



Ethiopian Disaster Risk Management Commission



Disaster Risk Management Research and Training Strategy

(2022-2037)



Preface

Disaster management in Ethiopia has significantly evolved over the past 50 years, from a focus on drought and emergency response to a holistic, proactive, multi-sectoral, and multi-hazard disaster risk management (DRM) approach. The Ethiopian Disaster Risk Management Commission (EDRMC) is the country's coordinating body with an institutional mandate that includes ensuring adequate research and training, infrastructure, and resources are allocated equitably for a sustainable and effective DRM system.

The current working environment for DRM in Ethiopia is in flux. Given the complex and dynamic factors such as climate change, conflict, and equity issues, there is an urgent need for organizations working on and coordinating DRM activities to establish robust systems for regular capacity development for all staff and partners. To begin to address this need, the national government established the Study, Research and Training Directorate within EDRMC to coordinate with various stakeholders on DRM research and training.

The 'Disaster Risk Management Research and Training Strategy' was developed based on an extensive review and analysis of these considerations in Ethiopia and globally. Representatives from EDRMC, sector ministries, and the regional government, as well as representatives of universities, research institutions, National and International non-governmental organizations, and United Nations (UN) agencies, were involved in the consultative process for the development of the strategy. Overall, it provides a unifying vision for the EDRMC and its partners in the context of DRM research and training priorities for Ethiopia. The strategy will also provide support to mobilize resources that align with the EDRMC goals, identify current limitations and gaps, and improve evidence-based development of new strategies that address Ethiopia's changing DRM needs.

EDRMC's focus on practical action-oriented research and training will contribute to the improvement of stakeholders and community awareness, strengthening systems, and building on existing mechanisms and practices for integration of DRM and development. This includes the establishment of functional networks and collaborations as identified in the strategy, preparation of priority courses, and ensuring that these can be delivered by in-house capacity and existing networks.

The strategy has been developed based on a policy reform process and a 10-year perspective plan. EDRMC is committed to implementing the strategy, which will be supported by innovative, sustainable human resources development, effective operational systems, and cross-learning and experience exchange. The ultimate goal is to further develop the DRM architecture and operational environment to improve disaster mitigation, preparedness, response, and recovery in Ethiopia.

Finally, the 'Disaster Risk Management Research and Training Strategy' was developed with the full participation and consultation of stakeholders under the leadership of EDRMC. The process was supported by technical and financial assistance from the Asian Disaster Preparedness Center (ADPC) and Bill & Melinda Gates Foundation. The strategy seeks to advance and improve the acquisition of DRM knowledge and guide the development of the Study, Research, and Training Directorate at the EDRMC to be a Center of Excellence in the country. The development of Research and Training Strategy is an initiative toward fostering comprehensive action and response mechanisms that are founded on knowledge and accuracy.

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Acronyms

ACDRM	African Center for Disaster Risk Management
ADPC	Asian Disaster Preparedness Center
AU	African Union
CCA	Climate Change Adaptation
CSOs	Civil Society Organizations
DRM	Disaster Risk Management
DRM-TWG	Disaster Risk Management technical Working Group
DRR	Disaster Risk Reduction
EDRMC	Ethiopian Disaster Risk Management Commission
EWS	Early Warning System
GIS	Geographical Information System
GO	Government Organization
GTP	Growth and Transformation Plan
ICPAC	IGAD Climate Prediction and Applications Centre
IGAD	Intergovernmental Authority on Development
IUFRM	Integrated Urban Flood Risk Management
KSA	Knowledge, Skills and Attitudes
MoE	Ministry of Education
NGO	Non-Governmental Organization
S-MAC	Strategic Multi-Agency Coordination
SMART	Specific, Measurable, Attainable, Relevant, and Timely
SPIF	Strategic Programming and Investment Framework
SWOT	Strengths, Weaknesses, Opportunities, and Threats
T-MAC	Technical Multi-Agency Coordination
TNA	Training Need Assessment
TWG	Technical Working Group
UNISDR	United Nations International Strategy for Disaster Reduction
UN	United Nations
WDRP	Woreda Disaster Risk Profile

1. EXECUTIVE SUMMARY

The National Policy and Strategy on Disaster Risk Management (EDRMC, 2013) stipulates that an efficient and effective organizational structure, mechanism, as well as human resources with rich experience, knowledge, and skills are vital for sustaining an effective disaster risk management system. The policy acknowledges that these components are yet to be fully achieved.

To fill this gap, Ethiopian Disaster Risk Management Commission (EDRMC) has taken the following major steps. First, it established a dedicated directorate for “Study, Research, and Training,” with the purpose of enhancing the capacity of staff and key stakeholders, and generating evidence for effective preparedness and response. Second, it carried out a major training and research needs assessment (EDRMC/ADPC, 2021) that informed the development of the research and training strategy and roadmap presented in this document.

The research and training strategy and roadmap presented in this document guide the new Directorate of EDRMC to fulfil its mandate of providing research and training services for the Disaster Risk Management (DRM)/Climate Change Adaptation (CCA) sector from 2022–2037.

The strategy and roadmap are also intended to serve as common framework for the key stakeholders identified in the needs assessment exercise. These include (i) government executive organs mandated to mainstream DRM/CCA into their plans, projects and programs; (ii) federal, regional, city, and woreda administrations constitutionally mandated to prepare and respond to disasters; and (iii) United Nations (UN) humanitarian partners, bilateral aid agencies, and non-government organizations (NGOs) working on DRM/CCA.

EDRMC should address the challenges stemming from the lack of a well-developed culture of interdisciplinary research to assist the wider partners to effectively mainstream DRM within their plans and programs. This includes facilitating the exchange of information and research results among universities, research institutes, and other stakeholders; and documentation and knowledge

management. There is a need to make use of the already existing opportunities of various platforms and arrangements such as technical working groups, multiagency coordination platforms, conferences, workshops, symposiums, seminars, and webinars.

This strategy and roadmap were developed based on an extensive review and analysis of the state of DRM training and research situation, both in the country and globally. Lessons have been drawn from (i) well-established as well as emerging local universities; and (ii) countries that frequently suffer from multiple disasters and as a result have built the research and training capacity that allowed them to prepare for, mitigate, and respond in a timely manner.

EDRMC’s focus is on practical action-oriented research and training that will contribute to the improvement of stakeholders and community awareness, strengthening systems, and building on existing and workable research and training experience. This may include the establishment of functional networks and collaborations as identified in the strategy, preparation of priority courses, and ensuring these can be delivered by in-house capacity and existing networks. As an initial research and training initiative, the following task are deemed appropriate: understanding risks, disaster risks monitoring and forecasting systems, effective consolidation of disaster risk knowledge management, communication and dissemination, preparedness and response capacity, urban risk mitigation, conflict prevention, management, and resolution.

The EDRMC research and training roadmap is significant for several reasons. First, it will provide a unifying vision for EDRMC and its partners when it comes to DRM research and training priorities for the country. Second, it will support with mobilizing resources and aligning EDRMC’s investments in research and training with organizational goals. Third, it will allow EDRMC to maintain focus and improve communications. Fourth, it will support with identifying current limitations and gaps, as well as develop new strategies to fill them.

2. BACKGROUND AND INTRODUCTION

2.1 Overview of DRM Research and Training Frameworks

2.1.1 Global and African Frameworks

- i) Hyogo (2005-2015) and Sendai (2015-2030) Frameworks: Following the global shift in disaster management from managing disastrous events to managing disaster risks through systematic risk assessment, disaster response planning and response, the need for increasing the knowledge and capacity of DRM practitioners and decision-makers has also increased. At the international level, the Hyogo (2005-2015) and Sendai (2015-2030) frameworks serve as landmark and important instruments in DRM. The priority actions of these frameworks require the availability of up-to-date data and information, evidence, and capacitated staff and stakeholders for the implementation of DRM/CCA interventions. Countries have mainstreamed and integrated the priority areas of the framework into their policies and strategies and to restructure their institutions for the successful implementation and management of disaster risks.

The frameworks provide an underlying strategy to build the knowledge of government, civil society, communities, and volunteers, as well as the private sector through sharing experiences, lessons, good practices, and training and education on disaster risk reduction, including the use of existing training and education mechanisms and peer learning. It also aspires to enhance the DRM knowledge of all actors through dialogue and cooperation among scientific and technological communities, and policymakers to facilitate a science-policy interface for effective decision-making in DRM. The integration of local knowledge and practices in DRM to complement the

scientific approaches requires research in the field. The internationally agreed Sendai Framework gives due emphasis to the training of the DRM workforce and voluntary workers in disaster response, as well as strengthening technical and logistical capacities to ensure preparedness and effective response during emergencies.

- ii) Building Disaster Resilience to Natural Hazards in Sub-Saharan Africa¹: The European Union supported the development of this sub-regional framework in 2013 at the request of African Union Commission (AUC) and Regional Economic Communities (REC) for a comprehensive approach to DRR. The objective of the program is to strengthen the resilience of countries and communities in the sub-Saharan Africa against the impacts of human and natural hazards-induced disasters (including climate change impacts) and reduce poverty, while promoting sustainable development. It is an all-inclusive DRR program in sub-Saharan Africa that brings together different organizations with unique mandates and capacities (UNISDR, 2018).
- iii) The Kampala Convention: Between 2008-2014, 38 million people have been displaced worldwide due to armed conflict, widespread violence, and human rights violations. A total of 14.8 million of them were in Africa. To ameliorate the challenges of conflict-induced disasters and associated adverse impacts, the African Union developed a framework to prevent and respond to displacements. This framework of action, the African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa (known widely as the Kampala Convention) was adopted in 2009 and entered into force in 2012. Thus, the Kampala convention was known to be a legally binding regional mechanism in place to defend the rights of displaced people (the Kampala Convention, 2015).

¹ This program has been developed as part of the African, Caribbean and Pacific (ACP) - European Union Cooperation.

- iv) African Regional Strategy for DRR: The 2006-2015 action plan for the implementation of the African Regional Strategy for DRR and its successor - the Sendai Framework for DRR (2015-2030) is the primary strategy in the first ten years of the African Union (AU) agenda 2063. The plan of action recognizes the prior significance of DRR in realizing goal seven of the agenda, stated as “environmentally sustainable climate-resilient economies and communities, as an effort to create a prosperous Africa by way of inclusive growth and sustainable development.”
- v) The IGAD Disaster Risk Management (DRM) Programme: This was launched in 2004 and has since contributed to Disaster Risk Reduction (DRR) in the IGAD region through the development of national policies and strategies, providing a regional platform to discuss the DRM Agendas, and developing capacity of Member States to prepare and respond to disasters. It also develops in-country training on various aspects of DRM for member countries. For example, in 2019, the IGAD Climate Prediction and Application Center (ICPAC) helped develop and conduct Technical Training on Hazard Assessment Using Earth Observation and GIS for Ethiopia. It consisted of three modules (i) Introduction to Geospatial Information System (GIS); (ii) Vegetation and Land Cover/Land Use Monitoring; and (iii) Hazard, Vulnerability and Risk Assessment.²

2.1.2 National Frameworks

- i) From disaster prevention policy to disaster risk management policy, strategy, and investment framework: In 1993, the first policy on disaster prevention and management was issued, which brought forward the idea of disaster risk education and awareness. In practical terms, DRR-related training and awareness programs implemented in the 1990s were generally donor/NGO-led and had limited legal basis. Little recognition was given to DRM research.

Above all, the policy was not specific on how stakeholders and sectors should undertake organized DRR education, training, and research activities. The 1994 education and training policy was also silent on DRR curriculum and so were the subsequent Education Sector Development Programs, except for education materials provision during disasters.

This gap was filled with the launch of DRM policy and strategy in 2013. It acknowledged that raising the levels of disaster prevention through education and public awareness would greatly contribute to the reduction in the impacts of such disasters. The new DRM Policy emphasized the need for mainstreaming DRM into appropriate subjects at primary and secondary schools and encouraging extracurricular DRM activities that would assist in instilling future generations with a culture of resilience to disasters. The policy also encourages higher learning institutions and think-tank groups to conduct DRM research, develop expertise and teaching modules, and to cultivate a higher sense of professionalism.

