that helps build "accumulated resilience", as well as preparing for and mitigating disasters. It also entails ensuring adequate governance – that is, transparent, accountable and representative decision-making structures so that everyone's needs and voices are considered and development gains benefit all.

Thus, connecting DRR with broader development processes contributes to advance a people-centered risk reduction approach. Success in achieving greater resilience also depends on the competence and capacity of local governments to advance and sustain locally rooted development processes and goals that integrate DRR and climate change mitigation and adaptation. It requires learning about changing risks and opportunities, identifying and evaluating options, making decisions and revising strategies in collaboration with a range of actors, particularly those most at risk. It needs to focus on what must be done, but more importantly, on how and by whom, and with what support. And last but not least, it requires national governments and international agreements that are supportive of local work.

The Sendai Framework calls for the coherent implementation and reinforcement of actions and commitments of different international agreements adopted in 2015-2016, namely: the Sendai Framework itself; the Addis Ababa Action Agenda (AAAA) on Financing for Development; Transforming Our World: the 2030 Agenda for Sustainable Development; the Paris Agreement on Climate Change; and the New Urban Agenda resulting from the United Nations Conference on Housing and Sustainable Urban Development (Habitat III).

Sendai Framework is the successor of the Hyogo Framework for Action 2005-2015 (HFA). Whereas the new Framework acknowledges that good progress has been made in raising awareness, generating political commitment and focusing and catalyzing actions by a wider range of stakeholders, it also highlights that more still needs to be done. In this context, the Sendai Framework represents a transition from understanding the interactions between hazard, exposure and vulnerability to a greater concern with how to act upon these risk factors through prospective, corrective and compensatory measures. This has turned more attention to the role of local governments and the relevance of the local level than the other international agreements.

Globally, however, disasters continue to cause a heavy toll of death, injury and economic loss due to high levels of exposure and vulnerability – particularly in relation to urbanization and globalization processes. Tackling underlying disaster risk drivers and promoting transformative development must therefore become a priority. This entails serious questioning of how DRM has been approached thus far, at all levels and by all sectors, and a better understanding that

disasters (and climate change) are not externalities to be reduced, but intrinsic characteristics of current development pathways.

In their most progressive form, DRR and DRM should go beyond protecting development gains and addressing current risks, and rather propose new models of development that are environmentally sustainable and socially just, and can thus reduce future risks.

DRM involves considering and managing a wide range of risks, from the frequent and small-scale risks associated with everyday life to the infrequent and larger scale risks related to extreme events. Then, it can be an entry point to simultaneously advancing DRR, climate change adaptation and sustainable development. The Sendai Framework highlights the role of local authorities (LAs) and the local level in achieving DRR. Indeed, one of the targets of the Framework is to substantially increase the number of countries not only with national, but also local DRR strategies by 2020.

1.2 Rational of the Implementation Guideline

The following Disaster Risk Management (DRM) sheets are intended to guide analysis of which ANRS sectors and sub-sectors may be most relevant to reducing risk related to an identified hazard in the program location. As set out in ANRS's IRM conceptual framework and strategy, the broad context of the area exposed to a given hazard, and the capacities that exist within that area, will also guide the development of appropriate IRM programs. By tying its DRM work to these hazards, ANRS is working well within its mandate to save lives, alleviate suffering, and reduce the economic impact of disasters.

While DRM activities can help vulnerable communities become better prepared to cope with the hazards around them, it is larger-scale economic and development activities that will be critical for building resilience, even to recurring crises, over the long term. Each of the following hazard sheets looks not only at potential DRM interventions, but highlights linkages with other actors to build resilience. Therefore, the DRM activities that are discussed in the following sheets are much more likely to be effective when they are layered, integrated, and sequenced with other resilience-building activities, particularly longer-term development. As part of a multi-sectorial approach, rigorous gender and protection mainstreaming helps ensure that programs address the special/unique needs within target populations.

Proposed activities should either reduce the risk, frequency, or severity of a specific, recurrent shock or shocks, or increase the resilience of communities (men, women, elders, children and youth) to withstand the impact of that shock over time, and to more quickly recover. Afar National Regional State IRM programs must fall into at least one of the following core areas:

1) prioritizing and strengthening early warning, preparedness, mitigation, and prevention;
2) integrating preparedness and mitigation with disaster response, early recovery, and transition to foster resilience; and
3) Supporting diversified livelihood strategies to build resilient communities.

As with ANRS's broader Global DRM Strategy, it is important to emphasize that these meant as guidance to be tailored and adapted to the unique context of each situation. They are intended to help staff think through some of the issues commonly associated with different hazards, outline the rationale for DRM programs, and indicate the sectors and types of activities typically involved, before making a decision about whether or what types of DRM programs might be appropriate.

1.3 Afar Regional Context Analysis

The increasing frequency of disasters, coupled with a number of emerging threats and trends, are leaving more people vulnerable to the effects of disasters and inflicting greater damage, loss, and dislocation on vulnerable people worldwide. According to the Centre for Research on the Epidemiology of Disasters (CRED), in 2018, more than 235,000 people were killed by disasters, 2.14 million affected, while the cost of disasters was over 190 billion US$.

While the number of disasters recorded in 2018 was lower than 2017, over recent years there has been an increase in the number of small and medium scale disasters, especially storms, floods and epidemics, which National Red Cross and Red Crescent Societies respond to under their mandate as auxiliaries to the public authorities. The first half of 2009 saw a continuation of this trend, with the Red Cross Red Crescent responding to a high number of smaller-scale, local level disasters.

The situation of vulnerable people is now aggravated by evolving, complex threats such as climate change (flood, drought, temperature and evapotranspiration rise), Environmental risks (greenhouse gas emission, overgrazing, deforestation, pollution and Expansion of invasive species), un employment youth Unplanned urbanization, new patterns of marginalization, demographic growth and a rising proportion of older people, unplanned urbanization, high levels of violence, involuntary migration, emerging infectious disease and the growing burden of non-communicable disease, Geological hazards (landslides, volcanic eruptions & earth quick) and insecurity of access to food, water, and natural resources.

The humanitarian sector is further challenged by of the recent financial crisis and the increasing involvement of military and political actors in humanitarian response. The complexity of the humanitarian environment has led to demands for improved coordination. At the same time, improved forecasting and technology for early warning call for improvements in our capacity for early action and for information management in disasters. There are also calls for greater innovation and more inclusive ways of delivering assistance, with a strong focus on accountability, good partnership and good donor ship`. All of the above reinforces the need for a strong Afar National Regional State, flexible enough to adapt to a fast changing world.

In this context, the Afar National Regional State needs to have the capacity to mitigate, prepare for and respond to disasters worldwide and across all levels – household, community, District and regional. The Afar National Regional State is committed to achieving its Global Agenda Goal 1: "to reduce the numbers of deaths, injuries and impact from disasters" and to the three strategic aims of Strategy 2020:

1. Save lives, protect livelihoods, and prepare for and recover from disasters and crises
2. Enable healthy and safer living
3. Promote social inclusion and a culture of non-violence

The Afar National Regional State, and the Regional Societies as auxiliary to the public authorities, are among the leading providers of assistance globally and are responsible to provide relief to people affected by disaster. Depending on their capacity to respond and the scale of the disaster, Regional Societies can call upon international assistance through the Afar National Regional State secretariat. The Afar National Regional State secretariat is committed to ensuring the institutional capacity in preparedness for response, response and recovery to provide that support in a timely manner. The secretariat has a constitutional obligation "to organize, coordinate, and direct regional relief action" as a core service to its members and calls upon its membership to provide additional human resources, technical, material and financial assistance to affected localities.

With the increase in the number of small and medium scale disasters, the work of National Societies to assist communities to mitigate, prepare for or respond to disasters at a local level is an important added value of our CARE Ethiopia. The effects of food insecurity can also be mitigated at local level through long-term community projects supported by National Societies. The Geneva secretariat will provide support to Nationals Societies in building more resilient communities, mitigation and risk reduction, and food security and livelihoods. Geneva headquarters will maintain a strong strategic oversight in all areas of disaster management.

1.4 Objectives

1.4.1 General objectives

The overall goal of the IRM strategy for Afar Regional State of Action from 2020 to 2024 is a substantial reduction of social, economic and environmental impacts of disasters on Afar people and economies, thereby facilitating the achievement of the SDGs and other development aims in Afar.

1.4.2 Specific Objectives

In line with the Afar Regional Strategy and the **SF**, the specific objectives of the program are:

- To mainstream risk reduction management and climate change adaptation as an integral part of sustainable development, and related programs.
- To strengthen long term capacities at regional, woreda and community levels to systematically contribute to building resilience to natural hazards.
- To develop and maintain sustainable mechanisms of coordination at regional and sub-regional levels to support the implementation of the Afar Regional IRM Strategy.
- To strengthen national mechanisms, legislative frameworks and capacities at national levels for mainstreaming and implementing IRM strategies and programs.
- To translate policies and strategies into practical tools for decision makers and practitioners to facilitate the implementation of the Afar Regional IRM Strategy.
- To develop and mobilize resources to contribute to the implementation of programs and projects on DRR.
- To embed a holistic approach to systematically incorporate risk reduction measures into design and implementation of disaster preparedness, response and recovery programs.

1.5 Organization of the Guideline

The main body of the guideline is complemented with multiple resources. This guide is divided into seven chapters. Following the introduction, chapter 2 guiding principles and Prerequisites of the strategy implementation and chapter 3 delineates means of implementation, while chapter 4 Integrated Risk Management Assessment, Early Warning and Communication and Contingency Planning. Chapter 5 elaborates on the Major hazards of the region IDRM Cycle approach Implementation. Chapter 6 elaborates IDRM Mainstreaming. Chapter 7 includes Monitoring and Evaluation. Finally, chapter 7 draws some possible challenges to implement the regional strategy.

Chapter Two

2. Guiding principles and Prerequisites of the strategy implementation

2.1 Guiding principles

To achieve a successful implementation of IDRM there are obstacles to overcome. To deal with the regional IRM sensitive DRM strategy a set of core principles and prerequisites are needed. The regional strategy implementation will be guided by a set of principles covering several perspectives related to preventing and reducing disaster risk which are reflected in Afar as indicated below:

a) DRM is about protecting life, health, assets, livelihoods and rights

Managing and mitigating the risk of disasters is aimed at protecting persons and their property, public safety, health, livelihoods and productive, environmental and cultural assets, while promoting and protecting gender equality and all human rights, including the right to development in realization of the federal and regional policy and strategy.

b) DRM is a shared responsibility of all and requires coordinated involvement of all segments and institutions of society

Citizens need to adopt a culture of prevention and to protect themselves and resources to the best of their ability at all times, and regions have the primary responsibility for enabling, guiding and coordinating the prevention and reduction of disaster risks with the involvement of a wide range of stakeholders at all levels, as appropriate to their national and local circumstances. Coordinated all-of-society and all-agency engagement and partnership, through inclusive, accessible and nondiscriminatory participation, considers the needs, and leverages the potentials, of all groups of society, paying special attention to people disproportionately affected by disasters, especially the most vulnerable and marginalized. Gender, age, disability and culture should be integrated in all strategies and practices, and women and youth leadership promoted in this context.

c) DRM must be based on contextualized and local measures

Disaster risks have local and specific characteristics that need to be addressed through measures that are well tailored to the vulnerabilities and needs of the affected people, particularly in the vulnerable localities. To take into account the different and changing regional and local circumstances of people and communities, the strategy implementation guide adopts a flexible and adaptable approach to implementation with each localities and regional body to contextualize implementation to its circumstances, including systems and resource endowments. This requires informed community engagement and participation, carried out through adaptable

programs, implemented by appropriately skilled practitioners, including local and indigenous people, in close collaboration with other stakeholders.

d) *Reducing risk requires a systematic, sustained and comprehensive approach*

DRM covers all hazards and involves preventing the creation of new risks (through integration of DRM into all development decisions, programming and practice) and reducing existing risk (through adoption of structural and non-structural methods and through preparedness for effective response, strengthening coping mechanisms including social and financial protection, and, integration of risk reduction in recovery and reconstruction). For more cost-effective DRR, the PoA advocates addressing underlying disaster risk factors than reliance primarily on post-disaster response and recovery. Effective reduction of disaster risks depends on continuity, longevity and sustainability of DRR programs and processes;

e) *Effective DRM should be informed by robust integrated and disseminated disaster risk knowledge*

The diversity and complexity of Afar national regional state disaster risks underline the need for deliberate engagement of scientific, technical and academic communities at all scales (in keeping with the Science and Technology to Support the Implementation as well as indigenous and traditional communities. This ensures that risk assessment and surveillance, as well as risk reduction measures implemented, are underpinned by robust and rigorous research that is locally informed and contextually relevant. It also increases prospects for accumulating risk knowledge to be retained institutionally for both educational and capacity building purposes;

f) *Regional/local community engagement and action is critical for effective DRM*

The locational specificity of risk drivers and devolution of administrative responsibilities for risk management require decentralized structures and measures that empower and engage regional/local authorities. Resources should be mobilized, incentives provided and decision making authority, rights and responsibilities at the community level be promoted to reduce risks;

g) *Effective cooperation and partnerships is critical for DRM.*

DRM practice is a common concern for all localities in Afar region requiring meaningful and strengthened cooperation and partnerships at the regional, local, community and bilateral levels. Addressing the regional DRM challenges requires adequate, sustainable and timely provision of support, including through domestic investments, national and regional finance, technology transfer and capacity building, responsive to afar region needs and priorities.

h) *Multi-Hazard and Multi-Sectorial Approach for effective IRM practice*

Programs that address multiple hazards or the policy dimension of DRM strategies are typically categorized under the Risk Management Policy, strategies and Practice Sector with its respective sub-sectors. These programs may include activities on local community, district or regional levels to mitigate the impacts of natural and anthropogenic hazards. They may also include activities that help populations prepare for, prevent, or plan

for disasters. Afar National Regional State works with all levels of government, international and regional organizations, NGOs, local communities and the private sector to foster linkages across sectors and across organizations. In order improve understanding and implementation of disaster risk management ANRS helps reduce people's vulnerability to potential disasters.