Similarly, the research dimensions of DRM play a significant role in creating a resilient community as clearly pointed out in the National DRM Policy and Strategy of Ethiopia. The country is prone to recurrent natural and human-induced disasters. Though there have been significant changes and successes made in averting the negative consequences of such disasters, the achievements are not up to the expectations in every aspect of the DRM endeavors. To this end, strengthening the existing research and training institutes within EDRMC and in other stakeholders working in DRM, as well as establishing new research units and departments would play an important role in augmenting the effectiveness and efficacy of the National DRM Policy and Strategy and DRM-SPIFs implementation. The DRM research themes should be researched and prioritized in a way that one could be

² See <https://www.icpac.net/publications/-country-technical-training-hazard-assessment-using-earth-observation-and-gis-ethiopia/> (accessed 3.11.21)

done after the other as resources are limited to address all the DRM research issues simultaneously. The DRM research and training strategy is planned to provide a clear image of what should be researched and why, how the research should be conducted, and who should be responsible for conducting the research based on the EDRMC's priorities of the strategic plan (vision, mission, values, goals/objectives and purposes).

- ii) The National Framework for Climate Service Strategic Plan (2021-2030) emphasized the following as important cornerstones of providing proper climate services to the nation and advanced climate related knowledge: training; research; education; monitoring and evaluation; a digital library; modeling and projection; strengthening systems, processes, and partnership. This can be achieved through coordination, policy, standard operational procedures, face-to-face and web-based platforms. In the framework, almost all the theory of changes are rooted in research and training of the wider DRM and specifically the issue of climate change adaptation and mitigation actions are addressed in this DRM research and training roadmap document.

2.2 Evidence-based: From data to ideas

The strategy and roadmap are based on a review of international good practices and locally generated through quantitative and qualitative evidence. A training and research needs assessment was carried out to inform the development of the strategy and roadmap (see Kaya Consultants, 2021). A brief summary of this evidence and lessons drawn are presented below starting with national and international practices and highlights from the SWOT analysis.

2.2.1 Lessons from National Practices

DRM as a training and research topic is relatively new in Ethiopia. The first national framework, the NPDP, paved the way for a systematic dissemination of concepts, principles, and tools for drought preparedness and prevention, and later disaster risk management. Non-governmental organizations

(NGOs) assisted the government in familiarizing of the policy, the development of guidelines and manuals in food aid targeting, early warning systems, and employment generation schemes. These resources were used to train experts in the then called DPPC, renamed to DRMFSS, and presently EDRMC. NGOs largely drew on international practices and lessons as there were no DRM-focused research institutions in Ethiopia.

As the EDRMC aspires to be one of the leading DRM research centers in the country, an inventory of these practices would form a strong foundation.

Lesson 1: Shift from ad hoc to institutionalized training and research: An important shift that has occurred over the last 10-15 years is the change from ad hoc training and research practice to institutionalized training and research implementation. It is critical that DRM research and training be conducted systematically and in a coordinated manner with national and international institutions working in DRM contexts of Ethiopia. International experiences and lessons been to be customized to Ethiopian contexts.

Lesson 2: Multi-sectoral: There is strong evidence from across the globe that DRM is a multi-sectoral and multi-disciplinary issue. However, breaking institutional and disciplinary boundaries continue to be a challenge due to dated management structures and the desire to maintain disciplinary boundaries. DRM requires a more flexible, if not fluid, structure. Notably, this approach does not intend to reduce accountability. Accountability begins at an individual level. The multi-sectoral, by extension multi-disciplinary, nature of DRM is preserved by the Ethiopian Constitution as it urges all administrative structures and executive organs of the government to prepare for and prevent disaster in their areas of operation.

Lesson 3: Partnership and collaboration: A collaborate approach would help ensure key stakeholders have a voice and buy-in on national DRM training and research priorities, in a way that avoids or minimizes duplication of resources and efforts. Institutions participating in DRM training and research can have areas of specializations (competitiveness), while also maximizing the comparative advantages of collaboration.

Lesson 4: Research and training principles: There are certain principles (or ethics) that all institutions of learning are required to fulfill. EDRMC, as a newcomer to research and training, needs to ensure that its training and research adhere to such principles. Based on experience of training research institutions in various fields, the strategy and roadmap has identified principles that EDRMC must adopt if its work is to be accepted by the wider training and research community and beneficiaries (see Section 3).

2.2.2 Lessons from International Practices

As part of the training and research needs assessment, experiences of countries like India, Bangladesh, and the Philippines were reviewed to draw lessons for developing the DRM research and training strategy and roadmap.

Lesson 5: India-State of Bihar

The state of Bihar is one of the most multi-hazard disaster-prone states that obstructed development gains. Floods, droughts, cyclones, landslides, and earthquakes are the most common disasters resulting in loss of life, properties, livestock, and livelihoods for the past several decades. Amongst these disasters, major floods in 2004, 2007, 2011 and 2013 make floods the most frequent disaster. Lessons learned from Bihar DRM include:

- The Bihar DRR roadmap (2015–2030) successfully mainstreamed DRR into the functioning of each of department.
- The Disaster Management Act, which is more legally binding than policies, spurred several actions towards institution building and system strengthening for disaster management in Bihar. The establishment of the Disaster Management Department, Bihar State Disaster Management Authority, and State Disaster Response Force with clear mandates have helped ensure progress towards effective response and preparedness mechanisms.³
- Sustained political will is critical, as which is supported by the above two key measures.

- Bihar established the Bihar Inter-Agency Group for strengthening coordinated responses to disasters.
- An enhanced role for community-based disaster risk reduction is supported by civil society organizations.
- Disasters are viewed as opportunities for strengthening development planning and programming that address underlying causes of disaster and climate risks (e.g., Strategic Operation Planning the Agriculture Roadmap, Health Roadmap, and the State Action Plan for Climate Change).

Lesson 6: Bangladesh

Bangladesh is one of the most disaster-prone nations in the world. Every year, about 10 million Bangladeshi citizens are impacted by one or more natural hazards-induced disasters. Lessons learned from Bangladesh DRM include:

- Bangladesh DRM has shifted from a reactive to a proactive approach. Proactive DRM includes hazard identification and mitigation, community preparedness, and integrated response efforts. These have led to the development of the Comprehensive Disaster Management Programme, which aims to move disaster management away from relief and rehabilitation and towards risk reduction.
- The disaster risk management institutional arrangements of Bangladesh run from the top-level National Disaster Management Council to the zone, union, and village level disaster management committees.
- The country has a regulatory framework for disaster management that guides the development of relevant laws, policies, and documents best practice. The Disaster Management Act, the National Plan for Disaster Management, the Standing Orders, building codes, and disaster management reforms are among such DRM frameworks. The reform has contributed to:
 - Professionalizing the disaster management system
 - Mainstreaming disaster risk reduction programming through coordination, cooperation, and advocacy

³ The institutional evolution in State of Bihar is similar to that of Ethiopia. In 1977-78, a Department of Relief and Rehabilitation was established; in 2004 the name and focus of this department changed from Relief and Rehabilitation to Disaster Management based on recommendations from a High-Powered Committee, reflecting a shift from the relief-orientation in the past.

- Strengthening community institutional mechanisms
- Expanding prevention, preparedness, and response programs across a broader range of hazards
- Strengthening emergency response and recovery
- Maintaining and strengthening the national food security system
- The Act mainstreamed disaster risk reduction (DRR) into development policies and processes, and expanded the focus of disaster management from ex-post actions and funding for emergency response, relief, and recovery to include ex ante actions and funding for risk reduction, preparedness, and prevention.
- The National DRM Fund was established to finance not only post-disaster activities but to allocate 70% of its for pre-disaster preparedness activities. That same year, the government adopted the Strategic National Action Plan (SNAP) for Disaster Risk Reduction through Executive Order No. 888. The SNAP was the government's 10-year plan (2009–19) to achieve the commitments made under the Hyogo Framework for Action, a global disaster reduction policy framework led by the United Nations (UNISDR, 2007).

Lesson 7: The Philippines

The Philippines is a country in Asia with high exposure to natural disasters. Between 1995 and 2015, the country suffered a total of 274 natural disasters, behind only the United States (472), China (441), and India (288) making it the fourth most at risk country when it comes to disaster frequency. On average, earthquakes, tropical and non-tropical cyclone-induced wind and/or precipitation cause fatalities of more than 1,800 people and about \$4.6 billion in damage to assets each year (World Bank, 2017).

The Philippines began taking concerted action to mitigate the impact of disasters as early as 1941 when a Civilian Emergency Administration was established to execute disaster response, including short-term forecasting, early warning, evacuation, and post-disaster relief. However, resources were insufficient, and unplanned and reallocations of government budgetary resources were often the primary source of relief and rehabilitation funding. Lessons learned from the Philippines DRM include:

- It took a major disaster to shift from disaster response to disaster risk management. In 2009, Tropical Storm Ondoy and Typhoon Pepeng hit the country and caused extensive damages equivalent to 60% of the country's economy, including metro Manila.
- The strong negative impact on the capital city was a turning point in DRM in the Philippines.
- A year later, in 2010, the government enacted the Philippine Disaster Risk Reduction and Management (DRRM) Act (Republic Act 10121), which called for a coherent, integrated, and proactive approach to DRM across levels and sectors of government, and among vulnerable communities.

- The Philippines use the National Defense as the implementing wing of the National DRR and Management Council. All the efforts related to DRM are channeled through the Offices of the Civil Defense.

Lesson 8: Japan

According to Kryspin-Watson and Hoe (2019), one of the most devastating disasters in Japan's modern era occurred when in 1742 when two typhoons swept across the country in quick succession, bringing torrents of heavy rain and flooding of major rivers. As levees and rivers collapsed, floodwaters rose in Edo, Japan's largest city and political capital, resulting in fatalities of a reported 6,000 in the city. Today, while the threat of flooding remains high, Japan's capacity to manage urban flood risks is among the strongest in the world. Lessons learned from Japan's DRM include:

- The country has adopted an integrated approach, bringing together diverse stakeholders and measures to manage flood risks. Japanese cities have developed and employed a dynamic suite of flood risk management measures, from regulations, plans, and strategies for basin-scale river improvement, advanced infrastructural solutions, to coordination and communication mechanisms.

- Risk assessment and communication is key. Approaches must be selected based on flood type and local characteristics, reflect different stakeholders' specific needs, and objectives, and account for climate change uncertainty.
- The national government plays an important role supporting local and city governments, especially in planning and prioritization.
- Wherever possible, measures should include multi-functional systems that provide other benefits in addition to managing flood risks. It is also necessary to design and implement clear governance mechanisms.
- Regular performance monitoring and evaluation of Integrated Urban Flood Risk Management/ IUFMR measures and regular inspection, maintenance, repair, and replacement work are required for sustainable operation and maintenance.

Lesson 9: Asian Disaster Preparedness Center (ADPC)⁴

ADPC is an autonomous international organization that works to build the resilience of people and institutions to disasters and climate change impacts in Asia and the Pacific. It is a membership organisation that was established in 1986 by nine founding member countries: Bangladesh, Cambodia, China, India, Nepal, Pakistan, the Philippines, Sri Lanka, and Thailand.

Since it is founded by Asian countries, its focus is on Asia and the Pacific. However, ADPC also works with countries in Africa, Europe, North America, Central America, and Oceania. At the time of preparing this strategy document, Ethiopia and Malawi are current beneficiaries of technical assistance provided by ADPC.⁵ Figure 1 shows a breakdown of the number of training participants from around the world. ADPC's training programs are in three categories-generic, hazard-specific, and tailor-made courses. Examples of courses in each category are provided in Table 1.

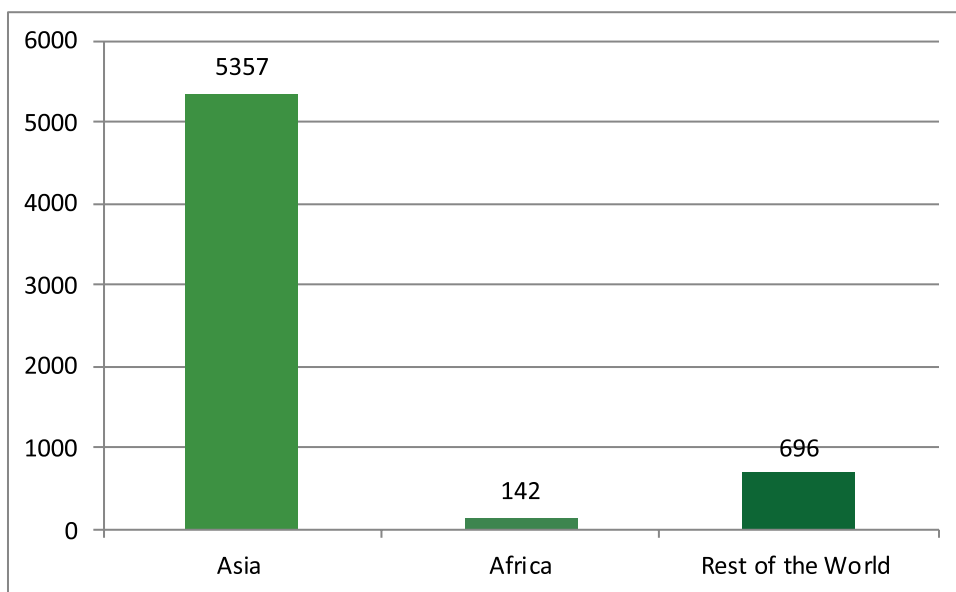


Figure 1: Number of ADPC Training Participants

Source: Data posted on <https://www.adpc.net/igo/contents/adpcpage.asp?pid=3> (accessed 9.11.21)

⁴ Material for ADPC largely comes from <https://www.adpc.net/igo/contents/adpcpage.asp?pid=3> (accessed 9.11.21)

⁵ Ethiopia (Ministry of Agriculture; Ethiopia Ministry of Health; and Ethiopia National Disaster Risk Management Commission). Malawi (Department of Disaster Management Affairs, and Malawi Ministry of Finance, Economic Planning and Development).

2.2.3 Benchmarking

Benchmarking is a strategic concept and tool frequently applied in business organizations. It is defined as “a process of measuring the performance of a company’s products, services, or processes against those of another business considered to be the best in the industry.”⁶ The point of benchmarking is to identify opportunities for improvement by adapting practices, tools and approaches found to be superior. A company or public institution such as EDRMC can do a thorough analysis of the chosen benchmark and document what makes it superior and compare with its own performance.

Which country is the best model for EDRMC’s Research and Training Directorate? Firstly, as a newcomer to the business of training and research, EDRMC should draw upon lessons from countries that have experience in DRM research and training. As input to this process, a few examples are given below.

One of Japan’s training and research institutions, the Disaster Prevention Research Institute (DPRI) of Kyoto University, was established in 1951. Since then, it has been pursuing principles of natural disaster reduction, establishing integrated methodologies for disaster prevention based on natural and social sciences, and educating students in related fields. The research staff members of the Institute are also affiliated with the Graduate Schools of Science and Engineering of Kyoto University. Many graduate students come to the Institute to carry out their studies under supervision of its staff members.⁷

The UNISDR testified:

“... Japan has accumulated lessons, knowledge, and technology on disaster risk reduction ... [and] is able to contribute to the global learning on disaster risk reduction through sharing the abundant knowledge and expertise it has cultivated in the field of disaster risk reduction with the international community.”⁸

Following the Great East Japan Earthquake (GEJE), a mega-disaster that shocked Japan and the world with its unprecedented scale of destruction, the World Bank launched a major lesson learning project, the Japan-World Bank program on mainstreaming disaster risk management in developing countries. A series of studies was conducted to identify lessons from the mega-disaster in three thematic areas (i) infrastructure resilience, (ii) risk identification, reduction, and preparedness, and (iii) disaster risk finance.

The Philippine School of Business Administration, a privately-owned institution of higher learning, founded in October 1963, runs specialized DRM courses in addition to its core business management courses. The school offers courses in Economic Impact of Natural Disasters, Crisis Management, Community Based Disaster Risk Management and runs a series of seminars on DRM.

In Bangladesh, short term DRM trainings continue to be important. The Bangladesh Disaster Preparedness Center (BDPC) was established in 1992 as Bangladesh’s first independent, local NGO focused solely on disaster risk reduction (DRR). Devastating floods in 1988 and a cyclone claiming 138,000 lives in 1991 highlighted the need for a shift from post-disaster response to pre-disaster preparedness. Although billions had been spent on relief and recovery, communities remained vulnerable and under prepared for the next disaster. BDPC set out to put vulnerable communities at the center of disaster management, adopting a community-based approach, complemented by advocacy, policy advice, and knowledge sharing. As a result, disaster risk reduction has been integrated into policies and practices, disaster management committees have been formed from national to local levels of government, and public awareness programs have been established. BDPC has been one of many players in this process of change, alongside the Government of Bangladesh and numerous local and international NGOs.⁹

⁶ See <https://www.shopify.in/encyclopedia/benchmarking> (accessed 10.11.21)

⁷ See http://www.dpri.kyoto-u.ac.jp/brief_en/ (accessed 7.11.21)

⁸ See https://www.gov-online.go.jp/eng/publicity/book/hlj/html/201612/201612_06_en.html (accessed 7.11.21)

⁹ http://www.bdpc.org.bd/new/index645e.html?option=com_content&view=article&id=70&Itemid=27 (accessed 7.11.21)

BDPC has developed over 200 training packages which are offered locally and in other developing countries. One such training was conducted in Uganda on behalf of IGAD/REFORM and the European Union in 2009. Some examples of DRR/DRM courses from the two training centers are listed in Table 1.

ADPC has established a strong partnership with EDRMC by way of supporting the development of this strategy and roadmap. There is considerable opportunity for the two institutions to continue to work together. EDRMC Study, Research and Training Directorate can benchmark the generic, specific and tailor-made courses offered by ADPC (see Table 1 below).

Table 1: Examples of DRM Courses

Bangladesh Disaster Prevention Center	Asian Disaster Preparedness Center
<p>Training-of-Trainers (TOT) on Disaster Management</p> <ul style="list-style-type: none"> ▪ The principles of effective Disaster Management ▪ Overview of community disaster advocacy ▪ Mainstreaming disaster preparedness in communities ▪ How to train communities in disaster management? ▪ Community risk assessment ▪ Effective and creative facilitation of DM training ▪ Introduction to DRR education programs 	<p>Generic courses</p> <ul style="list-style-type: none"> ▪ Community-based disaster risk reduction (CBDRR) ▪ Crisis management course (CMC) ▪ Disaster and development (D&D) ▪ Disaster management (DMC) ▪ Mainstreaming disaster risk reduction in local governance (MDRRG) ▪ Mainstreaming disaster risk reduction into development planning (MDRD) ▪ Monitoring and evaluation for disaster risk reduction (MEDRR) ▪ Road accident rescue course (RAR) ▪ Urban disaster risk management (UDRM)
<p>Basic Training on Disaster Management:</p> <ul style="list-style-type: none"> ▪ Hazard, disaster, risk, vulnerability, capacity, coping capacity, disaster risk reduction, disaster risk management, mitigation, preparedness, prevention, early warning, recovery, response, emergency management 	<p>Hazard-specific courses</p> <ul style="list-style-type: none"> ▪ Climate risk management and climate change adaptation ▪ Earthquake vulnerability risk reduction ▪ Flood disaster risk management ▪ Improvement in cyclone warning response and mitigation ▪ Seismic hazard risk assessment ▪ Seismic and cyclone hazard mitigation ▪ Urban Flood Management

Basic Training on Disaster and Gender:

- Hazards in Bangladesh
- Disaster management system
- Key National and International organizations working in the field of disaster management
- Disaster Management Regulatory Framework
- Disaster-development linkages
- Rights and Disaster.
- Human rights and Women Rights
- Women rights and Constitution
- Family Planning
- Child Rights
- National Woman's Policy

Tailor-made courses

- Community action for disaster response
 - Disaster risk communication
 - Emergency exercise management
 - Emergency response management
 - End-to-end multi-hazard early warning systems
 - Damage assessment and need analysis
 - GIS for disaster risk management
 - Incident command system
 - Incident management system
 - Skills for an effective trainer
 - Training for instructor
 - Training of trainers
 - Health-related issues
-

Source: <http://www.bdpc.org.bd/new/training/index.php/2013-06-17-10-48-48/basic-training-on-disaster-management-and-gender.html> (9.11.21); and <https://www.adpc.net/igo/contents/adpcpage.asp?pid=3> (9.11.21)

These examples could serve as a starting point for EDRMC's Study, Research and Training Directorate to build a database of research and training institutions and Centers of Excellence in both public and private/NGOs sectors. The next section brings all the previous evidence together using a SWOT analytic tool, before presenting the strategy and roadmap.

2.3 Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

SWOT analysis is a strategic planning technique used to help an organization identify strengths, weaknesses, opportunities, and threats related to an organization's capability and competition to achieve its purpose. A SWOT analysis requires a unit of analysis – a unit that is responsible for implementing the strategy and roadmap. In the present case, this is EDRMC's Study, Research and Training Directorate. However, since it has not been operational at the time of developing the strategy, EDRMC is used as the unit of analysis in this case.

SWOT identifies the existing conditions of organizations working in DRM and CCA both from the internal (strengths and weaknesses) and external (opportunities and threats) environments. Through the analysis, the four dimensions of SWOT of the organization in terms of training needs was traced clearly and possible strategy was designed accordingly. Table 2 summarizes the strengths and weaknesses. Availability of qualified and experienced staff at EDRMC; dedicated organizational set up for training and research (although not yet operational); and DRM policy and strategy are enabling environment factors required for the strategy and roadmap. On the other hand, poor culture of interdisciplinary DRM research; weak links between universities and other stakeholders; shortage of resources; poor communication of training and research outcomes for stakeholders are among the weaknesses that EDRMC and the DRM sector suffer from.

Table 2: Internal Environment – Strengths and Weakness

	Strengths	Weaknesses
Internal environment	<ul style="list-style-type: none"> ▪ Presence of qualified and experienced experts ▪ Presence of dedicated organizational set up for research and training (although not yet operational) ▪ Availability of disaster risk profiling information in almost all woredas ▪ Well-structured management system, especially at the federal level ▪ Presence of DRM steering and technical committee ▪ Existence of ICT Directorate and ongoing efforts to strengthen web portal and digital information communication system at EDRMC ▪ Presence of long historical evolution of DRM institution ▪ Presence of proactive DRM policy and strategy 	<ul style="list-style-type: none"> ▪ Lack of thematic diversity in DRM training and research ▪ Lack of Center of Excellence in selected thematic areas ▪ Poor culture of interdisciplinary study/ research activities ▪ Weak links between universities and other stakeholders ▪ Shortage of resources and its intermittency to operationalize training and research programs ▪ Limited training and research activities held at higher levels ▪ Poor communication of training and research outcomes for stakeholders ▪ Poor DRM research mainstreaming ▪ Limited ICT manipulation capacity of DRM staff particularly at woreda level ▪ Absence of well-organized web-based online learning platforms in DRM-focused sectors ▪ Limited documentation and information barriers ▪ Lack of functional DRM training units in EDRMC’s structural set up and documentation of past training efforts in organized way

Table 3 summarizes the opportunities and threats/challenges facing EDRMC’s training and research directorate. The opportunities include presence of various government organizations, NGOs, and UN agencies working on DRM and CCA; presence of proactive DRM frameworks and conventions at the national and international levels; and presence of higher

learning institutions working on DRM training and research locally and globally. Some challenges include DRM steering and technical committees lack accountability mechanisms; recurrent drought, unemployment, and lack of good governance; recurrent conflict and deteriorating security conditions and frequent government offices re-structuring.