2.2. Prerequisites

Some of the key pre requisites for success full implementation of the regional IRM strategy are training and exercises, education, information sharing, coordination, resources, risk and vulnerability assessments, early warning systems and legislation.

a) Training and exercises

In regards to training and exercises one question is who to involve and invite. The broader the stakeholder involvement is, the better. Including actors at both international, regional, national and community level will result in a quicker and more efficient spreading of the important information and lessons learned making a larger part of the population aware of the risks and how to act when a disaster strikes. It is also a way of making the local governments aware of the project's shortcomings and possible measures needed to enhance the community's capability. Exercises and drills can planned to be effective in terms of enlightening the population on the existing risks and creating a more prepared and risk aware society.

b) Education

Education is essential for effective implementation of the regional DRM. To teach the local communities/experts and other stakeholders the importance of DRM and sustainable development and increasing the risk awareness in the region is important for a well-functioning disaster risk reduction. This could be done through schools by implementing the knowledge of risks and how to manage these into different subjects such as geography or natural science. It has shown to be very successful as a means to engage the students and increasing their risk awareness and capacity. Though DRR is not a common subject in Ethiopian higher education such as universities and colleges but Bahir Dar and Semera University has DRM education in various program. The region can use this two institution for various short term and long term education program.

c) Information sharing

Information sharing can be in the form of booklets, commercials, and media or by education. It is an essential tool for increasing risk awareness and has shown to be highly efficient. The regional IRM sensitive DRM strategy needs to have a budget for funding these measures in order to strengthen the capacity of all involved actors. Knowledge is the key to empower the stakeholders and sharing information and experience is a means to gain this knowledge. Public meetings on IRM sensitive DRM strategy can be discussed together with the present and future risks in the area can increase the community's risk awareness. This together with a built up network of key actors and agencies where information can be shared and knowledge passed on is an efficient way to implement and improve the regional IRM sensitive DRM strategy initiatives.

d) *Communication and Coordination*

Communication is the most important tool to achieve proper coordination. This includes communication between all levels. The scientists or experts need to communicate the DRR measures they have implemented and their function and purpose to the locals. It is important to identify and establish the different channels of communication to enable correct and easily accessible information.

Due to each level, agency, stakeholder or group in society having their own set of skills, knowledge, resources and information, coordination between these have to be clear and implemented early before a disaster strikes. One group cannot deal with all the existing needs and challenges when dealing with DRR. A broad partnership between the government, local stakeholders and national agencies creates the possibility to address the local issues but also to see it in a wider perspective and achieve a more holistic view of the problems facing larger areas. By doing this a more efficient resource allocation becomes available where the borders between regions or countries are faded and a possibility for a wider range of contacts and the ability to help each other is strengthened.

e) *Resources*

Funding for DRM/IRM Strategy is another major challenge connected to the issue of sustainability. There are usually donors that make the strategy possible, but the aftermath and the maintenance of the strategy is not thought of or budgeted for. This in turn means that the strategic activities and the effects of it end together with the duration of the strategy. This could also be connected to the issue that the poor is often the most vulnerable and do not have the means to effectively reduce their own risk and enhance their own safety. A resource assessment is needed to get a picture of what is available, what kind of resources and their location and what is required. Resources are not only material but can be financial or human, i.e. skills, knowledge and volunteers. The resource assessment should be done together with the community since they are the ones with the most knowledge on existing resources and useful material in the region. By using this approach the control over resources and support services will be in the hands of the people which in turn will strengthen their own capability and responsibility to manage a disaster. Another important resource is time. The regional DRM/IRM strategy take time and they are often inhibited by time restrictions making it difficult to make changes at higher levels and allowing projects time to be implemented in a correct and efficient manner.

f) *Risk and Vulnerability Assessment*

A community based risk and vulnerability assessment is made together with the affected population and external actors. The community, representatives from the government and NGOs collect and analyze risks and vulnerabilities in the region in order to be able to set up proper and efficient actions in which these can be reduced. When carrying out risk and vulnerability assessments in an area it is important to include the community. The population is the ones most affected by disasters and also the ones with the most experience of how previous disasters have been dealt with. Individuals have the best knowledge about the area and vulnerabilities in their own community thus making them an important source of information. It is important that communities are supported in this process and that a combination of experts, locals and other agents are present. If done with only external actors there is a risk of intruding on the region's culture and thereby creating a mistrust and unwillingness to cooperate which can even lead to an increased vulnerability instead of a reduction.

Another important aspect to consider when conducting risk and vulnerability assessments is The skills and already existing community organizations and experts in the area. The assessment techniques used depend on these collective skills since it ranges from hazard and resource mapping to the history of the region. Community members can assist in describing existing physical and natural resources to enable IRM sensitive DRM strategy to build on what is accessible in the region thus making projects more sustainable and independent of external donors or agencies. It is important for the community to be allowed to use its own resources when addressing the hazards. By involving the most vulnerable in risk and vulnerability assessments risk perceptions of the individuals can be accounted for. It can also be a first step in enhancing risk awareness in the affected population, increasing the knowledge about the hazards they might face now or in the future.

g) Legislation

There is a strong correlation between environmental degradation, climate change and frequency and severity of disasters. In other words a connection has to be made between vulnerability and the way the environment is treated. Policies, strategies and regional, national or international laws play an important role for long-term aspects. Even though strategy in IDRM and its challenges and consequences should belong to the population there has to be policies and legislation backing it up. It is through the linking of strategies to policies and legislations that the importance of the combination of a top-down and bottom-up approach becomes more evident. To achieve functioning legislation that is pursued by the population it is important to implement these in the community by involving the locals in decision making from the start. This creates ownership and a feeling of responsibility to counter the feeling of enforcement and distrust

h) Early Warning Systems

In risk prone areas it is crucial to have effective Early Warning Systems (EWS) as it enables the affected people to prepare, mitigate, respond to or in the worst case scenario evacuate before a disaster strikes, thereby reducing the harmful consequences in terms of loss of life and economic damage. An EWS should deliver information to the concerned population about an approaching hazard in an easily understood manner and at the same time inform the affected about how to act and when. In order for an EWS to work properly community members must be actively engaged in the whole process from monitoring to making sure that the information provided is comprehensible and linked to appropriate actions. When local communities does not have a sense of ownership of the EWS it often results in mistrust toward not only the warning itself but also the actor behind the warning system.

i) *Stakeholders presence and active participation*

The support of local and regional governments when implementing IRM Strategy with focus on IRM will contribute to a much more successful process. All the involved actors need to have clear roles and responsibilities to enhance leadership and communication within the strategy. The local government is the first responder thus having the responsibility to implement efficient integrated risk management measures. The involvement of all levels is vital for a successful implementation.

The risks in different areas differ even though the exposure to hazard is the same which makes IRM a local, regional and national question with its main focus on the local level. NGOs and governments should identify these needs and vulnerabilities and thereafter design strategy well suited for the area. It is common that external actors function as strategy initiators or donors. Political and economic supports from the regional and federal organizations together with a local, regional and federal commitment for questions regarding climate change are the cornerstones for a sustainable development.

Chapter Three

3. Foundations for effective IIRM sensitive DRM strategy implementation

3.1 Integrated Risk Management Assessment

Integrated risk assessment is the process used to determine risk management priorities by evaluating and comparing the level of risk against predetermined standards or other criteria. Integrated risk assessments determine community vulnerability through the identification of hazards, analysis of risks, and the likelihood and consequence of a disaster occurring. These assessments allow for the targeting of mitigation, preparation, and recovery and resilience actions to achieve safer and more sustainable communities.

3.2 Communication and Coordination

Both the literature and the result from the interviews highlight the importance of clear communication and Coordination between all stakeholders vertically and horizontally. The communication has to be transparent and continuous throughout the entire process to avoid misunderstandings and to improve the coordination. There is a need for different channels of communication to ensure the possibility for all stakeholders to be involved and included.

There are a wide range of communication tools that can play an important role in IRM Strategy implementation. These tools include brochures, bulletins, posters, magazines, policy briefs, videos, TV and radio broadcasts, Internet, and many more that are being employed to carry out participatory dialogs. These provide avenues for communication among information developers (e.g., scientists, trainers, project implementers, government agencies, etc.) and community members, groups at risk, etc., who also influence the nature of information disseminated. At the local level, interactive strategies include theater, role-playing, music, learning-by-doing, and hands-on exercises. There are also group discussions of community members to debate climate risks and possible solutions to cope with impacts that positively affect behavior and practices. Reports, concept notes, brochures, magazines, presentations, and workshops provide more effective tools to communicate with policy makers at local and regional levels. At the regional level, broad dissemination channels such as TV, radio and internet broadcast, blogs, and high-level summits have been effective in creating widespread awareness.

Coordination between stakeholders is something that both the literature and the respondents agree on being a challenge in need of improvement. The stakeholders have different set of skills, knowledge and resources which make it impossible for one organization or actor to function on its own.

3.3 Early Warning and Information Systems

Monitoring and early warning and information systems (EWIS) have long played important roles in helping in adjustment and adaptation especially on the local scale. The disaster research community has shown that successful warnings of impending events are those that are complemented by information on the risks actually posed by the hazards and by potential strategies and pathways to mitigate damage within a particular context. The use of risk data analyses and projections in early warning and information systems is an important and established mechanism to inform disaster risk mitigation or risks. It helps to ensure the link between generation and application of risk knowledge for management of any related risks.

EWIS includes a diversity of approaches. These range from technological advances in systems, satellite information, and climate modeling to local level early warning based on traditional knowledge needed to develop and inform strategic response options in adaptation planning and implementation. Local knowledge can be complemented with scientific risk data, research, and planning tools (GIS, modeling, etc.) to strengthen community-based monitoring and vulnerability assessment in disaster risk management.

Current science and technology do not resolve the uncertainties in modeling the response of ecosystems to climate change and management interventions at levels needed for probabilistic early warning. Yet the need for precise climate information is often overstated. The long-standing experience with climate extremes and variability offers many usable lessons in spite of these uncertainties. The impacts of climate change will be most strongly felt by populations vulnerable to changes in the distribution and magnitude of extreme weather and climate events, as these affect crops, disease outbreaks, and soil and water quality. The diverse types of EWS in developed and developing countries are valuable tools that could help societies develop strategies to cope and adapt to related risks.

3.4 Contingency planning

Contingency planning aims to prepare an organization to respond well to an emergency and its potential humanitarian impact. Developing a contingency plan involves making decisions in advance about the management of human and financial resources, coordination and communications procedures, and being aware of a range of technical and logistical responses. Such planning is a management tool, involving all sectors, which can help ensure timely and effective provision of humanitarian aid to those most in need when a disaster occurs. Time spent in contingency planning equals time saved when a disaster occurs. Effective contingency planning should lead to timely and effective disaster-relief operations.

The contingency planning process can basically be broken down into three simple questions like what is going to happen, What are we going to do about it and What can we do ahead of time to get prepared? Contingency planning guide can be considered into five main steps, shown in the diagram below. Each step is covered by a separate chapter in the guide.

PREPARE → ANALYSE → DEVELOP → IMPLEMENT → REVIEW
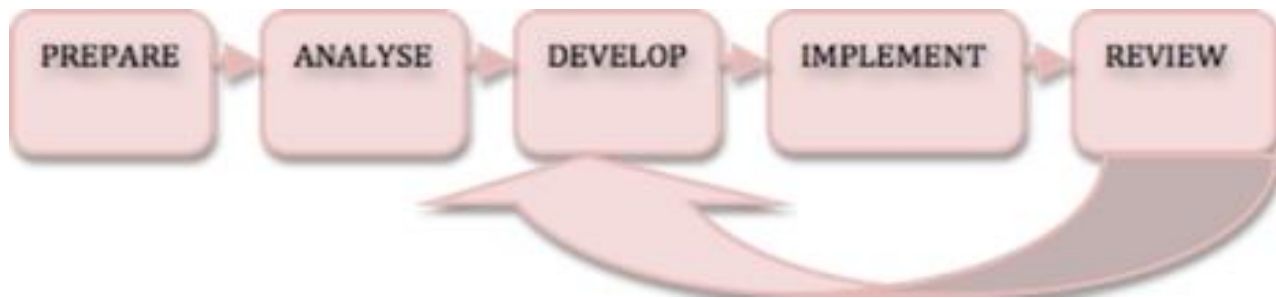
In order to be relevant and useful, contingency plans must be a collaborative effort. They must also be linked to the plans, systems or processes of other government, partner or Movement bodies at all levels – national, regional and global. There is a suggested format for contingency plans annexed to the guide and also a collection of training modules available from the IFRC.

Chapter Four

4. Means of Implementation

4.1 IRM Coordination Mechanisms

Effective implementation of the strategy requires cooperation and partnerships of various types, with a wide range of partners and from a variety of sources. The strategy offers opportunities for development of joint programming actions through multi-stakeholder collaboration and partnerships that can synergize resources and actions with other development actors to enhance IRM in Afar National Regional State. Therefore, it requires political and legal commitment, public understanding, scientific knowledge, careful development planning, responsible enforcement of policies and legislation, people centered early warning systems, and effective disaster preparedness and response mechanisms. A multi-stakeholder regional coordination for DRM can provide or mobilize the combined knowledge, skills, and resources required for DRR and its mainstreaming into development policies, planning and programs. The prerequisite areas of partnership for implementing the strategy include: (a) Capacity development, (b) Science, research, innovation and technology application in IRM, (c) Education and training, (d) Knowledge and information exchange and sharing, (e) Urban IRM, (f) integration of IRM into climate risk management, (g) support for resilience, (h) Schools safety.