Table 3: External Environment – Opportunities and Threats (Challenges)

	Opportunities	Threats (Challenges)
External environment	<ul style="list-style-type: none"> ▪ Presence of key stakeholders (GOs, NGOs and UN agencies) working on DRM and CCA ▪ Presence of proactive DRM frameworks and conventions at the national and international levels ▪ Presence of Higher Learning Institutions working on DRM training and research locally and globally ▪ Availability and expansion of advanced technologies (internet and other information communication technology tools) 	<ul style="list-style-type: none"> ▪ Limited awareness of relevant partner sectors on DRM ▪ Shortage of research-based government structure on DRM and CCA ▪ Financial resource constraints ▪ Weak accountability mechanisms among DRM steering and technical committees ▪ Recurrent drought, unemployment, and lack of good governance ▪ Recurrent conflict and deteriorating security conditions ▪ Declining local capacity and competing priorities for emergency responses ▪ Climate change impacts, socio-economic dynamics, media and political landscape ▪ Frequent government offices restructuring

Based on the SWOT analysis results, the strategy should address the potential synergy between the external and internal factors that facilitate or hinder the implementation of the strategy and roadmap. The synergy between the strengths and the opportunities will facilitate the implementation of the strategy and roadmap. However, the weaknesses and the threats or challenges must

be carefully considered, as they will make it extremely difficult to implement the strategy. Ideally, the strategy will include instruments that will create synergy between the strengths and opportunities in a way that overcomes the weaknesses and challenges.

3. THE DRM RESEARCH AND TRAINING STRATEGY AND ROADMAP (2022-2037)

3.1 Introduction

The research and training strategy and roadmap acts as a single reference to ensure everyone in EDRMC shares the same understanding of the key components of the strategy, including the scope, objectives, principles, goals, and timelines. This will allow for effective implementation of the roadmap and allow for updates to the priorities and milestones as necessary. Other advantages of the roadmap include, (i) the ability to communicate objectives and share status updates quickly; (ii) spelling out the research and training goals and outcomes that EDRMC is expected to achieve within a given timeframe. The strategy is also accompanied by the steps required to achieve them.

The timeline for the proposed research and training roadmap is 2022-2037. While the convention is to set a timeframe of 5 or 10 years, five years is too short as EDRMC is embarking on research and training as a business for the first time and it will require additional time to establish a foundation. The timeframe has been set slightly short of 10 years as to align with the final year of the SDGs. This will allow EDRMC to assess if the implementation of research and training has contributed to the SDGs directly or indirectly. The most relevant goals are Goal 13 (climate action); Goal 16 (peace, justice, and strong institutions); and Goal 17 (partnership).

This training and research strategy and roadmap has been developed based on the results of the TNA, which was conducted as a background exercise. Both the strategy and TNA documents build the foundation for the newly established Study, Research and Training Directorate within EDRMC. They are also useful as indications of national priorities for partners and stakeholders in the areas of DRM and CCA. In addition, the directorate aspires to offer well-

organized research and training for evidence-based decision making and effective DRM preparedness and response interventions. To this end, this research and training roadmap has identified existing gaps and priority actions and proposes a comprehensive roadmap on how to achieve the research and training objectives of EDRMC.

3.2 Vision, Mission, Goal, Core Values and Guiding Principles

The EDRMC has an overarching vision and mission as well as guiding principles in the context of research and training. These values are provided by the DRM policy and strategy, which contributes to achieving EDRMC's goals.

Vision

To be the Center of Excellence in DRR research and training in Ethiopia by 2037.

Mission

Generate quality DRM and CCA data and evidence through enhancing the capacity of EDRMC staff and its stakeholders in collaborative DRM research and training interventions; and serve as a center of knowledge and information exchange and networking point for EDRMC and its DRM stakeholders.

Goal

To strengthen the capacity of EDRMC and its stakeholders through training and research for effective and sustainable DRM.

Core Values

EDRMC is responsible for coordinating disaster risk management in Ethiopia. It has been charged with the responsibility for coordination of stakeholders and taking action to minimize the impact of disasters and disaster risks. Its core values are as follows: integrity, excellence, transparency, accountability, responsibility, and professionalism.

Research and Training Principles

EDRMC training and research is guided by standard principles. These are provided in Table 4 with further explanation in Annex 1.

Table 4: DRM Research and Training Principles

Research Principles	Training Principles (adult learning principles)
<ul style="list-style-type: none"> ▪ Objectivity ▪ Integrity ▪ Carefulness ▪ Openness and transparency ▪ Accountability ▪ Intellectual property ▪ Confidentiality ▪ Responsible publication ▪ Respect for colleagues ▪ Social responsibility ▪ Non-discrimination ▪ Competence ▪ Legality ▪ Public good 	<ul style="list-style-type: none"> ▪ Respect for self-direction and motivation ▪ Respect life experience not just academic achievements ▪ Participant goals come first ▪ Relevance ▪ Learning by doing: Adult trainings are practical ▪ Coaching and mentorship: Adult trainings are skills-oriented ▪ Openness: Adults are open to modern ways of learning ▪ Engage participants in training design: Adults want to choose how they learn

Common Principles to DRM Research and Training

- Dignity of rights of at-risk people and communities
- Participation of and action by at-risk communities
- Understanding risk
- Multi-stakeholder and multi-level governance
- Context-specific and inclusive DRR
- Coherence and consistency across policies, programs, and plans
- Continuous cycles of action, reflection, and learning
- Resilience building within development
- Investing in the future through various DRR mainstreaming platforms
- Partnership and collaborations
- Transparency and accountability
- Doing no harm

3.3 Priorities of DRM/CCA Research and Training

The training and research strategy and roadmap has been developed based on the analysis and results of the TNA. EDRMC should not necessarily deep dive into exceptionally technical and particular research themes at the initial phases of their research initiatives, but rather focus on broader deliverables that will have contributions in terms of increasing awareness, strengthening systems, and building upon prevailing research and training schemes on DRM. It should first map out its internal capacity to launch the research and training platform in line with its capacities and available resources, including human, financial, and technological. The situation analysis presented in this work is a baseline that requires updating on a regular basis.

The implementation of the DRM training and research strategy should adopt a phased approach. This allows for a learning-by-doing approach to course-correct and ensure quality. The strategy must be undertaken with maximum care and responsibility to ensure high quality standards. This phased approach allows for learning, monitoring and evaluating. It is recommended that the baseline situation and the resulting priorities are updated every 12 months and major revisions occur at the end of the first three years (2022-2024). See more on monitoring and evaluation in Section 3.10. An important consideration is the dynamics between training and research, which needs to be recognized and capitalized on. Research generates knowledge that feeds into training and training generates issues and problems for research. This is illustrated in Figure 2.

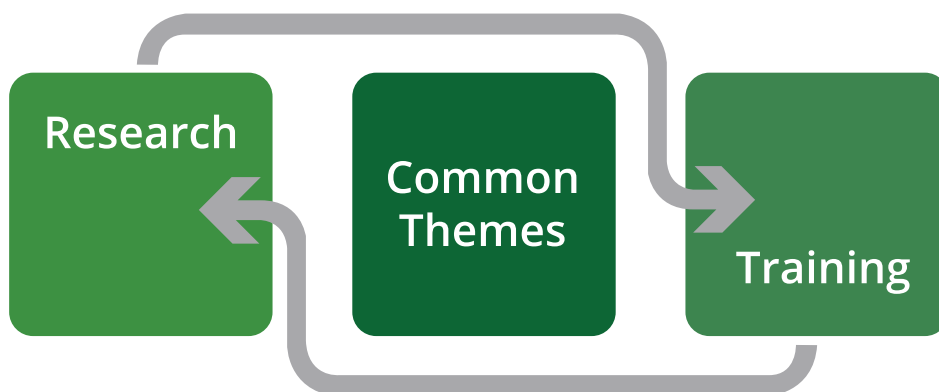


Figure 2: Interaction between Training and Research

3.3.1 Priority Research Themes

1. Understanding risks/risk perceptions

The purpose of this theme is to identify hazards and risk factors that have the potential to cause harm (hazard identification) and analyze and evaluate the risks associated with those hazards (risk analysis, and risk evaluation).

Specific research activities include:

- Identify hazards in light of emerging and changing trends
- Investigate who might be harmed and how
- Evaluate the risks and decide on precautions

- Record findings and implement them accordingly
- Review risks through study

Based on the research findings, trainings that will contribute to an understanding of risk and change peoples' attitudes towards risk will be arranged and provided to the concerned bodies and local communities to ensure appropriate conflict management.

2. Disaster risk monitoring and forecasting systems

Most disasters in Ethiopia are climate-induced. It is therefore critical that a robust weather forecasting system is in place. Ethiopia already

has a long tradition and experience in weather observation, monitoring, and forecasting. There is also an ongoing and solid cooperation with regional climate services, and new initiatives are being implemented in the framework of the global climate services.

Specific research activities include:

- Explore the combination of open-source hardware and software with the goal of strengthening real-time monitoring systems for both meteorological and hydrological conditions.
- Establish meteorological and hydrological models to gather more detailed information on target populations.
- Explore the integration and best use of existing global and regional datasets for real-time monitoring stations. Global and regional datasets are of crucial importance for complementing existing national information system.

Based on the research findings, trainings on monitoring and forecasting can be arranged and provided to the concerned bodies and local communities so that early warning systems can be improved.

3. Effective consolidation of disaster risk knowledge management

Disaster risk knowledge is of concern to national organizations, civil society organization, and the public. Except for EDRMC, which is the lead agency mandated to work on DRM along with its parallel organizations at lower administrative levels, locally sourced data and information about disaster risk is sparse and not widely available. Hence, entities that can potentially make use of risk data and risk information, including researchers, trainers, and decision-makers do not have access to such data and information. Given that systematically organized data and information about disaster risk is foundational to developing an effective early warning system, it is important to consolidate the national disaster risk data and information in a meaningful way.

Specific research activities include:

- Explore the possibility of fostering a network of academic centers focusing on DRM and the mechanism for constant and continuous exchange of information between such centers
- Redefine the purpose, cost-effectiveness, and utility of Woreda Disaster Risk Profiles (WDRP)
- Re-examine the risk profiling methodology in such a way that mixed methods (quantitative and qualitative) can be effectively combined

Based on the research findings, trainings on disaster risk knowledge management can be arranged and provided.

4. Research on communication and dissemination

The dissemination and communication of information is crucial before and during emergencies. Early warning communication is an essential link between monitoring and response capability and needs to contain clear actionable messages that reach at risk populations, are understandable, and can allow communities to act to reduce the impact of a disaster.

Specific research activities include:

- Design an integrated communication system for alerting the population. The system will help to translate complex technical and scientific information into targeted messages so that the information can be clearly understood by the entire population.
- Explore possibilities for CSOs, community-based institutions, and mass based associations (youth, women) to integrate their information system with the public information system.
- Study how to ensure the improved early warning communication system reaches the intended audience and analyze the performance of the end-to-end EWS, including the introduction of multiple channels SMS, and Broadcast, a web-based portal for risk communication.

Based on the research findings, trainings can be arranged and provided on timely communication and dissemination of early warning information.

5. Research to improve preparedness and response capacity

Communities need to be ready to respond when risk becomes a reality. To reduce the impacts of a disaster, the response action should be triggered by a warning, not by the disaster itself. Response capability typically involves actions that prepare for or reduce the impact of a hazard or disaster. A community is deemed “response capable” when it is informed, and has practiced and responded to a disaster. DRM research should be able to provide robust and proactive warnings for effective preparedness and responses.

Specific research activities include:

- Investigate and research the avenues for disaster risk financing mechanisms with the consideration of enhancing preparedness.
- Identify research themes for response plans. Such plans should include the scale up of response during and after disaster events with the considerations for the recovery and rehabilitation phases.
- Explore how Woreda Disaster Risk Profile (WDRP) can be connected to EW and emergency coordination centers to target the hazards that are relevant for the specific woredas.
- Examine how to best incorporate DRM into school curricula at an early stage.
- Launch a survey to establish a baseline of citizen awareness.
- Document DRM best practices and lessons learned at community, kebele, woreda, regional, and national levels.
- Institutionalize regular testing and drills of DRM practices through trainings, education, and research based on pre-identified risk scenarios.

- The drills should test the effectiveness of warnings, the understating of the messages communicated by the authorities, and the actions to be implemented for mitigating the impacts to different sectors.
- Drills should also address the efficiencies of equipment, logistic capacity, and redundancy of activities.
- Organizing, reviewing, digitizing, and documenting the existing wealth of information available for education and further research and training.

Based on the research findings, trainings can be arranged on improved disaster preparedness and preventions including modern early warning systems.

6. Urban risk mitigation

With approximately 20% of the population living in urban areas, Ethiopia is one of the least urbanized countries in the world. However, the nature of settlement and the recent efforts to modernize dwellings (construction of condominiums) pose enormous risks to the urban population. The range of risks urban centers, the larger ones in particular, face include fire, flood, water and air pollution, and traffic accidents.

Understanding urban risks has seen important advances in recent decades. However, it falls short in addressing the production and reproduction of so-called urban “risk traps” through comprehensive research. Some of the largest urban centers have a structure for urban fire risk management but with very little risk assessment and mitigation measures in place; it is considered more of a response to disasters than risk management.

Specific research activities include:

- Establish a baseline of urban risks, including the extent to which rural-urban migration exacerbates the risks.
- Establish mitigation measures for each of the possible risks, including effective coordination between the urban risk management structure and stakeholders.

Based on the research findings, trainings on urban risks and mitigating measures may be arranged and provided to the concerned bodies and local communities so that urban risks can be managed at all levels.

7. Conflict prevention, management, and resolution

Conflict and the resulting displacements have become major disaster risks in Ethiopia. Ethiopia has diverse traditional conflict management and resolution approaches from south to north, and east to west. However, as conflicts become increasingly complex, these traditional approaches have become inadequate. Thus, they need to be supported by more scientific and evidence-based approaches which emanate from research.

Research allows us to (i) understand the meaning and implications of conflict, (ii) identify the causes and consequences, (iii) develop appropriate conflict management techniques and approaches, (iv) develop the conflict management and peace building skills, and (v) identify the strategies of living together with diverse culture, economy, language, experience, educational background, and other differences in a peaceful manner.

Specific research activities include:

- Establish a baseline on conflict management and resolution approaches in Ethiopia.
- Define and elaborate the cycle of conflict within the framework of disaster management cycle.
- Identify the most appropriate areas of conflict for EDRMC to manage.
- Establish a consortium of research institutions focusing on conflict.

Based on the research findings, trainings can be arranged and provided to the concerned bodies and local communities so that conflict management could be in place.

3.3.2 Priority Training Themes

During the TNA, DRM training needs were prioritized. For each prioritized training theme, curriculum was developed (see TNA report for details). The assessment covered federal level DRM related institutions, four targeted regions, and Addis Ababa city government. These trainings are identified for the short, medium, and long-term.¹⁰ It has been observed that regions have their own training needs specific to their context, which are presented in the TNA.

¹⁰ Each regional state's DRM affiliated offices/organizations, EDRMC, and Addis Ababa City Administration may provide the training courses as per their respective specialization and professional tendency.

Table 5: Prioritized DRM/CCA Training Needs

S.N.	Prioritized Training Themes	Order of Priority (Ranks)					
		Amhara	Oromia	Somali	Afar	Addis Ababa	Federal
1	Basics of DRM and CC Practices	1	1	1	1	1	5
2	DRM Policies and Strategies	2	-	-	3	-	1
3	DRR and CCA Linkage	3	-	-	-	-	-
4	Community-Based DRM	12	-	8	-	9	6
5	Gender and DRM	-	-	4	7	-	8
6	Disaster and Logistics Management	-	-	5	-	-	-
7	Livelihoods and Food Security	-	3	3	-	-	-
8	Emergency Preparedness and Response	14	12	13	12	10	-
9	Conflict Management	4	6	6	4	6	3
10	Computer Basics	-	-	-	-	-	11
11	GIS and Remote Sensing	10	-	-	5	-	9
12	Software Application in DRR and CCA	8	-	-	6	-	7
13	Disaster Risk Assessment	7	9	11	-	2	-
14	Disaster Risk Profiling	-	8	-	-	3	12
15	Drought Management and Predictions	5	5	8	8	-	2
16	Flood Forecasting Systems and Models	6	7	10	9	-	4
17	Contingency Planning	9	-	-	-	4	13
18	Damage and Loss Assessment	-	-	-	-	5	-
19	EIA	11	10	-	10	8	10
20	Monitoring, Evaluation and Learning	13	11	12	11	7	14
21	Early Warning Systems	-	2	2	2	-	-
22	Disaster Risk Information Management	-	4	7	-	-	-
23	DRM Fund Raising, Resource Mobilization and Advocacy	-	-	-	-	-	-
24	Search and Rescue (SAR)	-	-	-	-	-	-
25	Emergency Operation Management	-	-	-	-	-	-
26	Urban DRM	-	-	-	-	-	-

3.4 DRM Research and Training Roadmap Implementation: From Ideas to Action

There is a need for DRM research to address the training gaps and areas of necessary improvement for EDRMC and its stakeholders. The TNA provided evidence for the development of a strategic roadmap. This activity was carried out through a training roadmap study across selected sample woredas in four regional states – Oromia, Amhara, Afar, and Somali – as well as the Addis Ababa city government. The TNA also assess the available opportunities for research and training within national academia and other potential areas of collaboration for exchange and learning between African and Asian countries.

The implementation of the DRR training and research roadmap will be undertaken with the following approaches.

- **Multi-hazard focus:** The multi-hazard approach will not only mean that different hazards will require hazard-specific actions to be undertaken, but also that any action should consider the impact of more than one hazard during planning and implementation.
- **Multi-sectoral:** DRM and CCA-related research and training activities require interventions across multiple sectors with strong collaboration, coordination, and coherence among various government and non-governmental actors. This multi-sectoral approach is very important in building synergies and economies of scale among various sectors having diversified roles and responsibilities, expertise, experience, and orientations.

- **Networking, collaboration, and partnership:** Achieving DRM and CCA objectives requires engagement of all actors at all levels. There is a need for the public and private sectors and Civil Society Organizations (CSOs), as well as academia and scientific and research institutions, to work more closely with strong collaboration for integrating disaster risk into their management practices. The collaboration will allow for harnessing the expertise of each partner and to use limited resources in a cost-effective manner. The sharing of lessons among partners either in-country or abroad also has the ability to significantly improve learning among diversified groups. Hence, the EDRMC is expected to effectively coordinate all actors to discharge their roles and responsibilities in a timely and outcome-oriented manner.

“Coordination failure” is said to have occurred when collaboration and coordination are not successful. Coordination failure is a very expensive phenomenon that leads to duplication of efforts, and resource (human, material, financial) wastage. Why do coordination and collaboration fail? It is mainly because collaborators and coordinators do not understand the underlying principles that govern coordination and collaboration, or they ignore them. To contribute to the efforts to improve coordination and collaboration, this strategy and roadmap puts forward certain principles and expects that actors understand and abide by them.

Table 6: Coordination Principles and How they Apply to EDRMC and Partners

Principle	Application to EDRMC and Partners
Common vision/goal	Partners should internalize and share the country's DRM vision as stated in the EDRM policy and strategy.
Effective and inclusive communication	Partnership works better when communication is effective (timely, clear, and relevant). Communication should not leave any partner out. All partners are equal.
Defined roles and continuity of partnership	Roles and responsibilities should be defined clearly and aligned with overarching responsibilities such as constitutional and proclamations defining powers and duties of executive organs. This should contribute to sustained partnership.
Accountability and joint decision making	Partners are accountable to their institutions as well as to the joint decisions made during the partnership. This has to be well balanced.
Supportive environment and feedback mechanisms	All partners are equal, but some may require support to accomplish their tasks. The partnership must be supportive. The feedback given should be candid.
Innovation and knowledge share	The partnership should be perceived as a place of learning. It needs to be innovative to keep the partners invested and working together.
Leadership	The partnership requires strong leadership. If this is lacking, the partnership will lose purpose.

Source: Based on Bose, et al. (2016) and the PSNP-NGO Platform Guidance Note; adapted from the version in Alinea International (2021)

- Inclusive approach: Vulnerable community members (e.g., women, persons with disabilities, elderly, and poor people) have different experiences when it comes to disaster risk because of their limited resilience capacity. Hence, the DRM and CCA research and training thematic issues will promote gender equality and social inclusion to address the knowledge gaps of DRM staff and stakeholders. Much attention will also be given to adequately enhancing the participation of vulnerable groups in research and training activities at all levels of the government structure.
- Transparency and accountability: The multi-stakeholder DRM approach demands all stakeholders achieve the goal of DRM. The realization of the research and training strategy also depends on the level of engagement of stakeholders. Usually, DRM and CCA activities are being done with a steering committee composed of various sectors' representatives. To ensure their engagement in a sustainable manner, accountability and transparency mechanisms (e.g., memorandum of understanding) shall be in place for training and research activities, particularly with academic and research institutions.
- Phase-based approaches: The 5-year roadmap will be implemented as a preliminary phase comprising the launch, optimization, intensification of the research and aspirations for excellence. The phase-based approach will make assumptions in such a manner that priority actions are preceded with actions that will need to follow in order of importance. This will be accomplished through maintaining geographic balance and environmental diversity and maximizing the opportunities of enabling policy and legal environments.
- Project-approach for selected actions: While most training and research actions will be undertaken so as to mainstream them as ongoing development activities, some actions or group of actions in the training and research roadmap will be undertaken as time and budget-bound projects or pilots to ensure that scaling up into development activities is informed by cycles of action-reflection-action.

- DRM and CCA mainstreaming: As a multi-disciplinary subject, different sectors are required to integrate and mainstream DRM activities based on the roles and responsibilities assigned to them by legislation. In this regard, research and training issues related to DRM can be mainstreamed by sectors to enhance knowledge and skills of experts for the successful implementation of DRM activities.
- Capacity building: Equipping DRM staff and stakeholders with the required knowledge and skills on DRM and CCA is one of the key objectives of this strategic roadmap. Hence, the EDRMC, in collaboration with its line offices and other partners, will run DRM trainings as per the prioritized training

needs. The learning opportunities in-country and abroad will also contribute to the realization of the capacity building objective of the roadmap.

3.5 Potential Collaborators in DRM Research and Training

EDRMC’s Study, Research and Training Directorate will need to collaborate with well-established DRM training and research institutes. Some examples are provided in Table 6.

Table 7: Examples of Potential Collaborators

Major Research/Training Areas	
ACDRM	<ul style="list-style-type: none"> ▪ Community-managed DRR ▪ School-managed DRR ▪ DRM and climate change ▪ Environmental management system ▪ Green House Gases- Measurement, Reporting, and Verification ▪ Environmental impact assessment ▪ Geographical Information System
Bahir Dar University	<p>Disaster Risk Reduction</p> <ul style="list-style-type: none"> ▪ Hazards, disasters/risks, and vulnerability/resilience ▪ Risk/emergency management and resilience governance ▪ Risk profiling and management of various livelihood strategies <p>Livelihoods, Food Security and Development</p> <ul style="list-style-type: none"> ▪ Livelihoods security ▪ Food security and insecurity ▪ Poverty ▪ Resilience ▪ Resilience to food/livelihood insecurity ▪ Shock impacts and coping strategies ▪ Relief and development

Major Research/Training Areas	
Bahir Dar University	<p>DRM and CCA</p> <ul style="list-style-type: none"> ▪ Climate variability/change and adaptation options ▪ Agro-ecosystem-based vulnerability mapping and land use planning ▪ Early warning system for enhancing agricultural production ▪ GIS and remote sensing technologies for climate science and development ▪ Drought monitoring and analysis and disaster reduction through weather index-based crop insurance <p>Cross-cutting Issues</p> <ul style="list-style-type: none"> ▪ Migration and internal displacement ▪ Health environment and DRR ▪ Conflict prevention and management ▪ Gender, disaster, and development ▪ Special needs (vulnerable groups in DRR) ▪ Emerging social issues/traffic accident, corruption, crime, and terrorism ▪ Occupational hazards and safety
Jigjiga University	<ul style="list-style-type: none"> ▪ Vulnerability and adaptation to climate change ▪ Food security analysis and livelihood diversification ▪ Conflict management ▪ Land use land cover change ▪ Natural resource management practice ▪ GIS-based livestock mobility route mapping ▪ Flood, and drought analyses ▪ Development project evaluation studies such as Productive Safety Net, and villagization programs
Samara University	<ul style="list-style-type: none"> ▪ Climate change ▪ GIS for DRM ▪ Conflict sensitive development
Bangladesh Disaster Preparedness Center¹¹	<ul style="list-style-type: none"> ▪ Training of Trainers on Disaster Management ▪ Basic Training on Disaster Management ▪ Basic Training on Disaster and Gender
Asian Disaster Preparedness Center¹²	<ul style="list-style-type: none"> ▪ Generic courses ▪ Hazard-specific courses ▪ Tailor-made courses

¹¹ <http://www.dsm.du.ac.bd/>

¹² <https://www.adpc.net/igo/contents/Publications/?tagDoctype=32&tname=Training%20Manuals,%20Toolkits%20and%20Handbooks>

3.6 Significance of EDRMC's Research and Training Roadmap

The DRM/CCA research strategic roadmap aims to:

- ✓ **Keep EDRMC and its partners updated on progress:** The roadmap keeps every stakeholder of the EDRMC updated on the progress of the DRM/CCA activities. Each partner will be able to understand where the EDRMC is in terms of training and research at any given time, and how long it might take to get where it is supposed to be. At the same time, it also stipulates the steps to be taken to achieve research and training objectives.
- ✓ **Help EDRMC in mobilizing resources:** The roadmap displays every step that the EDRMC is supposed to take to meet its goals. Henceforth, this roadmap will play a significant role in mobilizing the various DRM stakeholders to achieve the corporate objectives of the EDRMC and beyond as relevant and appropriate.
- ✓ **Maintain EDRMC's focus:** The roadmap outlines the resources needed and direction necessary for EDRMC to meet its goal. It will help EDRMC maintain focus.
- ✓ **Improve EDRMC's communications and learning:** The strategic roadmap also serves as a means to disseminate crucial communications within the EDRMC's various structures. The roadmap summarizes EDRMC's strategy and planned actions in terms of DRM/CCA research and training.
- ✓ **Identify limitations and gaps:** The roadmap may also help in identifying gaps and other limitations in the system and serves to minimize confusion and unnecessary time wastage that often arises when executing an organizational goal and objectives.
- ✓ **Enforcement of DRM mainstreaming in all sectors:** Its comprehensive nature also helps to align investments and research themes together with organizational goals and strategies. In doing this, the roadmap expedites the execution of those services, making it easier for the various EDRMC stakeholders to work together.