Primary Activities:
- ✓ Establishing baseline information for IRM, including disaster and risk profiles, strategies, capacities, resources and programs;
- ✓ Identify targets, gaps, concerns and challenges and setting forth accepted priority areas in IRM;
- ✓ Advocating the urgent need for developing or adopting strategy and legislations for IRM;
- ✓ Benchmarking progress made in promoting IRM and its mainstreaming into development policies, planning and programs;
- ✓ Developing result-oriented work plan for regional IRM Coordination Committee to coordinate the IRM activities in line with the "Policy and Strategy for IRM; Towards a Safer Afar";
- ✓ Coordinating joint efforts among members of regional IRM Coordination Committee to reduce the vulnerability of people at relatively high risk;
- ✓ Monitoring, recording and reporting of IRM actions at national and community levels in line with SFA and "Policy and Strategy for IRM; Towards a Safer Afar"
- ✓ Documenting lessons learned and good practices, and share the findings at regional and local levels;
- ✓ Working towards better integration of IRM into regional planning, strategy and programs in development and humanitarian assistance;
- ✓ Initiate the Community Based/Led Integrated risk management (CBIRM) approach at regional level to strengthen community's decision making process; and
- ✓ Pursue empirical researches/ studies current DRM practices, identify gaps, and evolve mechanisms for successful implementation of CBIRM.
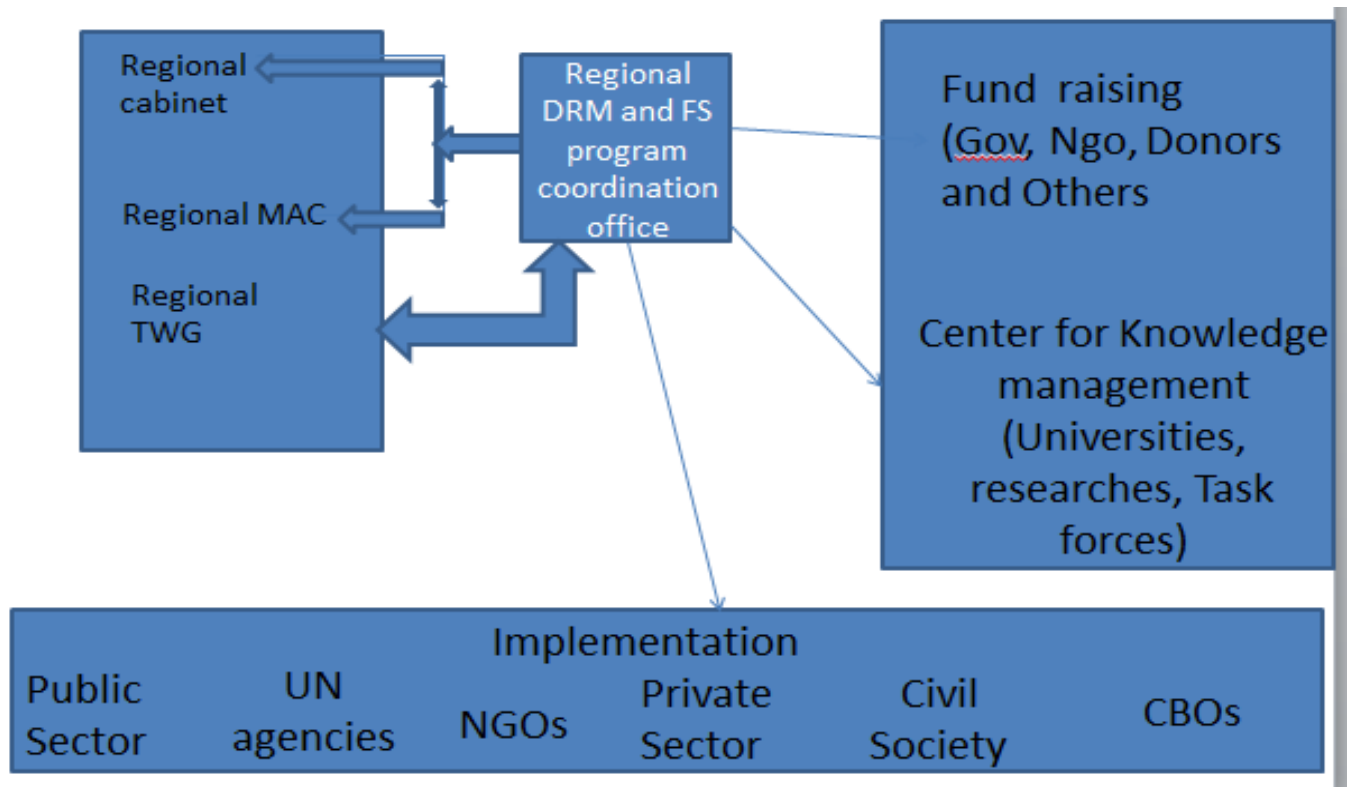
Figure 4.1 Proposed regional coordination mechanisms

4.2 Resource Mobilization

For successful implementation of the Regional IRM strategy mobilization of adequate, predictable and timely resources and capacities, including non-financial support, of relevant national, regional and local sources are required. Mobilization of adequate and timely resources and capacities, including non-financial support, of relevant regional and local bodies for the implementation of the strategy will involve:

  a) increasing awareness of and advocacy for increased commitment to investing in DRM
  b) development of actionable program and project documents
  c) making stronger case for increasing financing and investment in DRM, including providing evidence of effectiveness and governance of mobilized resources
  d) demonstrating alternative funding mechanisms available to countries, beyond public budget funding, that can be employed to enhance financing for implementation of the strategy
  e) mobilizing adequate voluntary contribution to continental and national trust funds and other financing mechanisms for DRM
  f) increasing use of risk-reducing investments in sector strategies, plans and programs
  g) developing partnership to implement schemes that spread risk, promote the culture and expansion of insurance, and increase financing for post-disaster recovery and reconstruction, including through public-private partnerships

h) enhancing coordination of fund raising, funding of programs and funds available to countries by the programs of the United Nations and other international and regional organizations, international and regional financial institutions and donor agencies

i) Leveraging a broader range of funding opportunities in bilateral and multilateral development aid frameworks and assistance programs through mainstreaming DRM into development processes and instruments.

4.3 Fund raising

Achieving an appropriate level of resilience and ensuring IRM will require the Government, development partners, and private sector and civil society actors to make an additional effort to mobilize and allocate finance so that the priority interventions defined in this Strategy can be implemented on schedule. Thus, the mobilization of resources will be the main challenge afar region will face and it is expected to ensure the access to appropriate additional funding for the implementation of the Strategy.

An effective response to the challenge of achieving this requires
(i) strengthening national capacity to integrate IRM in bilateral and multilateral development finance negotiations;
(ii) Strengthening the national body responsible for leadership and coordination of access to the various regional IRM financing mechanisms;
(iii) Evaluating the financing mechanisms available for IRM, including local funds from donations, contributions, corporate social responsibility and individual contributions; and
(iv) Assessing the possibility of creating an IRM common fund.

4.4. Knowledge management

The Centre for risk Knowledge Management is to be created and hosted within the Academy institute like Bahir Dar and Semera University, relying on existing entities, and containing thematic groups to be managed by the corresponding public authorities. These will gather the knowledge dispersed across institutions, in order to serve as the repository, generator and transmitter of knowledge.

The Centre will work through the Network of IDRM, which is composed at this stage of ten thematic areas, namely: (i) livestock husbandry, crop production and forests ii) Culture and tourism, (iii) climate modeling, (iv) communities and local knowledge, (v) water resources, (vi) biodiversity and ecosystems, (vii) human health, (viii) food security and nutrition, (ix) Geological & Hydrological risks & resources, (x) Rural & Urban Population and (xi) economics and finance.

The thematic knowledge management areas will be coordinated by their respective bureaus/offices and will integrate specialized institutions, particularly the network of research institutions, higher education institutions and organizations that perform the systematic collection of climate or sectorial data. In addition to this function, the Centre for risk Knowledge Management should develop communication plans to disseminate the knowledge and information compiled, with a view to promoting an informed Afar region society with the ability to make decisions to meet the challenges, risks and opportunities posed by IDRM.

The Centre for risk Knowledge Management will undertake:

- Collecting, producing and disseminating knowledge and technologies for Afar Region to meet the challenges IRM Practice;
- Compiling data and information necessary to support the afar region diplomacy in the national and international IRM negotiations;
- Identifying, promoting and/or carrying out studies on the impacts of national and regional IRM in Afar region, focusing on the region's vulnerability;
- Identifying, prioritizing and promoting the study of alternatives for IRM practice for Afar region social, economic and natural spheres;
- analyzing and identifying opportunities for the mitigation of anthropogenic emissions and the enhancement of sink capacity, which could contribute to the region's sustainable development through improving access to financial and technological resources;
- Contributing to the formulation and monitoring of IRM strategies in Afar region;
- Meeting research needs related to specific problems for communities' development;
- Creating IRM training, awareness and education content;
- Capitalizing on the experience and knowledge of IRM gained through organizing regional and national events.

4.5. Monitoring and Evaluation

How is it Implemented?

Evaluation is a process for systematically and objectively determining the relevance, efficiency, effectiveness and impact of strategies in light of their objectives. Evaluating DRR strategies is imperative to assess their results and impacts, and to provide a basis for decision-making on amendments and improvements to policies, strategies, program management, procedures and projects. Evaluation is the responsibility of decision makers and it should guide and support government decision-making and policymaking, as well as international aid and investment. It should also support prioritizing strategies and initiatives that reduce vulnerability to disasters.

A basin-wide DRR strategy should be based on an evaluation that covers the entire basin. The evaluation should therefore be carried out as a joint activity by riparian countries based on their shared objectives. It should, for example, consider whether benefits have accrued to all riparian countries as planned, or whether adjustments need to be made. Consultations and preferably the establishment of a joint evaluation committee will be required.

Evaluation and monitoring activities are essential for verifying the effectiveness and efficiency of the measures taken and for facilitating adjustments. Evaluation is carried out during implementation (ongoing evaluation), at the completion of an activity (final evaluation), and some years after completion (post evaluation). Part of the evaluation can be based on self-assessment by the staff responsible, but external evaluation is also recommended.

Evaluation should be based on indicators that focus on the progress in the implementation of a policy (process indicators) and indicators that represent progress towards a specific objective (outcome indicators). The policy and institutional framework can best be evaluated by process indicators, which demonstrate actual, on-the-ground institutional and political progress in the often time-consuming, step-by-step journey to solving complex problems. They assist in tracking the local and regional institutional, policy, legislative and regulatory reforms necessary to bring about change. Monitoring progress in DRR includes collecting information on the progress made towards achieving objectives, i.e. the outcome indicators.

Six types of outcome indicators that measure the success of IRM strategies can be distinguished:

1. **Coverage:** the extent to which the strategy reaches vulnerable stakeholders (e.g. individuals, households, businesses, government agencies, policymakers) and ecosystems.

2. **Impact:** the extent to which the strategy reduces risk and/or enhances adaptive capacity (e.g. through bringing about changes in the IRM processes: policymaking/planning, capacity-building/ awareness raising, information management).

3. **Sustainability:** the ability of stakeholders to continue the DRM processes beyond activity/project lifetimes, thereby sustaining development benefits.

4. **Scalability:** the extent to which strategies generate and disseminate results and lessons of value in other, comparable contexts.

5. **Effectiveness:** the extent to which the objective has been achieved, or the likelihood that it will be achieved.

6. **Efficiency:** the outputs in relation to inputs, looking at costs, implementation time, and economic and financial results. In measuring efficiency, it is important to remember that long-term objectives (as dealt with in climate change adaptation) require cost-benefit analysis that takes account of long-term developments.

Indicators can be quantitative or qualitative and should describe the positive and negative effects of interventions. They should be defined from the beginning, i.e. when DRR measures and objectives are decided upon in order to enable continuous data collection and evaluation. Evaluating DRR strategies includes evaluating the constituent elements of a given strategy: the policy, legal and institutional setting; financial arrangements; vulnerability assessment; and the choice and implementation of measures. It also includes monitoring progress towards achieving its objectives.

Evaluation of DRR strategies should also include performance under climate impacts a comparison of one project area with another similar area where no intervention took place, and measuring outcome against standards (e.g. benchmarking) and targets (OECD, 2015a; UNECE, 2009a; UNECE, 2015).

4.6 Reporting under the Sendai Framework and the SDGs

A set of indicators were identified to measure global progress in the implementation of the Sendai Framework for Disaster Risk Reduction. The indicators will measure progress in achieving the global targets of the Sendai Framework, and determine global trends in the reduction of risk and losses. These metrics, together with indicators that can be employed by countries to measure nationally determined targets, will allow for an appraisal of the impact actions of stakeholders supporting the achievement of the outcome, goals and targets of the .Sendai Framework. The indicators will generate the information base for the development of .Sendai Framework implementation strategies, facilitate the development of risk-informed policies and decision-making processes, and guide the allocation of appropriate resources. Key indicators, measuring the global targets of the Sendai Framework, have been adopted for use in measuring disaster-related goals and targets of the 2030 Agenda for Sustainable Development, thereby allowing the simultaneous and coherent monitoring and reporting on the Sendai Framework and SDGs 1, 11 and 13.

Progress in implementing the Sendai Framework will be assessed biennially by UNISDR, and analysis and trends will be presented in the Sendai Framework Progress Report. Countries will be able to report against the indicators for measuring the global targets of the Sendai Framework, as well as the disaster risk reduction-related indicators of the SDGs, using the online Sendai Framework Monitor. The Sustainable Development Goals Report is submitted every year to the High-level Political Forum on Sustainable Development (HLPF), for which countries are expected to collect data and report on an annual basis.

The Sendai Framework recognizes that the Global and Regional Platforms for Disaster Risk Reduction have a key role in its implementation. The Global Platform and Regional Platforms are inter alia expected to periodically monitor and assess progress in implementation, and contribute to the deliberations of the HLPF, the United Nations General Assembly and the United Nations Economic and Social Council, including the integrated and coordinated follow-up processes to United Nations conferences and summits, and the quadrennial comprehensive policy reviews of the United Nations operational activities for development.