- ✓ **Expedite consensus:** Some DRM tasks require consensus among various stakeholders. The roadmap will help them to reach consensus. It does so primarily by displaying the tasks that EDRMC is currently on, as well as what the various DRM partners need to do to help the EDRMC reach its overarching goals.

3.7 Strategy and Priority Interventions Phases

3.7.1 Priority Interventions for Research

The Study, Research and Training Directorate of EDRMC is one of the key structures envisioned to bring practical changes in generating data and evidence as well as increasing the knowledge and understanding of the staff working on DRM, including various stakeholders in the private sector, CSOs, and the community at large. It has been primarily established to address the research needs of the sector and to enhance the capacity of its staff and stakeholders through in-house and other opportunities for the overarching goal of creating resilient communities in Ethiopia.

The EDRMC research roadmap will have different research strategies that will allow the management of the entire course of the research program. These strategies shall be put into practice for different areas of interventions and phases of implementations. It has been proposed that these strategies will make up stewardship and leadership; the operationalization of training and research strategy and introduction of new approaches and tools; capacity building and enabling environment; communication, collaboration, networking, and partnerships; and monitoring, impact assessments, evaluation and learning (Table 8). There are a several phases for the implementation of various research strategies. These phases would encompass the optimization, intensification of interventions, and establishing DRM/CCA research as Center of Excellence phases.

Table 8: Training & Research Strategies, Interventions, and Implementation Phases

Strategic Actions	Interventions/Specific Activities	Milestones	Stakeholders	Implementation Phases		
				Optimization	Intensification	Establishing DRM/CCA Research as Sub-regional Center of Excellence
Developing stewardship and leadership	<ul style="list-style-type: none"> Political commitment and leadership Domestic financing – prioritization of resources for research as appropriate In-house staff and community engagement Improving systems to gauge the behavior and practices of in-house staff in the context of standardization of training and research orientation Establish professional advisory board for the DRM Study, Research and Training Directorate that provides strategic guidance Cross-organizational and cross-border collaboration (international borders) and private sector engagements 	<ul style="list-style-type: none"> Level of commitment of stakeholders Level of community engagement 	<ul style="list-style-type: none"> Political leaders Training institutions Private sectors International organizations 	2022-2025	2026-2030	2031-2037
Operationalizing research and introducing new approaches and tools	<ul style="list-style-type: none"> Review EDRMC's in-house capacity, and availability of evidence on appropriate new tools and technologies for local use Monitor the effectiveness of existing training and research needs and approaches Assess overall program implementation status Undertake assessment of DRM partners and community engagement and their comparative advantages Set research agenda and priority training courses in collaboration with key partners and stakeholders 	<ul style="list-style-type: none"> Number of review meetings Effectiveness of research initiatives Number of assessments 	<ul style="list-style-type: none"> EDRMC's stakeholders Research institutions Academia 	2023-2025	2026-2030	

Strategic Actions	Interventions/Specific Activities	Milestones	Stakeholders	Implementation Phases		
				Optimization	Intensification	Establishing DRM/CCA Research as Sub-regional Center of Excellence
Capacity building and developing an enabling environment	<ul style="list-style-type: none"> Ensure minimum staffing requirement for Study, Research and Training Directorate For the later steps of the research, restructure EDRMC in-house capacity in line with interest, competence, and potential Plan, design, and roll out on-the-job trainings, focusing on training and research, research program management, monitoring and evaluation, learning, advocacy, and communication Strengthening systems to ensure maintenance and improvement of existing management of organizational resources in line with training and research needs 	<ul style="list-style-type: none"> Minimum staffing requirement Availability of training plan Improvement of management practices 	EDRMC and DRM focused sectors	2022-2025	2026-2030	2031-2037
Establishing communication, collaboration, networking, and partnerships	<ul style="list-style-type: none"> Ensure partners re-orient their contribution and roles towards DRM/CCA research directions Revise the vision, mission, and expected interventions/outputs together with key stakeholders and confirming expectations Synchronize research and training priorities with DRM-SPIF pillars and program components Align strategies and resources of the partners with the national roadmap Map partners and their comparative advantages considering DRM/CCA research Sign MoU with key DRM partners to ensure long-term commitment and mobilization of predictable resources Include non-DRM/CCA sectors in the wider DRM coordination mechanism and conducting regular partnership meetings 	<ul style="list-style-type: none"> Number of partners who re-orient their participation Number of partners who aligned their resources to the national roadmap Number of MoUs signed 	EDRMC's partners		2026-2030	2031-2037

Strategic Actions	Interventions/Specific Activities	Milestones	Stakeholders	Implementation Phases		
				Optimization	Intensification	Establishing DRM/CCA Research as Sub-regional Center of Excellence
Monitoring, impact assessments evaluation and learning	<ul style="list-style-type: none"> Putt mechanisms in place for monitoring the performance of the program Establish guides on tailoring of resources, instituting SMART impact indicators Establish monitoring and evaluation legal framework Strengthen program management Conduct regular reviews both internally and jointly with DRM/CCA partners Organize impact assessments, including real-time evaluations 	<ul style="list-style-type: none"> Placement of monitoring plan Availability of monitoring and evaluation, and learning guidelines Number of review meetings Number of impact assessments conducted 	EDRMC and its stakeholders	2022-2025	2026-2030	2031-2037

Programmatically, optimization will require implementation of the following measures:

- Targeted application of DRM training and research in selected and priority thematic fields.
- Establishment of systems that will ensure gradual training and research management in a move towards universal coverage of training and research.
- Establishment of peer DRM training and research institutes, including those overseas, through online and face-to-face training and learning approaches.
- Effective advocacy, communication, and mobilization of stakeholders to optimize uptake of training and research interventions and enhancement of research-seeking behaviors both within the EDRMC and among its key partners.
- Strengthening existing monitoring, evaluation and learning practices to assess progress and impact.

- Organizing national and sub-national platforms that facilitate political commitment and community engagement at all levels.
- Strengthening the overall training and research program management.

3.7.2 Priority Interventions for Training

The roadmap identified that the DRM staff has low awareness on DRM and CCA at all levels even though the level of understanding varies from the lower to higher level government structure. In addition, the issue of limited collaboration and coordination among the various stakeholders and partners requires actions for improvement. Based on the observed gaps, priority actions are proposed in Table 9.

Table 9: DRM/CCA Training Strategic Actions

Priorities	Descriptions	Specific Actions	Timeline			Milestones	Stakeholders Engage
			Short-Term (2022-2025)	Medium-Term (2026-2030)	Long-Term (2031-2037)		
Increase the knowledge and skills of DRM staff on DRM and CCA	DRM staff at all levels have limited KSA towards DRM and CCA. For this reason, enhancing the capacity of DRM/CCA staff and stakeholders through trainings has been identified as one of the priority areas of the roadmap. The training needs have been identified by the TNA and arranged in a prioritized order. The prioritized training themes are different across regions because of the unique experiences of disaster risks in the regions which emanated from its agro-ecological zones and their respective locations. These trainings are classified under themes that provide knowledge from the perspective of DRM policy and DRM-SPIF.	<ul style="list-style-type: none"> Prepare training plan based on the prioritized training needs (2022) Established Advisory board and develop terms of reference (2022) DRM reaserch road map and training curriculum review (2022) Develop training modules for priority courses (2022-2023) Identify and decide training participants to be included (2022-2037) Recruit experienced trainers (2022-2037) Arrange logistics (2022-2037) Conduct pre- and post-tests (2022-2037) Undertake training impact assessment (2022-2037) Establish training hubs at federal and regional levels (2026-2037) Define collaborative DRM research priority areas with key stackholders (2022-2025) 				<ul style="list-style-type: none"> Number of trainees Number of training themes Quality of the trainings Number of trainees who practically applied the training at the grassroots level Level of knowledge, skills, and attitudes of DRM staff, stakeholders and the community 	<ul style="list-style-type: none"> EDRMC and its line offices staff Stakeholders Research and academic institutions CSOs Private sector

Priorities	Descriptions	Specific Actions	Timeline			Milestones	Stakeholders Engage
			Short-Term (2022-2025)	Medium-Term (2026-2030)	Long-Term (2031-2037)		
Establish collaborations and strengthened networks with partners for collaborative training	It is very challenging to address the identified training needs by the sole efforts and in-house capacity of EDRMC due to resource and human resource limitation. Accordingly, establishing partnerships, and opportunities for collaboration and networking is vital to address the training needs of EDRMC and its stakeholder's staff. The collaborations may take different forms. Some may assist the commission by providing trainings either in face-to-face or online mode and some others may support financially for the planned trainings.	<ul style="list-style-type: none"> Identify areas of collaboration (2022-2023) Sign MoU with partners/stakeholders for the provision of collaborative training (2022-2023) Organize joint conferences learning events, conference, seminar collaboration with training and research network on specific thematic area (2022-2037) Organize south-south learning and knowledge exchange visit (2023-2037) Development and documdnetations of knowledge products and data base (2022-2037) Standardize scientific information communication system on DRM (2026-2030) Joint Resource mobilization with universities and research institutes for academic and operational research on DRM thematic area (2022-2037) Define overseas short term training areas (2022-2025) Monitor the effectiveness of the collaboration (2025, 2030, 2037) Monitor the effectiveness of the training jointly with partners (2025, 2030, 2037) Define the effectiveness/ efficiency measures for the identified research and training packages (2026-2037) Design and build internal training resource persons and units in key thematic areas (2026-2037) Strengthen the training unit to meet the capacity building needs of lead sectors (2026-2037) 			<ul style="list-style-type: none"> DRM-focused sector offices Academic institutions particularly universities Private sector Civil society organizations Research institutions abroad 		

3.8 Complementary Strategies for the DRM Research and Training Roadmap

A key principle of the roadmap is to utilize existing mechanisms and to leverage EDRMC's activities to realize the DRM's vision. The roadmap seeks to maintain and enhance existing partnerships, to establish new ones where necessary, and if appropriate forge links to external projects, programs, and initiatives. The EDRMC Study, Research and Training Directorate focuses on DRM and CCA priority activities. It will be the primary implementing agent for the roadmap and will provide support and coordination. Considering the staffing level, the commission will deploy experienced experts for the successful implementation of the roadmap.