Chapter Five

5. Major hazards of the region IDRM Cycle approach Implementation

As suggested in the Regional and National DRM Strategy, DRM programs will never be able to meet the enormous global need to reduce the risks posed by shocks or hazards, nor produce a resilient society on their own. Therefore, one of the Strategy's main themes is to promote the integration of DRM much more comprehensively across the development and humanitarian programs. To facilitate better programmatic integration, the sheets also include 'Resilience' boxes to highlight potential linkages with other actors, demonstrating how IRM can often be a component of larger response, early recovery, transition, or development programs.

Therefore, the IDRM cycle approach implementation will be guided with the general framework indicated below;
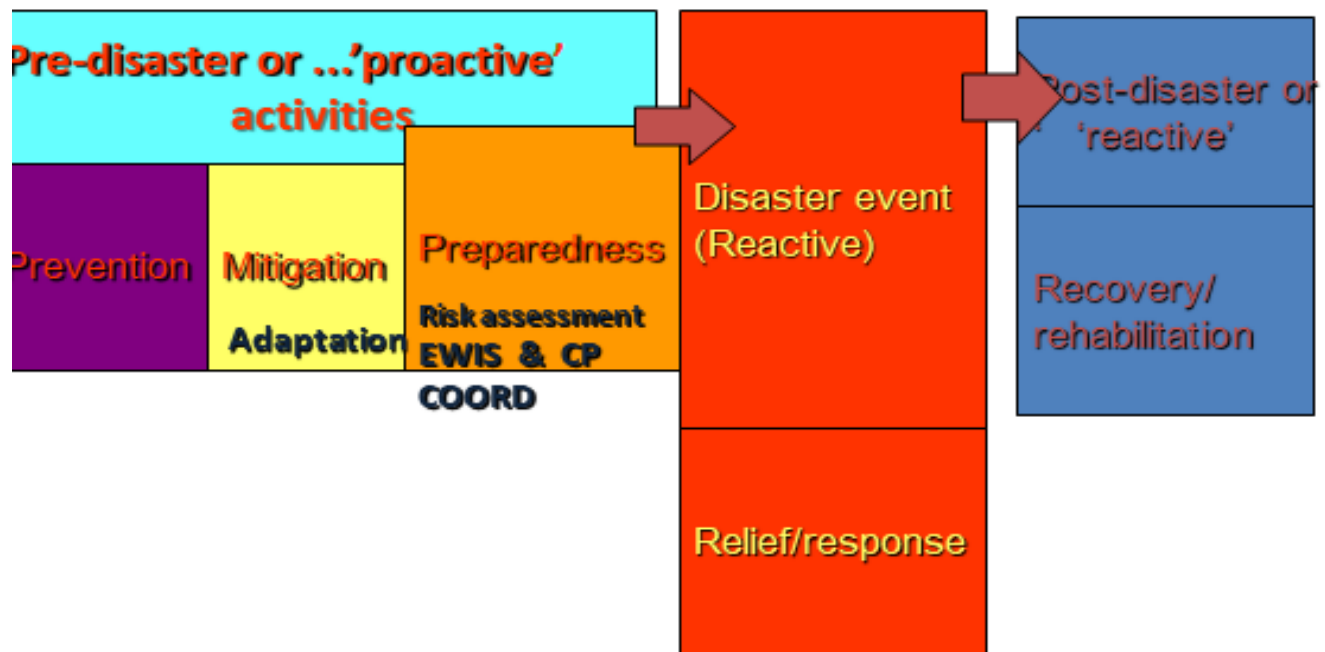

Figure 5.1. DRM cycle implementation framework

5.1 Drought

Associated Secondary Hazards: Epidemic (Human and Livestock), Pest Infestation, Wildfire

Droughts themselves cannot be prevented, but while they are potentially devastating, they do not have to lead to a disaster. Contrary to floods and other sudden onset hydro-meteorological disasters, droughts tend to progress slowly, and may linger for months or years. The magnitude of a drought and its impacts are closely related to the timing of the onset of the precipitation shortage, its intensity, and the duration of the event. Depending on the magnitude and timing of the drought, the impacts may vary significantly. In many cases, they can have devastating effects on the economic and nutritional status of vulnerable populations.

Meteorological droughts are defined as a deficit in precipitation from the long-term average, so they are very specific to each region. **An agricultural drought** occurs when there is insufficient or poorly timed rainfall which adversely affects normal crop growth and maturation. **Hydrological droughts** usually occur when surface and subsurface water supplies are below normal, and are defined on a watershed or river basin scale. These droughts usually lag behind meteorological and agricultural droughts, since it takes longer for deficits in rainfall to show up in various components of the hydrological system (e.g., ground water, reservoirs, etc.). **Socio-economic droughts** occur when the demand for water supplies exceed the supply, due to weather-related water shortages. One or more of these drought types can result from a deficit in precipitation, but the effects of absent or poorly timed rain on crop productivity are potentially the most devastating. In some cases, seasonal rainfall values may be "normal" in a meteorological sense, but can still result in crop failure – the classic "green drought."

Examples:
In Ethiopia, the ANRS-funded Water for Irrigation and Life Advancement program was fully integrated into the larger Wellness and Agriculture for Life Advancement Program funded by USAID/Ethiopia and the Office of Food for Peace. The programs helped communities change their agricultural practices and better manage their livelihoods. USAID's "joint planning cells" in the Sahel and the Horn of Africa offer many other examples. In Senegal, the focus on climate-smart agriculture, health and nutrition, micro credit and savings, local governance

Linking to Resilience
Areas for collaboration with development colleagues to promote resilience include the following: climate change adaptation, agriculture and food security, livelihoods, economic recovery, health, nutrition, and water and

Examples:

Early interventions can lower loss and hasten recovery, so DRM programs that are focused on drought monitoring, early warning, and appropriate decision-making can have significant effect on reducing the negative impacts of this hazard. In addition, communities can implement a variety of risk reduction and adaptation measures to mitigate the effects of drought and persist through an extended dry period.

The following ANRS sectors and sub-sectors are the ones most likely to be funded with respect to stand-alone, drought-related DRM. Often, multi-sectoral programs are more effective, as program elements can build upon and reinforce one another to help make communities as resilient as possible to the impacts of droughts. Specific design elements will depend on whether the project location is a rural or urban setting, whether active conflict is ongoing, and the overall capacity at all levels to prepare for and respond to disasters. In addition to the sub-sectors listed below, please note that all ANRS sub-sectors may be addressed in disaster-response interventions that incorporate elements of DRM, subject to normal technical qualifications.

5.1.1 Pastoral and Agriculture and Food Security (Fisheries, Livestock, Pests and Pesticides, Seed System Security, Improving Agricultural Production/Food Security, Irrigation)

The agriculture and food security sector may be severely impacted by drought, depending on the fluctuation of precipitation fluctuation as well as the phase of plant growth or time of the planting cycle when the drought hits. As a result, farmers may experience reduction of grain, seed quality and quantity, livestock feed, growth and reproduction of livestock, and aquaculture production, in addition to an overall reduction in their own household food security. Livestock may experience severe hardship, both from lack of water and lack of feed. In some cases, weakened animals and fish may be subject to increased risk of disease and death. During drought, pests that normally feed on natural vegetation or other plants congregate on any vegetation or crops that may be available, including those already hit by severe moisture deficiency. This contributes to farmers having difficulty harvesting drought hit crops for animal feed, firewood, or any other purpose. DRM programs for drought prone areas may either be stand-alone, or may be integrated into response.

These programs can include training and capacity building, provision of inputs, and technical assistance for mitigating the impact of drought on productivity.

Illustrative interventions in this area include the following:
- ✓ Training programs to improve grazing lands and herd management;
- ✓ Vaccination and parasite control programs to improve animal health and reduce animal mortality;
- ✓ Support to initiate disease and pest surveillance;
- ✓ Training programs to improve agricultural practices to address specific acute shocks that may be exacerbated by drought (e.g., emergency fish pond management, increased incidence of anthrax, pest attacks, cassava mosaic disease, etc.);

- ✓ Seed System Security Assessments for areas of recurrent drought and for assessments that are multi-stakeholder and of use to the humanitarian community at large (not just a specific partner);
- ✓ Conservation agriculture;
- ✓ Drought mitigation measures such as rock lines and water catchments (done with community participation);
- ✓ Testing and training related to new drought-tolerant or short-cycle varieties; and
- ✓ Activities to enhance water availability for agriculture, irrigation, aquaculture, or water infiltration/retention activities.

5.1.2 Economic Recovery and Market Systems (Livelihoods Restoration, Microfinance)

Droughts can easily destroy the livelihoods of entire populations, particularly in rural areas. Loss of crops and livestock, particularly over multiple seasons, can destitute farmers, and recovery, if possible, can take decades. Rebuilding those livelihoods, and reinforcing them to prevent repeated destruction in the future, is a critical area of work. Drought-related DRM programs within this sector are normally integrated into response and recovery programs, and stand-alone DRM measures in this sector for drought are likely to be limited and linked closely to Agriculture and Food Security interventions. Community 'buy-in' and participation are essential to ensure the sustainability of standalone DRM measures. For this reason, volunteer efforts are highly preferred over cash-for-work (CFW) for stand-alone DRM for drought mitigation measures. Likely illustrative interventions in this sector include the following:
- ✓ Livelihoods restoration in the form of small grants or in-kind assistance to support Agriculture and Food Security measures described in the previous section; and
- ✓ Microfinance programs to encourage savings and investment in risk reduction at the household or microenterprise level, such as community savings groups (VSLA and similar), in conjunction with Agriculture and Food Security or other sector activities.

5.1.3 Health (Health Systems and Clinical Support)

Due to the impacts of drought on public health, epidemics can result and be considered a possible sub-hazard. DRM programs in this sector will generally be integrated into response and recovery programs, or will be part of a larger multi-sectorial risk reduction program to build resilience. Illustrative interventions in this area include the following:
- ✓ Development of and planning disease surveillance and early warning systems focusing on diseases of epidemic potential;
- ✓ A concentration on contingency planning for health services and commodities with national, provincial, and/or district level health authorities and other stakeholders. This does not include stockpiling; and
- ✓ Health education focusing on community health workers and/or healthcare professionals with small scale trainings integrated with other regional preparedness efforts.

5.1.4 Humanitarian Coordination and Information Management (Coordination, Information Management)

Programs that address coordination and information management are typically categorized under the Humanitarian Coordination and Information Management Sector and its respective sub-sectors. Please see the

introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.1.5 Natural and Technological Risks (Hydro-meteorological Hazards)

Droughts are recurring hydro-meteorological events that are part of natural climate variability. Droughts may cross national boundaries and have cascading impacts. DRM programs that address this hazard may be either stand-alone (such as capacity building, preparedness or early warning), or may be integrated into response and recovery programs. Illustrative interventions in this area include the following:

- ✓ Capacity building on preparedness and drought monitoring and early warning at community, local, national, regional, or international levels;
- ✓ Development and implementation of drought plans and integrated drought management at local, national, and regional levels; and
- ✓ Small-scale water resource management activities depending on the location, hydro-meteorological characteristics, project scale, and local capacity to maintain the activities.

5.1.6 Nutrition (Infant and Young Child Feeding and Behavior Change, Management of Moderate Acute Malnutrition, nutrition Systems)

The impacts of drought on nutrition are profound. With the loss of crops and livestock, availability of food decreases significantly. Consumption of contaminated water may spread disease and cause diarrhea and vomiting, particularly among children. DRM programs in this sector will generally be integrated into response and recovery programs, or will be part of a larger multi-sectoral risk reduction program to build resilience. Illustrative examples of programs in this area include:

- ✓ Improve overall community nutrition practices and strengthen nutrition systems;
- ✓ Capacity building of national staff for the treatment of malnutrition, particular in the context of moderate acute malnutrition; and
- ✓ Nutrition surveillance and regular surveys and in high-risk countries to indicate deteriorating nutritional status and activate early interventions.

5.1.7 Protection (Protection Coordination, Advocacy and Information)

Droughts can exacerbate protection risks that already exist in a community. Individuals or families may turn to negative coping strategies, including early marriage, sexual exploitation, or child labor, as a means of survival. Mainstreaming of protection into DRM programs by other sectors is therefore an important protection tool in drought situations. Programs such as livelihoods restoration or microfinance can reduce drought-related protection risks, including the need to resort to negative coping strategies. However, these interventions can also introduce new threats and vulnerabilities if protection is not sufficiently considered. Since the impacts of drought can also be life-threatening, displacement of some members of a family in search of water, food, or feed is common, and impacts all members of a household. DRM programs specifically aimed at protection can

prepare communities prior to a severe drought to understand and address issues related to vulnerability as the drought progresses. Illustrative interventions in this area include the following:

- ✓ Training for humanitarian organizations to identify and mitigate protection risks associated with DRM programs, promote prevention through incorporation of protection into DRM program design and beneficiary selection processes, and monitor for the protection aspects of a program during implementation;
- ✓ Education for community-members about the harm of negative coping strategies, and information about available assistance programs;
- ✓ Protection preparedness to ensure safety of vulnerable populations, such as assistance for children, older people, and persons with disabilities;
- ✓ Capacity building of authorities to understand and address protection in a disaster(e.g., measures to prevent family separation, special needs of vulnerable groups, importance of assuring safety for women and girls); and
- ✓ Training for humanitarian organizations to assess and respond to protection risks in a disaster.

5.1.8 Risk Management Policy and Practice (Building Community Awareness/Mobilization, Capacity Building and Training, Global Advocacy and Engagement, Integration/Enhancement within Education Systems and Research, Policy and Planning, Public-Private Partnerships)

Programs that address multiple hazards or the policy dimension of disaster risk reduction are typically categorized under the Risk Management Policy and Practice Sector and its respective sub-sectors. Please see the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.1.9 Shelter and Settlements (Emergency/Transitional Shelter, Shelter Hazard Mitigation, Camp Design and Management)

The Shelter and Settlements sector is focused on reducing the impact that droughts and associated water scarcity have on people and their settlements. In vulnerable communities, stand-alone DRM interventions will reduce water scarcity impacts, and prepare communities to conserve water resources. In addition, DRM can be incorporated into emergency response, paving the way to the recovery of the disaster-affected communities. Illustrative interventions in this area include the following:

- ✓ Promotion of household water conservation techniques and devices (e.g., cisterns, roof catchments);
- ✓ Training of authorities, laborers, contractors, and humanitarian organizations to understand and incorporate water conservation into shelter and settlements response and development activities;
- ✓ Promotion of watershed-based settlements approaches to address multiple hazard risks in a comprehensive manner;
- ✓ Support of settlements planning activities and related capacity building and awareness raising at the neighborhood and jurisdictional levels.

5.1.10 Water, Sanitation, and Hygiene (Water Supply Infrastructure, Hygiene Promotion)

Drought can destabilize water supplies and lead to use of unsafe water sources and poor hygiene practices, as well as poor choices related to the use of available water. When water access is compromised, disease epidemics

can result. In this sector, DRM programs are normally integrated into response. Stand-alone DRM programs are possible, but must be strongly justified and based on the risk of the target area/population being affected by this hazard. Illustrative DRM interventions in this area include the following:

- ✓ Hygiene promotion programs to reduce fecal-oral disease transmission. Messaging should include household water quality protection and safe water storage, safe excreta disposal, and promotion of hand-washing. Hygiene promotion may be made directly to households and/or through community-based outlets such as schools, religious organizations, and neighborhood associations;
- ✓ Protecting water sources to prevent contamination, including separation from livestock water facilities;
- ✓ Capacity building on maintaining protected water supplies at community, local, and/or regional levels;
- ✓ Projects using natural geologic features to sustainably increase water storage and reduce runoff, such as sand dams, rock catchments, check dams, and subsurface dams; and
- ✓ Capacity building with local government on integrated water resource management (IWRM) and promotion of water conservation practices.

5.2 Flood

Associated Secondary Hazards: Landslide, Mudflow, Epidemic

A flood is an inundation of an area not normally submerged. Understanding the types and causes of floods is important in taking measures to mitigate the impacts of flood hazards. Flooding can be Classifieds River, coastal, flash, or urban. Flooding of low-lying coastal areas, estuaries, and deltas is usually caused by coastal storm surges resulting from severe cyclonic systems, tidal waves, or tsunamis.

Excessive precipitation and/or obstruction of river flow are the most common causes offloading along the rivers. Landslides can block the river flow leading to upstream flooding by ponding water behind the debris dam. Erosion or overtopping of debris dam due tan increase in water level behind the obstruction can cause catastrophic flooding in the downstream areas. Heavy rainfall due to tropical storms, spring rains, monsoon, snowmelt, or a combination of snowmelt and rainfall are common causes of slow onset river flooding.

River floods can extend widely over areas along the river and can last for several days, and sometimes months. Since river floods rise slowly, people in the affected areas usually have enough lead-time to move to safer ground.

Flash floods are the main cause of weather-related deaths in many countries due to their rapid-onset characteristics, limited warning procedures and emergency actions, the high velocity of water flows, and the associated debris flows. The speed and power of flash floods can roll boulders, tear out trees, destroy buildings and bridges, scour out new channels, and trigger catastrophic landslides. Flash floods are commonly caused by slow-moving thunderstorms, thunderstorms repeatedly moving over the same area, or heavy rains from

hurricanes and tropical storms. Flash floods can occur within a few minutes or hours of excessive rainfall, a dam or levee failure, or a sudden release of water held by an ice jam, debris dams, or reservoirs.

Extensive flat areas may be flooded by heavy rainfall ponding on the surface where ground surface is baked hard or becomes crusted. Local rainfall flooding is common in arid and semi-arid environments.

Urban floods are usually caused by water spilling over riverbanks, surface ponding of excessive rainfall, or flash floods. Urban flooding may also occur because of inefficient design capacity of storm water drains and obstruction of the drainage system by solid waste or buildings. In addition, use of wadis/arroyos and natural drainage channels for roads and settlements during non-flood season increases vulnerability to urban flooding. The extent of settlement in steep slopes causes soil erosion and makes settlements more susceptible to landslides. The use of storm water drains as sewers increases the risk of health hazards when the storm sewers overflow on the streets during flooding.

The primary effects of flooding include loss of life, damage to agricultural lands, buildings, and infrastructures including bridges, water and sewer systems, roads, reservoirs, and canals. Infrastructure damage may also include damage to power lines or interruptions in power generation, which then can lead to cascading impact on multiple sectors, particularly if that loss of power continues for a long period of time.

An integrated approach to flood mitigation considers positive, as well as the adverse impacts of floods, the adoption of multi-functional and multi-beneficial solutions, and represents all the stakeholders within the watershed. Flood risk can be reduced by moving away from floodplain or other flood-prone areas; however, people have traditionally lived and worked by rivers, coastal areas, and lakes because of the fertile land and easy travel and access to water for agriculture, transportation, commerce, and industry. The economic impacts of flood losses, versus the efficient use of flood prone areas, the adverse impacts on the environment, and other natural resources should be taken into consideration in DRM activities.

The following ANRS sectors and sub-sectors are most likely to be funded with respect to stand-alone, flood risk reduction. Often, multi-sectoral programs are more effective, as program elements can build upon and reinforce one another to help make communities as resilient as possible to the impacts of floods. Specific design elements will depend on whether the project location is a rural or urban setting, whether active conflict is ongoing, and the overall capacity at all levels to prepare for and respond to disasters. In addition to the sub-sectors listed below, please note that all ANRS sub-sectors may be addressed in disaster-response interventions that incorporate elements of DRM, subject to normal technical qualifications.

5.2.1 Pastoral and Agriculture and Food Security (Fisheries, Livestock, Seed System Security, Improving Agricultural Production/Food Security)

When floodwaters inundate farm land, the land is unworkable during that time, preventing crops from being planted or harvested. This can lead to shortages of food both for humans and farm animals. Entire harvests for a country can be lost in extreme flood circumstances. Livestock and pets can be stranded by rising flood waters. Depending on the flooding event, agricultural land may also undergo some degree of salinization, which may impact crop production for some time, until the salt can be leached from the soil with additional rainfall or until salt-tolerant crop varieties can be promoted. Flooding can also affect or destroy agricultural inputs, including

pesticides by damaging storage facilities and causing pesticide spills, which can in turn contaminate the environment, pollute water sources, and affect human health and safety of their assets. DRM programs for agriculture and food security are normally integrated into response, and can include training and capacity building, provision of inputs, and technical assistance for mitigating the impact of the flood on future crops. Stand-alone DRM programs must be strongly justified and based on the risk of the target area and vulnerability of the population affected by this hazard. Illustrative interventions in this area include the following:

- ✓ Promotion of flood-resistant or saline-resistant crop varieties for agricultural areas;
- ✓ Introduction of agriculture techniques to maximize growing season options (e.g., short cycle crops);
- ✓ Seed/feed storage;
- ✓ Implementing UNFAO standards for pesticide storage and handling, including constructing flood-resistant, pesticide storage facilities on higher ground; using durable containers; placing high-volume metal and plastic containers on pellets with no more than two layers; and providing rigorous training on pesticide safety, handling, and use; etc.;
- ✓ Developing and implementing safe and effective spill containment strategies to minimize or avoid pesticide pollution from spillages; and
- ✓ Support for fisheries livelihoods.

5.2.2 Economic Recovery and Market Systems (Livelihoods Restoration, Market System Rehabilitation, Microfinance)

Floods can quickly damage or even wipe out livelihood assets and market infrastructure in both rural and urban areas. Rebuilding livelihoods, and reinforcing them to prevent repeated destruction in the future, is a critical area of work. DRM programs within this sector are normally integrated into response and recovery, such as rehabilitating market infrastructure with hazard-resistant design features. Stand-alone DRM programs must be strongly justified and based on the risk of the target area and vulnerability of the population affected by this hazard. Additionally, interventions that benefit entire market systems or larger businesses should have a significant contribution from private or public sector actors, rather than being wholly donor funded. Interventions to support agricultural or fisheries based livelihoods and market systems should be closely linked to the Agriculture and Food Security sector. Illustrative interventions in this area include the following:

- ✓ Market assessments of critical market systems (in a participatory manner that benefits the entire humanitarian and economic recovery community) as a baseline and to predict likely disaster damage, to guide DRM or future disaster-response programming(e.g., identifying critical infrastructure or services, and likely disaster scenarios);
- ✓ Livelihood restoration and market system rehabilitation programs to specifically reduce the risk to key livelihoods and markets from floods (e.g., transportation routes, flood resistant storage, watershed-related livelihoods);and
- ✓ Access to microfinance to encourage investment in risk reduction at the householder small business level. Please note subsector requirements for Microfinance; ANRS generally will not fund any loan capital or MFI operating costs.

5.2.3 Health (Health Systems and Clinical Support)

Due to the impacts of floods on public health, epidemics can result and can be considered a possible sub-hazard. DRM programs in this sector can be either stand-alone (such as contingency planning, capacity building, or

early warning), or can be integrated into response and recovery programs. Illustrative interventions in this area include the following:

- ✓ Development of and planning disease surveillance and early warning systems focusing on diseases of epidemic potential;
- ✓ A concentration on contingency planning for health services and commodities with national, provincial, and/or district level health authorities and other stakeholders. This does not include stockpiling;
- ✓ Health education focusing on community health workers, first responders, and/or healthcare professionals with small scale trainings integrated with other regional preparedness efforts; and
- ✓ Coordination with other public and private stakeholders with an effort towards resilience to evaluate structural needs for primary healthcare facilities in preparation for such emergencies.

5.2.4 Humanitarian Coordination and Information Management (Coordination, Information Management)

Programs that address coordination and information management are typically categorized under the Humanitarian Coordination and Information Management Sector and its respective sub-sectors. Please see the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.2.5 Natural and Technological Risks (Hydro-meteorological Hazards)

Floods and associated hazards are hydro-meteorological in nature. DRM programs that address this hazard may be either stand-alone (such as capacity building, preparedness, or early warning), or may be integrated into response and recovery programs. Please note that hydro-meteorological structural measures that are intended to control hazards, such as levees, dams, and sea walls, are not preferred as DRM options for floods and its secondary hazards due to ineffectiveness and adverse impacts. Illustrative interventions in this area include the following:

- ✓ Capacity building on preparedness and early warning of floods and secondary hazards at community, local, national, regional, basin, or international levels;
- ✓ Flood and associated hazard early warning systems encompassing an end-to-end approach including hazard monitoring, forecasting, tools for decision makers, dissemination of warnings to stakeholders in partnership with authorized national and local entities;
- ✓ Natural and environmentally appropriate measures such as watershed or coastal management activities;
- ✓ Development of guidelines, plans, laws, rules, regulations, policies, or strategies for flood risk reduction;
- ✓ Analysis for various flood scenarios for potential dam break and other human induced floods and assistance on inspection and maintenance of dams/levees in case of significant impact
- ✓ Trans boundary river forecasting, management and mitigation activities
- ✓ Community-based activities to reduce impacts of floods and secondary hazards; and
- ✓ Establishment of hydro-meteorological networks to aid nationally authorized agencies depending on the purpose and scale of the program, location, proposed technology, and local capacity to operate and maintain these systems.

5.2.6 Shelter and Settlements (Camp Design and Management, Emergency/Transitional Shelter, Shelter Hazard Mitigation)

The Shelter and Settlements sector is focused on reducing the impact that floods and related conditions (e.g., landslides, mudflows, etc.) have on infrastructure, services, life-line facilities, and housing, i.e., prominent elements of all settlements. In vulnerable communities, stand-alone DRM interventions will mitigate flood damage, and prepare communities to live with the risks associated with those events. In addition, DRM is often incorporated into emergency response, paving the way to the recovery of the disaster affected communities. Illustrative interventions in this area include the following:

- ✓ Promotion of flood-resistant shelter designs;
- ✓ Training of authorities, laborers, contractors, and humanitarian organizations in hazard-prone settlements to understand and incorporate DRM into response and development activities;
- ✓ Promotion of watershed-based settlements approaches to address multiple hazard risks in a comprehensive manner;
- ✓ Support of settlements planning activities and related capacity building and awareness raising at the neighborhood and jurisdictional levels (e.g., "neighborhood approach" and "emergency master planning" in Haiti) that features identification and reduction of risks in hazard-prone settlements.

5.2.7 Protection (Protection Coordination, Advocacy and Information)

Since flooding can result in significant damage to houses, displacement is a common result. DRM programs specifically aimed at protection can prepare communities in advance of flooding events to understand and address issues related to vulnerability. Training, capacity building, and strategic planning can all be stand-alone Reprograms that address protection issues prior to a disaster. DRM interventions can also be integrated into response, but these programs are less common for this sector. Illustrative interventions in this area include the following:

- ✓ Protection preparedness to ensure safety of vulnerable populations during the event, such as evacuation assistance for children, older people, and persons with disabilities
- ✓ Capacity building of authorities to understand and address protection in a disaster(e.g., measures to prevent family separation, special needs of vulnerable groups, importance of assuring safety for women and girls)
- ✓ Training for humanitarian organizations to assess and respond to protection risks in a disaster

5.2.8 Risk Management Policy and Practice (Building Community Awareness/Mobilization, Capacity Building and Training, Global Advocacy and Engagement, Integration/Enhancement within Education Systems and Research, Policy and Planning, Public-Private Partnerships)

Programs that address multiple hazards or the policy dimension of disaster risk reduction are typically categorized under the Risk Management Policy and Practice Sector and its respective sub-sectors. Please see the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.2.9 Water, Sanitation, and Hygiene (Water Supply Infrastructure, Sanitation Infrastructure, Environmental Health, Hygiene Promotion)

Floods can wreak havoc on water and sanitation systems, damaging infrastructure and contributing to widespread contamination of drinking water supplies and the environment. Floods may also cause the loss of sewage disposal facilities. Lack of clean water combined with human sewage in the flood waters raises the risk of waterborne diseases, and epidemics can result. For this sector, stand-alone DRM programs must be strongly justified and based on the risk of the target area/population being affected by this hazard. Empowering households to prepare for floods and associated hazards along with promoting environmental health precautions once the disaster has occurred are critical aims. Illustrative interventions include the following:

- ✓ Hygiene promotion programs to reduce fecal-oral disease transmission. Messaging should include household water quality protection and safe water storage, safe excreta disposal, and promotion of hand-washing. Hygiene promotion may be made directly to households and/or through community-based outlets such as schools, religious organizations, and neighborhood associations;
- ✓ Identification of non-hazardous debris disposal sites before the event occurs, as debris can rapidly overwhelm solid waste disposal sites, posing environmental and fire hazards. Identifying sites and acquiring permission to use the sites are important steps to complete before the disaster occurs;
- ✓ Strengthening major sewage outfalls to prevent damage from flooding;
- ✓ Protecting water sources to prevent contamination with floodwaters. This may include identifying the 50 or 100 year flood elevation mark (historical flood levels) and raising existing well heads in flood zones and/or relocating wells outside of flood zones for both open wells and boreholes;
- ✓ Preparedness training with community, local, national, and/or regional levels to develop coordination, planning, and technical environmental health (WASH) response capacity; and
- ✓ Particularly in urban areas, identifying critical drainage corridors/canals and strengthening local governance around managing and keeping these facilities clear of trash and blockages.