To effectively implement the strategy and roadmap, the following additional strategies are required, and existing strategies must be aligned with the roadmap.

i) Communications and advocacy strategy

To achieve the objectives of the roadmap, adequate, up-to-date, and regular information for EDRMC's partners and stakeholders, line ministries, and regional bureaus is required. The presence and utilization of basic information-communication strategies, such as functional woreda nets, updated websites, and learning portals are helpful to easily communicate between partners and stakeholders working in the areas of DRM and CCA. EDRMC's staff must understand the benefits of the research products, training interventions, and the required collaboration. User interface mechanisms will need to be established or enhanced to collect feedback from research and training service users. The EDRMC's official website will serve as a primary communication channel for sharing training documents and dissemination of research outputs. It will include regular updates on the roadmap implementation status.

In addition, progress reports on the implementation of the roadmap will be sent to all government line offices to which it is accountable and accorded horizontal relationships with funding partners. Relevant events, activities, documents (e.g., work plans, deliverables, etc.) as well as general information material (e.g., fact

sheets, DRR program leaflets, posters, etc.) will be made available on its website.

ii) Partnerships and networking strategy

The analysis of the existing system in Ethiopia highlights that the country has developed roles and responsibilities of different institutions and established policies mandating risk assessment. There is a general understanding of hazards, exposures, and vulnerabilities at the country level. Archives of historical data related to floods and droughts, as well as other hazards, are currently in the process of being incorporated into risk maps.

By considering the needs and demands of having robust and proactive sectors of the national government and taking the possible opportunities such as the Growth and Transformation Plan (GTP), a nationally harmonized education curriculum, Disaster Risk Management Technical Working Group (DRM-TWG)), and a higher education development program, the EDRMC should address the challenges coming from an under-developed culture of interdisciplinary research to better mainstream DRM within its house and to the wider DRM partners. To facilitate the exchange of information and research results between universities and other stakeholders, including enhanced documentation and knowledge management, there is a need to make use of the already existing opportunities such as International Day for Disaster Reduction and DRM TWG, which would strengthen linkages between DRM research institutes, EDRMC, and its partners.

EDRMC is dedicated to working in partnership with stakeholders, such as international agencies, national and local governments, non-governmental organizations (NGOs), academia, the private sector, and the media to engage in networks and other collaborative efforts to meet the objectives outlined in this roadmap.

iii) Funding strategy

To undertake the prioritized research and training themes, budget allocation is required from various sources. The budgetary allocation can be from the government, funding partners, and research and training

institutes based on their areas of interest. The resource mobilization effort of EDRMC for strengthening its Study, Research and Training Directorate requires a rigorous lobby and advocacy intervention to convince funding partners of the benefits of research and for effective and efficient DRM. The support from funding partners and networks can also be in the form of technology transfer and collaborative training and research. Nonetheless, the funding advocacy works needs some kind of startups from EDRMC and other sectors so that the commenced research and training works could serve as a means of lobbying the national and international funding agencies support.

3.9 DRM Research and Training Roadmap: From Implementation to Measurement

The overall progress of the research and training roadmap will be measured by using milestones and indicators. Based on the set milestones and indicators, EDRMC will undertake regular roadmap implementation monitoring with the participation of its stakeholders. This approach will enable EDRMC to track changes observed on the roadmap implementation and accordingly learning will be properly documented for future intervention.

3.9.1 Disaster Risk Management Research Milestones

Roadmap milestones are also effective scheduling tools that help to track outcomes at a significant point in time during the roadmap implementation cycle. The proposed research roadmap of the EDRMC is accompanied by milestones/indicators. In general, milestones help to improve program delivery, facilitate communication with stakeholders, serve as check points, keep stakeholders and EDRMC staff on track, and improve team engagement. The suggested EDRMC strategic research milestones' development has taken the availability and use of stock of lessons and best practices from existing research institutions and its working modality with partners as key factors of success. Hence, the proposed research milestones for EDRMC include Preliminary Analyses, Research Design,




Testing and Analyses, Management and Leadership, and Research and Development.

3.9.2 Disaster Risk Management Research Milestones Tracking Mechanisms

The roadmap is accompanied by milestone tracking mechanisms. These milestone tracking mechanisms will have trend analyses indicators that correspond to each milestone. The indicators are intended not only to track trends but also to serve as a combined tool for monitoring the other dimensions of the roadmap along with other features. The following milestones are suggested as a preliminary tool for indicators of trend analyses, thus, management and leadership, research and development, testing and analyses, research design and preliminary analyses are forwarded as key milestones (Table 9).

By establishing key milestones and trend analysis indicators, the hypothetical graphical presentation (Table 9) will help guide EDRMC on how to proceed from one milestone to another, while keeping the integrity of the indicators and envisaging the trends of the indicators as overtime.

Table 10: EDRMC’s Research and Training Strategic Roadmap Key Milestone Trend Analyses

Key Milestones	
 <p>Management and Leadership</p>	End of initial launch phase of research, and transitions to being sub-regional center of excellence
	All-encompassing stakeholders’ consultations – feedback review
	Internal critical review and appraisal of the overall research set-up, collaborations, contributions and linkages to emerging and changing priorities
 <p>Research Design Systems Development</p>	Ongoing monitoring, real-time evaluation, and learning, and reporting tasks
	Kick-start of on-going research activities, and delivery of research outcomes
	Communication and advocacy
	Coordination, collaboration, and networking through existing national and sub-national DRM platforms
 <p>Preliminary Analyses</p>	Inaugurations and launch of research, consultation with DRM stakeholders, including the private sector
	<ul style="list-style-type: none"> ● Operationalizing research and introduction of new approaches and tools ● Resources acquisition and systems development ● Establishing database ● Designing software ● Testing and analyses
	<ul style="list-style-type: none"> ● Interface design within EDRMC and amongst the DRM partners ● Establishment of research center ● Review and development of existing research baseline ● Staffing and logistics arrangements

3.9.3 Research Strategies Roadmap Timeline

The strategic research and training roadmap implementation timeline will have paramount significance in supporting EDRMC in accomplishing the planned activities in a timely manner. Some of these principles of the timeline include:

- As high-level focus on the roadmap increases, the emphasis on deadlines and timeframes will decrease.

- As the tactical focus of the roadmap goes up, the emphasis on deadlines and timeframes will increase.
- The more the roadmap’s audience focuses on tactical details, the greater the emphasis it places on timeframes and dates.
- The more the strategic mapping seeks to manage expectations, the less of the emphasis it places on timeframes and dates.

Figure 3: Research and Training Strategy Timelines

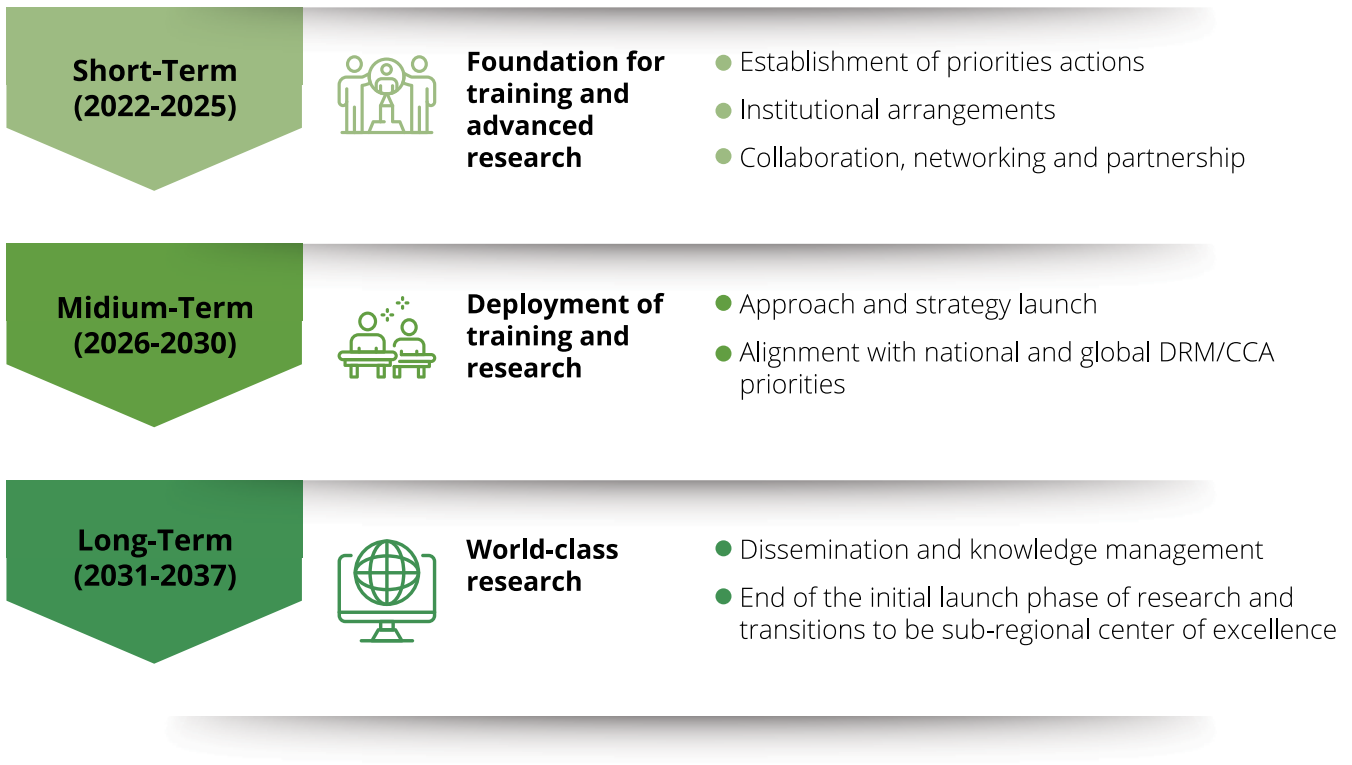
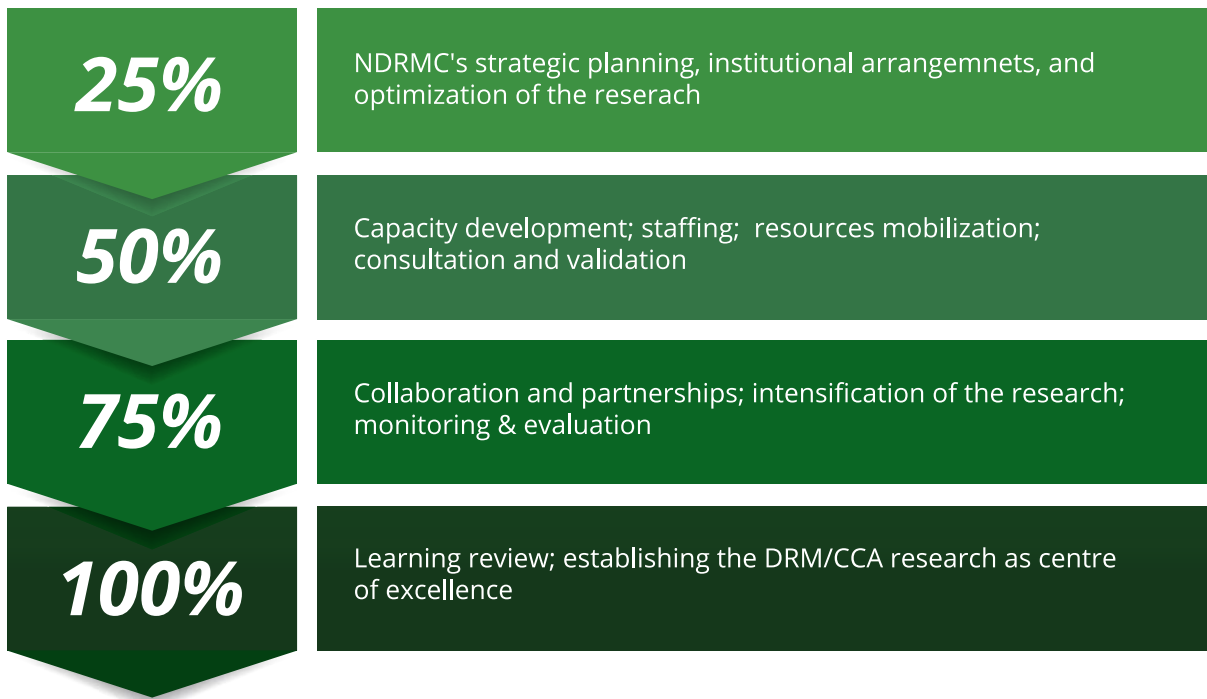


Figure 4: DRM/CCA Research and Training Roadmap with Proposed Accomplishment Rates



3.9.4 Monitoring, Evaluation, and Learning

One of the vital means of monitoring the proposed EDRMC's training and research roadmap is the regular follow up and assessment of accomplishments. Various monitoring tools based on the research and training themes will be employed both for in-house and international monitoring and management of accomplishments. A joint monitoring tool for EDRMC and its strategic partners, in line with the transparency and accountability requirement of training and research program, shall also be established. The training and research initiatives for delivery, collaboration, and excellence at the higher level will be monitored hierarchically to measure accomplishment patterns. The various accomplishment patterns will be given a set

of proportions to look at what proportion of planned activities have been undertaken and in what rates. Some of the broad levels of performances to be rated include: EDRMC's strategic planning, institutional arrangements, optimization of the research; capacity development, staffing, resources mobilization, consultation, and validation; collaboration and partnerships, intensification of the research, monitoring and evaluation, and learning review, and establishment of the DRM/CCA research as center of excellence. The evaluation and learning process and outputs will be an essential lesson for the potential efficacy and effectiveness of the DRM programs, projects, and portfolio.