5.3 Volcano Eruption

Associated Secondary Hazards: Landslide, Mudflow, Pyroclastic Flow, Ash fall, Flood, Fire

Volcanic eruptions are not typically the first hazard that comes to mind when discussing disaster response and disaster risk reduction (DRR). Eruptions are often regarded as rare and mysterious events that impact few people. In reality, more than 1,500 potentially active volcanoes exist on earth, with many of them located in developing countries. Fortunately, with proper monitoring, volcanic eruptions can be forecast and end-to-end systems can be established to warn at-risk communities to evacuate out of harm's way.

Although worldwide the number of people at risk from volcanoes is lower than at risk from earthquakes, the relatively long recurrence interval for volcanic hazards (up to several centuries) can lead to complacency among at-risk communities and responders, making eruptions particularly insidious.

Since 1980, volcanic activity worldwide has killed more than 29,000 people and displaced more than 1 million others. On average, approximately 10 eruptions a year cause significant damage and casualties, while major disasters occur several times a decade. The adverse impacts of volcanic eruptions fall into two basic categories: physical harm (morbidity and mortality) and damage to local, regional, and international economies.

The direct causes of mortality derive from the impacts of such volcanic hazards as pyroclastic flows (avalanches of hot ash, volcanic rocks, and gas that speed down the flanks of volcanoes incinerating everything in their paths), tephra (erupted fragments of volcanic rock and lava, such as ash), lahars (volcanic mudflows created when ash and water mix), volcano-induced tsunamis, debris avalanches, and, to a lesser extent, lava, gas emissions, and small volcano-related earthquakes. Hazards such as lahars and ash deposits can also cause longer-term damage that can threaten infrastructure and personal safety for months or even years after eruptions end.

Volcanic eruptions can affect most humanitarian sectors. For example, eruptions can devastate agriculture systems and livestock, contaminate water sources, impact health, cripple economies, and destroy infrastructure and property. The young and elderly are especially susceptible to the impacts of volcanic eruptions due to their typically more restricted mobility. Additionally, the impacts of volcanic disasters on affected populations can be a source of significant psycho-social stress or trauma.

ANRS supports volcano disaster risk reduction (DRR) programs that identify needs within existing systems and increase resilience through targeted capacity building activities. The following ANRS sectors and sub-sectors are most likely to be funded with respect to standalone, volcano-related DRM. Often, multi-sectoral programs are more effective, as program elements can build upon and reinforce one another to help make communities as resilient as possible to the impacts of eruptions and associated hazards. Specific design elements will depend on the overall capacity at all levels to prepare for and respond to disasters. In addition to the sub-sectors listed below, please note that all ANRS sub-sectors may be addressed in disaster-response interventions that incorporate elements of DRM, subject to normal technical qualifications.

5.3.1 Pastoral and Agriculture and Food Security (Fisheries, Livestock, Improving Agricultural Productivity/Food Security)

The main impact of volcanoes on this sector is related to volcanic ash. Ash fall can have serious detrimental effects on agricultural crops and livestock. Ash fall can destroy or reduce pasture availability, requiring supplementary feed and/or clear water for livestock. Ash fall may also affect the productivity of crops. DRM programs in this sector will generally be integrated into response and recovery programs, or will be part of a larger multi-sectorial risk reduction program to build resilience. Likely illustrative interventions in this sector include the following:
- ✓ Training for local farmers, fishers, and livestock holders on volcanic hazards and likely impacts on crops, fisheries, and livestock, including training on what crops are more resilient to ash fall.

5.3.2 Economic Recovery and Market Systems (Livelihoods Restoration, Market System Rehabilitation, Microfinance)

The hazards that result from volcanic eruptions, including lahars and pyroclastic flows, can rapidly destroy or impact the livelihoods of entire populations, as well as critical market infrastructure upon which many markets and large populations depend. Restoration of these livelihoods, including the structures they are often housed in, can take years. On a positive note, market-integrated approaches to hazard reduction, if done in partnership with local government and private sector actors, can be very cost-efficient in avoiding future damage. Volcano-related DRM programs within this sector are normally integrated into response and recovery programs. Standalone DRM programming in this sector for volcano risk reduction is likely to be limited and closely tied to the Natural and Technological Hazards or Risk Management Policy and Practice sectors. Likely illustrative interventions in this sector include the following:

- ✓ Livelihoods restoration programs that raise awareness among individuals and the local private sector on safeguarding critical assets, as part of public awareness and education under the Natural and Technological Hazards sector;
- ✓ Market system rehabilitation programs, with strong local government and/or private sector contributions, and informed by careful risk and market analysis of likely risks and critical market systems, to mitigate volcano-related hazards for critical market infrastructure including roads and bridges, to the extent possible;
- ✓ Microfinance programs that train microfinance institutions to prepare for volcanoes in high-risk areas, and develop appropriate post-disaster financial services.

5.3.3 Health (Health Systems and Clinical Support)

Volcanoes can impact public health in several ways. The most direct impact is related to the injuries caused by lahars, landslides, pyroclastic flows and volcanic ballistics, but volcanic ash can also has serious health implications, not just on nearby populations, but on populations tens of miles downwind in the short and long term. Disaster Risk management programs in this sector will generally be integrated into response and recovery programs, or will be part of a larger multi-sectoral risk reduction program to build resilience. Illustrative interventions in this area include the following:

- ✓ A concentration on contingency planning for health services and commodities with national, provincial, and/or district level health authorities and other stakeholders. This does not include stockpiling; and
- ✓ Health education focusing on community health workers and/or healthcare professionals with small scale trainings integrated with other regional preparedness efforts.

5.3.4 Humanitarian Coordination and Information Management (Coordination, Information Management)

Programs that address coordination and information management are typically categorized under the Humanitarian Coordination and Information Management Sector and its respective sub-sectors. Please see the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.3.5 *Natural and Technological Risks (Geological Hazards)*

While eruptions cannot be prevented, many DRM activities can be implemented to mitigate their impacts. Proper mitigation and preparedness efforts can minimize the effects of potential disasters, possibly saving lives and reducing the economic effects of volcanoes. Both stand-alone DRM programs related to volcanoes, as well as interventions integrated into response and recovery programs will be considered in this sector. Illustrative interventions in this area include the following:

- ✓ Capacity building for local scientists and agencies on volcanic hazards and risks at community, local, national, regional, or international levels;
- ✓ Technical assistance to strengthen national or local monitoring networks;
- ✓ Public awareness and education on volcano-related hazards to help prepare at-risk communities;
- ✓ Early warning systems that utilize an end-to-end system ranging from the identification of a hazard to the dissemination of information to at-risk communities; and
- ✓ Volcano hazard assessments that address the probability of a volcano erupting during a specific long-term time frame.

Depending on the location and activity of the volcano, landslides maybe generated. For additional information on DRM programs related to landslides, please see the Landslide Hazard Sheets included in this packet.

Volcanic eruptions may also lead to significant alteration of river system and hydrology, which may lead to flooding during the rainy season. Volcanic lakes may also break and cause flooding at downstream. Illustrative examples of DRM under this sector include:

- ✓ Evaluation of the hydrological changes in the watershed for potential flooding; and
- ✓ Dam-break scenario analysis for crater lakes after significant precipitation or melt. Please see the Flood Hazard Sheet for other flood-related examples.

5.3.6 Protection (Protection Coordination, Advocacy and Information)

Volcanoes can have severe and sudden impacts on families, and can add significantly to the protection risks that may already exist in a community. Not only can the volcanoes themselves be life-threatening, but they often result in significant damage to housing causing displacement and separation or loss of family members. DRM programs specifically aimed at protection can prepare communities prior to an eruption to understand and address issues related to vulnerability. Training, capacity building, and strategic planning can all be stand-alone DRM programs that address protection issues prior to a disaster. Illustrative interventions in this area include the following:

- ✓ Training for humanitarian organizations to identify and mitigate protection risks associated with the disaster;
- ✓ Protection preparedness to ensure safety of vulnerable populations such as women and girls and to address special needs of groups such as older persons and persons with disabilities;
- ✓ Capacity building of authorities to understand and address protection in a disaster (e.g., measures to prevent and respond family separation, addressing special needs of vulnerable groups, importance of assuring safety for women and girls).

5.3.7 Integrated Risk Management Policy and Practice

Programs that address multiple hazards or the policy dimension of disaster risk reduction are typically categorized under the Risk Management Policy and Practice Sector and its respective sub-sectors. Please see

the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.3.8 Shelter and Settlements (Emergency/Transitional Shelter, Shelter Hazard Mitigation, Camp Design and Management

Depending on the magnitude of the event, loss of homes, businesses, and infrastructure can have a profound impact on nearly every other sector, from livelihoods, to health systems, to protection. For this reason, stand-alone DRM programs in this sector are encouraged in hazard-prone areas with highly vulnerable populations, and activities that reduce risk and vulnerability can be incorporated into emergency response activities in any area vulnerable to volcanoes, as well as any resulting hazards (e.g., landslides). Illustrative interventions in this area include the following:

✓ Hazard-based sites and settlements planning;
✓ Technical assistance and rapid capacity building targeting local planning, building, and public works authorities;
✓ Public awareness and capacity building activities so that populations learn to live with contextual volcano-associated risk; and
✓ Support of settlements planning activities and related capacity building and awareness raising at the neighborhood and jurisdictional levels, to include, for example, the incorporation of evacuation planning and pathways in efforts to configure and reconfigure risk-prone settlements.

5.3.9 Water, Sanitation, and Hygiene (Water Supply Infrastructure, Hygiene Promotion)

Not only can flowing lava destroy water and sanitation infrastructure, but rocky soils can make WASH emergency response activities very challenging. Rocky soils, typically found near volcanoes, make it difficult to install emergency sanitation facilities as it is very hard to build typical pit latrines for displaced populations. This can potentially lead to the use of unsafe water sources, inadequate excreta management, and poor hygiene practices.

When water and wastewater systems along with hygiene practices are compromised, disease outbreaks can result. In this sector, DRM programs are normally integrated into response. Stand-alone DRM programs are possible, but must be strongly justified and based on the risk of the target area/population being affected by this hazard. Illustrative DRM interventions in this area include the following:

✓ Hygiene promotion programs to reduce fecal-oral disease transmission. Messaging should include household water quality protection and safe water storage, safe excreta disposal, and promotion of hand-washing. Hygiene promotion may be made directly to households and/or through community-based outlets such as schools, religious organizations, and neighborhood associations;
✓ Protecting water sources, especially open water sources, to prevent contamination from ash fall; and
✓ Capacity building on maintaining protected water supplies and wastewater systems, as well as water quality monitoring, at community, local, and/or regional levels.

5.4 Earthquake

Associated Secondary Hazards: Landslide, Fire (Urban), Epidemic Earthquakes, as well as the tsunamis, fires and landslides that can occur in their wake, can devastate communities in a matter of seconds—destroying homes and infrastructure;

Disrupting water, food, and electricity supplies; and damaging local economies. Earthquake response and recovery are prime opportunities for incorporating disaster risk reduction components into programming. According to a recent study, about 403 million people live in cities that face significant seismic hazard. In addition, up to 65% of the world's large cities today may be subject to seismic shaking.

Although earthquakes cannot be predicted or prevented, proper mitigation and preparedness efforts can minimize casualties and economic impact. ANRS supports earthquake disaster risk reduction (DRR) programs that identify needs within existing systems and increase resilience through targeted capacity building activities.

The following ANRS sectors and sub-sectors are most likely to be funded with respect to stand-alone, earthquake-related DRM. Often, multi-sectoral programs are more effective, as program elements can build upon and reinforce one another to help make communities as resilient as possible to the impacts of earthquakes and associated hazards. ANRS promotes the use of the Neighborhood Approach as one such multi-sectoral intervention; it is informed by community-based decision-making reflective of the social, economic, and physical features of the delineated area. While shelter-led, the approach is settlement focused and shifts attention towards a synergistic and complementary focus on the entire community in a defined area. For more information on the Neighborhood Approach, seethe resources section of this document.

In general, earthquake DRM programs are most cost-effective in highly-populated urban areas, though rural populations can also be susceptible to tsunamis and landslides that may result from an earthquake. Specific design elements will depend on the overall capacity at all levels to prepare for and respond to disasters. In addition to the sub-sectors listed below, please note that all ANRS sub-sectors may be addressed in disaster-response interventions that incorporate elements of DRM, subject to normal technical qualifications.

5.4.1 Economic Recovery and Market Systems (Livelihoods Restoration, Market System Rehabilitation, Microfinance)

Earthquakes can rapidly destroy or impact the livelihoods of entire populations, particularly in urban locations, as well as critical market infrastructure upon which many markets and large populations depend. Restoration of these livelihoods, including the structures they are often housed in, can take years. On a positive note, market-integrated approaches to hazard reduction, if done in partnership with local government and private sector actors, can be very cost-efficient in avoiding future damage. Earthquake-related DRM programs within this sector are normally integrated into response and recovery programs, but ANRS will also consider stand-alone DRM measures in this sector for earthquakes. These must be closely integrated with the Shelter and Settlements sector to ensure technical rigor. Community 'buy-in' and participation, as well as the participation of the local private sector and government, are essential to ensure the sustainability of standalone DRM measures. For this reason, co-investment approaches (e.g. access to loans; voluntary labor; partial fees for training; partial cost coverage by private or public sector) are highly preferred over full-subsidy approaches (such as grants; free trainings; or cash for work). Likely illustrative interventions in this sector include the following:
- ✓ Livelihoods restoration or microfinance programs, in the form of small grants or access to loans and savings, to encourage individuals and microenterprises to invest in risk reduction (e.g. retrofitting);

- ✓ Livelihoods restoration programs to provide specialized training to workers (e.g. construction workers; masons; carpenters) on hazard mitigation, coupled with demand promotion (for example certification; and
- ✓ Market system rehabilitation programs, with strong local government and/or private sector contributions, and informed by analysis of likely major risks and critical market systems, to mitigate earthquake hazards for major market infrastructure (marketplace buildings; roads; bridges; etc).

5.4.2 Health (Health Systems and Clinical Support)

Earthquakes can impact public health in several ways. The most direct impact is related to collapse of structures and resultant injuries, which may lead to an overload of the existing health system. During the response and recovery period, epidemics may result and should be considered a possible sub-hazard. DRM programs in this sector will generally be integrated into response and recovery programs, or will be part of a larger multi-sectoral risk reduction program to build resilience. Illustrative interventions in this area include the following:
- ✓ Development of and planning disease surveillance and early warning systems focusing on diseases of epidemic potential;
- ✓ A concentration on contingency planning for health services and commodities with national, provincial, and/or district level health authorities and other stakeholders. This does not include stockpiling;
- ✓ Health education focusing on community health workers and/or healthcare professionals with small scale trainings integrated with other regional preparedness efforts;
- ✓ Coordination with other public and private stakeholders with an effort towards resilience to evaluate structural needs for primary healthcare facilities in preparation for such emergencies, aligned with the shelter and settlements sector;
- ✓ Promotion of earthquake awareness among health workers; and
- ✓ Capacity building within health care services to provide appropriate, holistic psychosocial or mental health services to earthquake-affected populations.

5.4.3 Humanitarian Coordination and Information Management(Coordination, Information Management)

Programs that address coordination and information management are typically categorized under the Humanitarian Coordination and Information Management Sector and its respective sub-sectors. Please see the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.4.4 Natural and Technological Risks (Geological Hazards)

While earthquakes cannot be prevented, there are many DRM activities that can be implemented in an earthquake-prone region that can prepare communities for earthquakes and/or mitigate their impacts. Proper mitigation and preparedness efforts can minimize the effects of resulting disasters, potentially saving lives and reducing the economic effects of earthquakes. Both stand-alone DRM programs related to earthquakes as well as interventions integrated into response and recovery programs will be considered in this sector. Illustrative interventions in this area include the following:

- ✓ Capacity building for local scientists and agencies on seismic hazards and risks at community, local, national, regional, or international levels;
- ✓ Technical assistance to strengthen national or local monitoring networks;
- ✓ Public awareness and education on seismic hazards to help prepare at-risk communities for earthquakes;
- ✓ Early warning systems that utilize an end-to-end system ranging from the identification of a hazard to the dissemination of information to at-risk communities; and
- ✓ Earthquake hazard assessments that address the probability of an earthquake occurring during a specific long-term time frame.

5.4.5 Protection (Protection Coordination, Advocacy and Information)

Earthquakes can have severe and sudden impacts on families, and can add significantly to the protection risks that may already exist in a community. Not only can the earthquakes themselves be life-threatening, but they may also cause separation or loss of family members. DRM programs specifically aimed at protection can prepare communities prior to an earthquake to understand and address issues related to vulnerability before the earthquake happens. Illustrative interventions in this area include the following:
- ✓ Training for humanitarian organizations to identify and mitigate protection risks associated with the disaster;
- ✓ Protection preparedness to ensure safety of vulnerable populations, including disabled persons or injured survivors in high-risk areas, and training families on measures to prevent family separation; and
- ✓ Capacity building of authorities to understand and address protection in a disaster (e.g., measures to prevent and respond family separation, addressing special needs of vulnerable groups, importance of assuring safety for women and girls).

5.4.6 Risk Management Policy and Practice (Building Community Awareness/Mobilization, Capacity Building and Training, Global Advocacy and Engagement, Integration/Enhancement within Education Systems and Research, Policy and Planning, Public-Private Partnerships)

Programs that address multiple hazards or the policy dimension of disaster risk reduction are typically categorized under the Risk Management Policy and Practice Sector and its respective sub-sectors, in particular Building Community Awareness/Mobilization and Integration/Enhancement within Education Systems and Research. Please see the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.4.7 Shelter and Settlements (Emergency/Transitional Shelter, Shelter Hazard Mitigation, Camp Design and Management)

The Shelter and Settlements sector is the most immediately and obviously affected sector after an earthquake. The loss of homes, businesses, and infrastructure can have a profound impact on nearly every other sector, from livelihoods, to health systems, to protection. For this reason, stand-alone DRM programs in this sector are encouraged in hazard-prone areas with highly vulnerable populations, and activities that reduce risk and vulnerability can be incorporated into emergency response activities in any area vulnerable to earthquakes, as

well as any resulting hazards (e.g., landslides and tsunamis). Illustrative interventions in this area include the following:

- ✓ Promotion of earthquake-resistant structures commensurate with the seismic hazard;
- ✓ Hazard-based sites and settlements planning;
- ✓ Training support to promote adoption of structural measures to resist hazard and sub-hazards;
- ✓ Technical assistance and rapid capacity building targeting local building and zoning authorities;
- ✓ Public awareness and capacity building activities so that populations learn to live with contextual earthquake risk; and
- ✓ Support of settlements planning activities and related capacity building and awareness raising at the neighborhood and jurisdictional levels.

5.4.8 Water, Sanitation, and Hygiene (Water Supply Infrastructure, Hygiene Promotion)

Earthquakes can destroy water and sanitation infrastructure, resulting in a destabilization of water supplies. This can potentially lead to the use of unsafe water sources and poor hygiene practices. When hygiene practices are compromised, disease epidemics can result. In this sector, DRM programs are normally integrated into response. Stand-alone DRM programs are possible, but must be strongly justified and based on the risk of the target area/population being affected by this hazard. Illustrative DRM interventions in this area include the following:

- ✓ Hygiene promotion programs to reduce fecal-oral disease transmission. Messaging should include household water quality protection and safe water storage, safe excreta disposal, and promotion of hand-washing. Hygiene promotion may be made directly to households and/or through community-based outlets such as schools, religious organizations, and neighborhood associations;
- ✓ Capacity building on maintaining protected water supplies at community, local, and/or regional levels;
- ✓ Establish and enforce building codes for earthquake resilient bulk hazardous materials storage
- ✓ Improving public knowledge of emergency water storage after an earthquake event(school education, public messaging, mass texting);
- ✓ Improving public knowledge of culturally appropriate emergency human waste and solid waste disposal after an earthquake event (school education, public messaging, mass texting);
- ✓ Supporting emergency response planning and exercises for municipal water treatment, sewage treatment and electrical generation facilities staff and management;
- ✓ Identification and ensuring access to of alternate emergency water sources, sewage disposal and solid waste disposal sites;
- ✓ Identification of and ensuring access to emergency debris disposal sites; and
- ✓ Identification and developing an emergency control plan for potential disease vectors that could emerge as a result of earthquake event. This plan should be a component of the overall public health earthquake emergency response plan.

5.5 Epidemic
Associated Secondary Hazards: Pandemic

Disaster risk reduction addresses not only natural hazards like earthquakes and droughts but also dangers like human and animal disease epidemics. Prevention of and early

response to outbreaks are critical to saving lives and reducing the economic toll these disasters take.

ANRS has supported risk reduction efforts to combat a number of human diseases, such as cholera and pandemic influenza, as well as animal diseases. These animal diseases may impact livelihoods, but may also be zoonotic, causing diseases in both humans and livestock. ANRS has both responded to and worked to reduce risk associated with diseases such as Rift Valley Fever, and Emerging Pandemic Threats, such as Influenza sub-types.

The following ANRS sectors and sub-sectors are the ones most likely to be funded with respect to stand-alone, epidemic-related DRM. Often, multi-sectoral programs are more effective, as program elements can build upon and reinforce one another to help make communities as resilient as possible to the impacts of epidemics. Specific design elements will depend on whether the project location is a rural or urban setting, whether active conflict is ongoing, and the overall capacity at all levels to prepare for and respond to disasters. In addition to the sub-sectors listed below, please note that all ANRS sub-sectors may be addressed in disaster-response interventions that incorporate elements of DRM, subject to normal technical qualifications.

5.5.1 Pastoral and Agriculture and Food Security (Fisheries, Livestock, Seed System Security, Improving Agricultural Production/Food Security)

When disease descends upon farms, animals and people can become sick, which can lead to shortages of food both for humans and farm animals. Animal disease can be economically devastating for livestock owners, especially when cross-border trade of animals is halted. By working together with many international, national, and local groups, USAID is investing in monitoring, early warning, and early action to recognize and to control animal disease. DRM programs for agriculture and food security can also be integrated into response, and can include training and capacity building, provision of inputs, and technical assistance for mitigating the impact of disease organisms and pests. Illustrative interventions in this area include the following:
- ✓ Vaccination (including ring vaccination) to contain a specific disease and avoid spread;
- ✓ When necessary, capacity building and training related to slaughter of animals to improve hygiene and to avoid both spread of disease among animals, and transmission to humans;
- ✓ Training for disease recognition and reporting;
- ✓ Training in treatment of disease in animals; and
- ✓ Training in management of pasture and fodder to prevent disease spread through soil microorganisms as well as to improve fodder quality and quantity.

5.5.2 Health (Health Systems and Clinical Support)

Due to the impacts of disease on public health systems, epidemics can quickly overwhelm resources. DRM programs in this sector can be either stand-alone (such as contingency planning, capacity building, or early warning), or can be integrated into response and recovery programs. Illustrative interventions in this area include the following:
- ✓ Development of and planning disease surveillance and early warning systems focusing on diseases of epidemic potential with host governments and the World Health Organization;

✓ A concentration on contingency planning for health services and commodities with national, provincial, and/or district level health authorities and other stakeholders. This does not include stockpiling;

✓ Health education focusing on community health workers, first responders, and/or healthcare professionals with small scale trainings integrated with other regional preparedness efforts; and

✓ Coordination with other public and private stakeholders with an effort towards resilience to evaluate structural needs for primary healthcare facilities in preparation for such emergencies.

5.5.3 Humanitarian Coordination and Information Management (Coordination, Information Management)

Programs that address coordination and information management are typically categorized under the Humanitarian Coordination and Information Management Sector and its respective sub-sectors. Please see the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

Risk Management Policy and Practice (Building Community Awareness/Mobilization, Capacity Building and Training, Global Advocacy and Engagement, Integration/Enhancement within Education Systems and Research, Policy and Planning, Public Private Partnerships) Programs that address multiple hazards or the policy dimension of disaster risk reduction are typically categorized under the Risk Management Policy and Practice Sector and its respective sub-sectors. Please see the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.5.4 Shelter and Settlements (Camp Design and Management, Emergency/Transitional Shelter, Shelter Hazard Mitigation)

A public health response to epidemic/pandemic events could entail resort to Shelter and Settlements sector interventions to protect, or even quarantine, at-risk populations from exposure and infection. Responses could include support to camp development and management activities, hosting support, or other forms of shelter and settlements assistance, again in coordination with adopted public health strategies and protocols.

5.5.5 Water, Sanitation, and Hygiene (Water Supply Infrastructure, Sanitation Infrastructure, Environmental Health, Hygiene Promotion)

Epidemics can be caused by widespread contamination of drinking water supplies and the environment, poor hygiene practices, and/or by damage to sewage disposal facilities. Lack of clean water combined with poor human excreta management and poor hygiene practices raises the risks of WASH-related diseases, and epidemics can result. Lack of clean water combined with human sewage raises the risk of waterborne diseases, and epidemics can result. For this sector, stand-alone DRM programs must be strongly justified and based on the risk of the target area/population being affected by this hazard. Empowering households and promoting environmental health precautions once the epidemic has occurred are critical aims. Illustrative interventions include the following:

✓ Hygiene promotion programs to reduce fecal-oral disease transmission. Messaging should include household water quality protection and safe water storage, safe excreta disposal, and promotion of hand-

washing. Hygiene promotion may be made directly to households and/or through community-based outlets such as schools, religious organizations, and neighborhood associations;

- ✓ Protecting water sources to prevent contamination;
- ✓ Preparedness training with community, local, national, and/or regional levels to develop coordination, planning, and technical environmental health (WASH) response capacity; and
- ✓ Particularly in urban areas, identifying critical drainage corridors/canals and strengthening local governance around managing and keeping these facilities in good working order.

5.6 Pest Infestation

Associated Secondary Hazards: Epidemic

Infestations can mean disaster for millions of people whose livelihoods depend on farming. With the right conditions, pests can multiply and quickly devour or otherwise ruin crops and pasture land, leaving people and animals without enough food to eat. Farmers can see a year's worth of work and sometimes sole means of supporting their families destroyed in moments. Farmer's food security, food quality, and seed security can all be negatively impacted by post-harvest losses due to pest infestations. Pest infestations can also lead to outbreaks of diseases in humans and animals.