Annexes

Annex 1: DRM Research and Training Principles Explained

1.1 DRM Research Principles

Source: <https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm> (accessed 6.11.21)

1. Objectivity

Strive to avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, grant writing, expert testimony, and other aspects of research where objectivity is expected or required. Avoid or minimize bias or self-deception. Disclose personal or financial interests that may affect research.

2. Integrity

Keep your promises and agreements; act with sincerity; strive for consistency of thought and action.

3. Carefulness

Avoid careless errors and negligence; carefully and critically examine your own work and the work of your peers. Keep good records of research activities, such as data collection, research design, and correspondence with agencies or journals.

4. Openness and transparency

Share data, results, ideas, tools, resources, disclose methods, materials, assumptions, analyses, and other information needed to evaluate your research. Be open to criticism and new ideas.

5. Accountability

Take responsibility for your part in research and be prepared to give an account (i.e., an explanation or justification) of what you did on a research project and why.

6. Intellectual Property

Honor patents, copyrights, and other forms of intellectual property. Do not use unpublished data, methods, or results without permission. Give proper acknowledgement or credit for all contributions to research. Never plagiarize.

7. Confidentiality

Protect confidential communications, such as papers or grants submitted for publication, personnel records, trade or military secrets, and patient records.

8. Responsible Publication

Publish to advance research and scholarship, not to advance just your own career. Avoid wasteful and duplicative publication.

9. Respect for Colleagues

Respect your colleagues and treat them fairly.

10. Social Responsibility

Strive to promote social good and prevent or mitigate social harms through research, public education, and advocacy.

11. Non-Discrimination

Avoid discrimination against colleagues or students based on sex, race, ethnicity, or other factors not related to scientific competence and integrity.

12. Competence

Maintain and improve your own professional competence and expertise through lifelong education and learning; take steps to promote competence in science.

13. Legality

Know and obey relevant laws and institutional and governmental policies.

14. Public good

Research may be divided into two: basic and applied. It is generally accepted that basic knowledge, the result of basic research, is a public good. For the purpose of this strategy and roadmap, all research outputs are public good.

1.2 DRM Training (adult learning) Principles

Source: <https://www.valamis.com/hub/adult-learning-principles> (accessed 6.11.21)

When creating any sort of learning program for an organization, these principles should be kept in mind, and learning resources should be developed using them.

1. Adults have a higher sense of self-direction and motivation

Adult learners are much more self-directed and motivated than young learners. Adults tend to learn because they want to or they see the direct benefit of learning, rather than because they are told to or are expected to. However, just because adults have a larger reservoir of motivation, it doesn't mean that they will learn just anything. Adults must see the benefit, value and purpose of learning. Learning programs should clearly demonstrate what the learner gains from their interaction, or learners will be quick to disengage. Show the value of the content, and learners will be much more likely to engage with it.

2. Adults use their life experience to facilitate learning

Adults, of course, have more experience than children. Adult learners rely heavily on their experiences when they engage in learning, and they benefit from training programs that understand this. Content that draws from real-world examples, relatable scenarios and builds on direct experience will lead to a more meaningful understanding of the subject. Although using existing experience can help adults more quickly understand new information, there is a downside. The experience that learners draw from might be outdated, incorrect, biased, or incomplete. Learners should be aware of these common challenges and know how to guide themselves to new conclusions. Understanding how to search for resources, expert opinions, proven data, and

relevant publications is a key skill that an adult learner will need to use.

3. Adults are focused on achieving goals

Adults enter the learning process focused on results. They need to know how the information will help them achieve their goals, whether personal or professional. In designing learning programs, instructors need to keep this in mind and make sure that the learner is given plenty of tools and information that will help them reach their goal. The learner, however, also plays an essential role in this. They need to set clear, achievable goals for themselves, and be driven to engage with the content to reach their goals. Adult learners will be energized and motivated when they see how the content, they are engaging with will help them reach their goals. This energy can be harnessed and used to drive the learning process, leading to better results.

4. Adults need to know how the information is relevant

To properly engage a learner, the relevancy of the information within the training program must be highlighted. So, both the immediate, short-term relevancy and the long-term benefits of engaging with the content should be highlighted in such a way that the learner will immediately dedicate themselves to learning. For example, if a training program is being developed to up skill managers, the short-term relevancy might be that they will better understand core leadership principles. The long-term benefit is that they will become a more skilled leader and be better able to reach departmental goals. The short-term relevancy will demonstrate what they will learn in the course that is pertinent to their role. The long-term benefit is how that knowledge will make them better at their role. While some learners might enjoy learning for the sheer joy of knowing something new, adults are far more likely to engage with learning that shows a clear relevance for them, whether it is something related to their goals, role, job or hobbies.

5. Adults are practical

When developing a training program, keep in mind that the knowledge gained should be applied immediately. Adults learn quickly and remember what they learn when they can turn around and apply that knowledge in their role. Learning materials should be constructed with

practical examples, using real-world scenarios and problem-solving that requires learners to access their experience and knowledge. Allow learners to set their pace and allow them to forge their own path. Online learning is well suited for this type of learning, as learners can access learning content on their own schedule. This type of knowledge acquisition will ensure that the learner remembers the content much more fully than with more static methods.

6. Adults are looking for help and mentorship

Adult learners understand that looking to an experienced role model will help them in their learning journey. As an organization develops its training program, creating opportunities for mentorship can add a great amount of value for both the mentor and mentee and has the added bonus of developing relationships within and across teams. Learning by example is a powerful way of accessing new knowledge, allowing learners to quickly gain information, and simultaneously avoiding common mistakes.

7. Adults are open for modern ways of learning

Adults are flexible when it comes to how they engage with knowledge. They understand that it can be gained in a variety of different ways and are willing to try new formats. By offering a variety of sources and options, an organization can ensure that all learners have access to learning content that engages them. When developing a training program, an organization should provide many types of content, such as online courses, blogs, YouTube videos, webinars, apps, and conferences.

8. Adults want to choose how they learn

Adult learners respond positively to self-directed learning. Being able to control how and when they learn means that they are more likely to be fully engaged with the content, rather than simply going through the motions of learning. Organizations should build their training programs in such a way that they grant learners an ownership stake in what they are learning. In doing so, they will find that the learners will give more effort into exercises, offer relevant feedback, and will be active learners. This can be done by allowing learners to choose their learning path in an online training platform or granting access to learning resources for learners to engage with at their own discretion. The more that the learner is involved, from the planning stages to evaluation to feedback, the more on board they will be with the entire process. Adult learners will respond negatively to being treated like a child, and with good reason.

Annex 2: Further Challenges Facing DRM Training and Research

Challenges	Possible EDRMC/Its Partners' Intervention to Address the Challenges	Existing Windows of Opportunities
<p>DRM, being an emerging field of study, teachers/ instructors in academia, and experts in DRMC and partner sectors have capacity gaps and limitations in different DRM thematic programs</p>	<ul style="list-style-type: none"> ▪ Initiating tailor-made capacity building program to enable all DRM actors and practitioners introduced with the issue of DRM ▪ Establishing peer support and collaboration mechanisms amongst the various academic institutions as coordinated by EDRMC ▪ Establishing learning platforms among different academic institutions with the facilitative role of EDRMC ▪ Supporting the existing community service practices of universities with training and research ▪ Enhancing knowledge exchange portal that function at various levels and across responsible sectors ▪ Establish a DRM research and training quality management system to ensure credibility of the DRM knowledge shared through portal system 	<ul style="list-style-type: none"> ▪ Presence of DRM programs in the universities ▪ Building on existing research wings of some governmental organizations like the Ministry of Forest and Climate Change and other key actors ▪ Examining the possibilities of enhancing the roles and mandate of the National and Sub-national DRM Coordination and TWGs to contribute towards addressing gaps ▪ Availability and interest of academic institutions to work in collaboration and partnership at the regional and federal levels ▪ The presence of community services in universities ▪ Existing regional, sub-regional network within Africa and other continent, for cross learning
<p>Lack of well-developed culture of interdisciplinary study/research activities-related to DRM</p>	<ul style="list-style-type: none"> ▪ Publicizing the importance of research and training in DRM through hard copies, websites, brochures, and posters ▪ Harmonizing research and community service DRM agendas by considering the needs and demands of EDRMC, and DRM sectors of the national government and DRM partners ▪ Institutionalizing DRM related thematic areas into the exiting national assessment tools ▪ Harmonizing the DRM research themes to the national prioritized research themes coordinated by MoE 	<ul style="list-style-type: none"> ▪ The presence of the GTP, National DRM Strategy, National Curriculum Harmonization, and DRM TWG ▪ Enabling University focal person would help the harmonization process, and higher education development programme ▪ Building the culture of training and research outreach and complementarities amongst key DRM partners through well-defined mechanisms and on accountability bases ▪ The issue of DRM research thematic areas are recognized nationwide that lead to the realization of multi-hazard research approach

Challenges	Possible EDRMC/Its Partners' Intervention to Address the Challenges	Existing Windows of Opportunities
<p>Weak links between universities and other stakeholders on knowledge management to facilitate exchange of information and research results</p>	<ul style="list-style-type: none"> ▪ Strengthening linkage between research institutes, universities, EDRMC, and its key DRM partners ▪ Establishing potential link by EDRMC with its peer DRM institutions in eastern Africa and beyond as a model for research and training ▪ Organizing joint conferences, symposiums on various themes, curriculum review and research product applications involving key stakeholders builds close working relationship among EDRMC, universities, development sector ministries and non-government partners 	<ul style="list-style-type: none"> ▪ International Day for Disaster Reduction, DRM-TWG/ National Early Warning Committee; ▪ Ongoing efforts in harmonizing humanitarian and development programming through national platforms, including higher level Strategic-Multiagency Coordination (S-MAC) and the Technical Multiagency Coordination (T-MAC).
<ul style="list-style-type: none"> ▪ Lack of Center of Excellence in selected thematic areas of disaster risks which serve as a go-to and reference point for DRM ▪ Lack of mechanisms, operational procedures, & approaches for engagement of stakeholders in research and training 	<ul style="list-style-type: none"> ▪ Need for EDRMC to establish Training and Research Directorate that closely works with the academia and local and international partners specializing in DRM ▪ Need for EDRMC to optimize the institutional memory of its in-house capacity, establish strong links with research institutions and assume leadership on DRM related fields ▪ EDRMC need to establish itself as the real time source of information and knowledge on DRM matters to indicate the dynamics, changing priorities and shifts, and to guide the direction of research on the bases of problem-solving approaches 	<ul style="list-style-type: none"> ▪ Growing interest and establishment of DRM Directorates/Departments/ Units within EDRMC and some higher education facilities ▪ The shift to automation information management system and leveraging technologies from DRM is an opportunity

Annex 3: Consultative and Validation Workshop



Group Photo at end of session



Group Photo at end of session



Group discussion



Participants photo during presentation

Technical review and inputs to DRM Research and Training Strategy

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55	Marko Lesukat	Team Leader - Specialist in Disaster Risk Management	European Union – Decentralization of Disaster Risk Reduction in Ethiopia Project
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