Infestations can be caused by a variety of insects. Some common types include locusts, grasshoppers and African Armyworm (adults as well as larvae/hoppers). Grain-eating birds (e.g., Quelea birds), rodents; and plant diseases (e.g., wheat rust, yellow striperust, etc.) also damage or spoil crops and produce. In some cases, parasitic plants such as Striga can invade a crop and significantly reduce productivity to the point of a near zero harvest. Army worms are one of the most devastating emergency trans boundary outbreak pests and are known to affect cereals and pasture in several dozen countries across Africa, Asia, North and South America, etc. Preventing and controlling these pests can significantly improve food security and livelihoods of the most vulnerable rural populations and communities. An infestation of a grain-storage unit can be particularly devastating, since the farmer's entire production for a given season can be quickly lost.

Understanding the kind of pests/diseases, life stages of the pests and the host plant/crop, intensity of infestations, the severity and nature of damage field and storage pests and disease cause as well as the presence or absence of intervention actions is essential. Infestations can greatly impact food security and livelihoods of vulnerable populations and communities. Pest infestations have forced families to trade children for a sack of grain, break up families, cause resource-based conflict among farmers and pastoralists and ultimately displace local communities.

The following ANRS sectors and sub-sectors are the ones most likely to be funded with respect to stand-alone, infestation-related DRM. Often, multi-sectorial programs are more effective, as program elements can build upon and reinforce one another to help make communities as resilient as possible to the impacts of pest infestations and disease outbreaks. Specific design elements will depend on whether the project location is a rural or urban setting, whether active conflict is ongoing, and the overall capacity at all levels, including appropriate technical and material resources, to prepare for and respond to disasters. In addition to the sub-sectors listed below, please note that all ANRS sub-sectors may be addressed in disaster-response interventions that incorporate elements of DRM, subject to normal technical qualifications.

5.6.1 Pastoral and Agriculture and Food Security (Fisheries, Livestock, Seed System Security, Improving Agricultural Production/Food Security)

When pests descend on farm land, they can consume or severely damage or destroy the crops in a matter of hours. This can lead to shortages of food both for humans and farm animals. Entire harvests for a country can be lost in extreme infestation circumstances. Just as the weather can be forecast, by working together with many international, national, and local groups, organizations are investing in monitoring, early warning, and early action to prevent and manage pests from causing massive damage to the livelihoods of vulnerable communities. DRM programs for agriculture and food security can also be integrated into response, and can include training and capacity building, provision of inputs, and technical assistance for mitigating the impact of the pests. Illustrative interventions in this area include the following:

- ✓ Providing training on pest and disease identification, surveillance, monitoring and reporting as well as safer control interventions;
- ✓ Pesticides are Restricted Goods. If pesticides are to be used, it is imperative to know how to procure, distribute, transport, handle, store, use and/or dispose them. When natural pesticides are proposed, properly identify the types of the pesticides and methodologies to prepare, use, store and dispose them. Identify any potential harmful effect of their use and describe the steps to take to mitigate any such adverse effects and ensure safety of the beneficiaries, their assets and the environment.
- ✓ Training on post-harvest handling and storage of seed and grain. ANRS has supported a number of activities to pilot and take to scale household level seed/grain storage methods. ANRS can support household level storage solutions, and is particularly interested in those programs which include low cost models or market based farmer procurement of models. Training on seed selection, and postharvest handling and storage may also be integrated as part of a IRM sensitive DRM strategy to reduce losses to infestation.

5.6.2 Humanitarian Coordination and Information Management (Coordination, Information Management)

Programs that address coordination and information management are typically categorized under the Humanitarian Coordination and Information Management Sector and its respective sub-sectors. Please see the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.6.3 Risk Management Policy and Practice (Building Community Awareness/Mobilization, Capacity Building and Training, Global Advocacy and Engagement, Integration/Enhancement within Education Systems and Research, Policy and Planning, Public-Private Partnerships)

Programs that address multiple hazards or the policy dimension of disaster risk reduction are typically categorized under the Risk Management Policy and Practice Sector and its respective sub-sectors. Please see the introduction earlier in this document for more information and for illustrative examples of DRM programs likely to be funded within this sector.

5.7 Wildfire

Associated Secondary Hazards: Flood, Landslide, Debris Flow

Wildfires are a growing hazard in many countries. Hotter, prolonged droughts in many parts of the world may increase the risk of wildfires in the future. Often, people can control factors contributing to this hazard before damage reaches the scale of a disaster. Wildfires do cause disaster, however, when they pose a threat to life, property, and forage. Fire is also a natural process; often fire suppression can lead to more severe fires due to the buildup of vegetation that serves as fuel. The secondary effects of wildfires, including floods, erosion, landslides, debris flows, and changes in water quality, can be more disastrous than the fire itself. Wildfires, therefore, are an interesting hazard for the application of disaster risk reduction.

ANRS rarely responds to a disaster declaration for wildfire but does fund programs to develop capacity among emergency response organizations, including firefighters. ANRS is interested in helping provide tools and information to identify and reduce wildfire risks. ANRS also funds programs that address sub-hazards of wildfires.

The Risk Management Practice sector and the following sub-sectors are the ones most likely to be funded with respect to stand-alone, wildfire-related DRM: Building Community Awareness/Mobilization, Capacity Building and Training, Integration/Enhancement within Education Systems and Research, Policy and Planning, and Public Private Partnerships. Specific design elements will depend on whether the project location is a rural or urban setting, whether active conflict is ongoing, and the overall capacity at all levels to prepare for and respond to disasters. In addition, please note that all ANRS sub-sectors may be addressed in disaster-response interventions that incorporate elements of DRM, subject to normal technical qualifications.

5.7.1 Shelter and Settlements (Emergency/Transitional Shelter, Shelter Hazard Mitigation, Camp Design and Management)

Depending on the magnitude of the event, loss of homes, businesses, and infrastructure can have a profound impact on nearly every other sector, from livelihoods, to health systems, to protection. For this reason, stand-alone DRM programs in this sector are encouraged in hazard-prone areas with highly vulnerable populations, and activities that reduce risk and vulnerability can be incorporated into emergency response activities in any area vulnerable to wildfires, as well as any resulting hazards (e.g., landslides). Illustrative interventions in this area include the following:

- ✓ Hazard-based sites and settlements planning that incorporate natural firebreaks, where available, and selection and use of fire-retardant building materials to reduce risk;
- ✓ Technical assistance and rapid capacity building targeting local planning, building, and public works authorities;
- ✓ Public awareness and capacity building activities so that populations learn to live with wildfire risk; and

✓ Support of settlements planning activities and related capacity building and awareness raising at the neighborhood and jurisdictional levels, to include, for example, the incorporation of evacuation planning and pathways in efforts to configure and reconfigure risk-prone settlements.

5.8 Others

5.8.1 Landslide

Associated Secondary Hazards: Debris and Mud Flow, Flood

The term landslide implies the movement of a mass of rock, debris or earth down a slope. Landslides can be initiated in slopes already on the brink of movement by rainfall, snowmelt, stream/ocean wave erosion, changes in water levels and ground water, earthquakes, volcanic activity, wildfires, disturbances by human activities or any combination of these factors. Slope material that becomes saturated with water may lead to a debris flow or mud flow. Mud and debris flows have potential to rip up and move trees, houses, and cars, thus causing loss of lives and significant damage to infrastructure along its path.

Landslides can move slowly or extremely fast, as is the case with debris flows. Debris flows can be triggered by heavy rainfall over a long period, a short burst of intense rainfall, or other factors. They can travel down a slope extremely fast, at speeds up to 200 miles per hour. Wildfires may lead to hydrophobic soils in slopes that are particularly susceptible to debris flows.

The following ANRS sectors and sub-sectors are most likely to be funded with respect to stand-alone, landslide-related DRM. Often, multi-sectorial programs are more effective, as program elements can build upon and reinforce one another to help make communities as resilient as possible to the impacts of landslides and associated hazards.

In general, landslide-related DRM programs are most cost-effective in highly-populated urban areas, though rural populations can also be susceptible to landslides that may result from excessive rainfall, flooding, or earthquakes. Specific design elements will depend on the overall capacity at all levels to prepare for and respond to disasters. In addition to the sub-sectors listed below, please note that all ANRS sub-sectors may be addressed in disaster-response interventions that incorporate elements of DRM, subject to normal technical qualifications.

5.8.2 Conflict

In situations where there is conflict, whether active or potential, a careful conflict analysis, using relevant expertise within DPFSCPO, will also be necessary to determine if DRR programs would be appropriate. Like other contextual issues, careful analysis is necessary to understand whether DRR programs would be advisable, and if so what types would be most effective, and what impact they might have on the conflict. In all cases, the need to "do no harm" must be balanced against need and vulnerability, taking care to minimize any potential unintended consequences. It is important to emphasize that the objective of DRR programs is not to reduce the risk of conflict, but rather how to take conflict into account when considering DRR interventions.

Chapter Six

6. IDRM Mainstreaming

Effective Disaster Risk Management System can only be achieved if disaster risk management is mainstreamed into every sectorial development plan. Disaster risk management is a cross cutting issue and the responsibility of multiple sectorial institutions and thus concerned bodies must implement it by integrating it into their regular development activities. Looking into the current context of the country, however, attention has not been given to mainstreaming yet and thus it is not being implemented. Unless disaster risk management is considered as integral to development plans of sectorial institutions, it can be difficult to ensure continued achievements in national development. Therefore, disaster risk management shall be mainstreamed into development plans of government institutions and private sector organizations.

Strategies
1. A mechanism shall be established for ensuring the mainstreaming of disaster risk management into government development policies, strategies, plans and programmes.
2. A proper structure shall be put in place in every designated lead sector government institution to facilitate the implementation of sector specific disaster risk management activities.
3. Disaster risk management shall be integrated into school curricula of learning institutions from primary to higher level as well as into plans of research institutions.
4. It shall be ensured that disaster risk management is mainstreamed into operational plan of the private sector.

Chapter Seven

7. Possible Challenges to Implement the Regional Strategy

A number of challenges could be considered in regional implementation. Some of the key challenges are:

7.1 Long-term Process

The regional IRM sensitive DRM strategy implementation is a long-term process and demands a long-term contribution and commitment from all involved actors as well as the donors. The community members needs to be allowed time to understand the situation and to learn the methodology. The implementation of the activities takes time and this together with having a proper monitoring and evaluation makes the CBDRM process both costly and time consuming.

"The community also needs time to understand one situation to bring their capacity and then change their attitude and practice" This is a challenge in afar region due to the short time frames the organizations has for the strategy duration and the limited funding and resource supply available.

7.2 Communication and Coordination

Communication and coordination between different stakeholders involved in a strategy is a challenge and it gets even more difficult when there are many organizations implementing projects in the same area at the same time, which is the case for Afar region. This can lead to an overlap putting an increased and unnecessary strain on available resources. The issue could be solved by better communication and coordination and setting up clear responsibilities between organizations horizontally and vertically. By using common interests and the realization that they can benefit from each other a strong multi-stakeholder approach could lead to an improved network where projects could profit from one another.

7.3 Resources

A challenge that permeates all stages of DRM practice is the challenge of resources, including human, financial and technical resources. International and federal funding has reduced during recent years and the provinces in the Afar region are ready to develop regional and local DRM action plans but there is no money. There is a need for improving the resource allocation which demands better coordination and communication between stakeholders as well as better knowledge of existing resources and needs at various levels. This in turn demands high facilitation skills and strong participation from all actors. In Afar region, one of the initiatives to improve resource mobilization is to incorporate risk management into development planning and larger part of the regions socio-economic development plan.

8.4 Risk Perception

The existing risk perception in Afar region varies both at regional, local, community and individual level. It highly depends on previous experience from disasters and it is a challenge to achieve a common risk perception within communities. individuals are responsive and more proactive towards a certain disaster if they have experienced a similar one in the recent past, which makes it difficult to enhance the Normally resilience towards unknown or rare events. If the risk is not present in their current mindset the community will prioritize other, more pressing everyday challenges such as providing food and other resources to sustain livelihood.

The different risk perceptions among actors and levels might not necessarily be a negative thing or even something that should be addressed. However it is important to be aware of the differences and understand their origin in order to reach a mutual perspective and aim of the strategy.

8.5 Trust

Trust needs to be built between all stakeholders involved in IRM sensitive DRM strategy implementation, with emphasis on trust between community members and agencies. This can be a problematic task due to for example language and cultural barriers. Different communities or individuals have different ways of doing things and there is a need, especially for an external source, to actively work at gaining an understanding and respect for these differences.

8.6 Participation

The largest challenge concerning participation is to get the most vulnerable and the minority groups involved. This is an operational and leadership challenge that needs to be addressed during all phases of the IRM sensitive DRM strategy implementation.

Historically there have been difficulties in involving women in the Afar Region in DRM practice and having women at key positions of the process. This is changing more women are taking leadership roles in disaster prevention and for many projects in the region there are set quotas on women participation in activities. Although these quotas are rarely met it is a strong step towards a better participatory approach.

"But now situation has changed, so Women's Union at different levels they sit equally and they have equal voice to male colleagues when they discuss disaster preparedness and disaster response"

8.7 Integrate a bottom-up approach

According to the region DRM approach there is a need for combining the traditional top-down approach with the bottom-up. Due to the top-down approach being the more common measure both in the afar region. In general there is a challenge for this change in mindset. One interviewee indicated that even though DRM practice is generally promoted as a bottom-up approach, in IRM sensitive DRM strategy it still feels more top-down due to the way the disaster management is planned and decided upon and then pushed down onto the community to implement.

8.8 Shift from reactive to proactive

The historical way of dealing with disasters in the afar region has been to respond after the event has occurred rather than being proactive and building resilience. To change the mind-set and the previous way of working is a challenge. It demands time and patience to share information and educate community members and to work with them in order to move from response to a more long-term solution. It also demands an understanding and humbleness for the community and their history.

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Annex - List of people Contacted

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14	Wassie	Health bureau	
15	Awol	Finance bureau	
16	Awol	IOM	
17	Dr. Nahusenay	Semera University	
18	Dr. Mohammed	Semera University	
19	Gezahegn	Water Bureau	