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The Sendai Framework provides a clear policy pathway for all actors, from governments to citizens, to prevent and mitigate shocks caused by natural and man-made hazards. By increasing the number of national and local strategies for DRR, countries across sub-Saharan Africa are meeting key targets of the Sendai Framework and moving forward on building resilience.

Africa’s high rate of urbanization and population growth, coupled with the reality of climate change, presents the continent with new and unfamiliar risks. In the face of changing intensity and frequency of hazards there is a need for concerted collective action at continental level to reduce disaster risk, build resilience and achieve sustainable development.

This third edition of the Af-RAR offers an update on the status of disaster risk in the region, and on the actions to address risks. It provides analyses of risk drivers that exacerbate impacts on populations, and explores the state of Africa’s disaster preparedness, including the level of uptake and application of the programme of action (PoA) for the implementation of the Sendai Framework in Africa. It also presents progress on DRR, highlighting home-grown innovations, research, experiences and good practices across the region.

This report is a key resource for understanding disaster risk and provides a benchmark for informing planning, decision-making and collective actions for achieving the targets of the Sendai Framework and goals in the 2030 Agenda. It comes at a time when urgent calls are being made by scientific community for prevention and mitigation of growing systemic risks. The report supports this call for collective action to address the climate risk that we face today. It provides reference material for DRR practitioners in Sub-Saharan Africa, including governments, policy makers, the academia and researchers: anyone working to safeguard the future living conditions for their populations by embracing change and transformation for a more resilient and well-prepared continent.
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Building knowledge

Reducing risks requires science-based and knowledge-informed DRR integrated within a coherent policy framework. This is because DRM is an area of public service whose performance depends on increasing knowledge of risk and its reduction. The Sendai Framework for Disaster Risk Reduction 2015–2030 also prioritizes the understanding of risk in all its dimensions as key to attaining resilience at all levels. Evidence from international regions with successful management of disaster risks shows that policymakers, communities and individuals are capable of managing the drivers of risk in their societies if they are well informed and determined to leverage the necessary political will and direction.

For effective risk reduction, comprehensive information and knowledge must be generated and made available on all impending or past risks, elements at risk, level of familiarity with the risk, and risk perception and risk management capacities and actions. This requires a shift from the current practice in Africa of static assessment of single-hazard risk to dynamic assessment of risk. Dynamic assessment needs to cover the complete and complex landscape of multiple risks and their interaction, such as simultaneous or cascading effects, through the method of cumulative risk assessment. Efforts need to continue at the national, regional, and continental levels to strengthen information management skills.
We need to continue improving capabilities for effective generation and management of risk information, and to benefit from new advances in data and information management. Partnerships with appropriate institutions would help to develop the required new skills to strengthen data collection, monitoring and evaluation systems to provide the evidence base for risk-related decision-making.

Ultimately, effective risk reduction depends on the actions of people – and people act as they know and with the resources they have. Therefore, it is important to increase people’s understanding of risk, their support for and acceptance of risk-reduction measures, and their commitment to act. To achieve this, risk information management systems need to be strengthened to enhance people’s receptivity to risk information, given the varying perception, knowledge and attitude to risk of different stakeholders. In particular, it is essential to ensure that messages are understandable, consistent, well packaged and appropriately targeted.

A resilient Africa needs robust science, technology and innovation for DRR. This requires strengthening the scientific and technological base for risk-informed DRR and integrating science into both policy and practice for DRM. The value of science for reducing risk is enhanced when it informs effective DRR strategies and policies through evidence that demonstrates that disaster risk can be reduced. Resilience can be enhanced through the application of science and technology (S&T) in disaster risk management. The contribution of S&T to generation and dissemination of risk information could be enhanced by strengthening: basic hazard monitoring and data infrastructure; scientific institutions and networks (such as Af-STAG); and risk data, information, experience and innovation-sharing. This requires policymakers to bolster science advisory mechanisms for DRR and promote partnerships and networks that develop S&T for DRR to step up the transition from science to policy. Also, science and technology institutions, networks and platforms can help to propel this transition by enhancing their roles in several fields. These fields include: risk monitoring, assessment and reporting; communicating scientific information effectively to policymakers to support policy decision-making on DRR; disseminating scientific and DRR documentation; and, developing communities of practice.

Showing evidence of the added value of a science-based approach to DRR and advancing S&T for knowledge-based risk management also requires strengthening DRR research in several areas. These include understanding hazards, exposure and vulnerability; early warning and multi-hazard monitoring; and risk assessment and management. In particular, research needs to be enhanced on the use of S&T tools, methods and standards for implementing and reporting on the Sendai Framework Programme of Action in Africa.

Better knowledge and stronger evidence are essential for building resilience through effective integration of DRR in risk management strategies and plans. Disaster risks are reduced both through stand-alone measures and as part of broader development objectives. To reduce existing risk effectively, and prevent the creation of new risk, countries need to emphasize development of DRR plans that more explicitly specify operational targets and stakeholder roles, as well as monitoring, assessment and reporting arrangements as a priority of Target E after 2020. Analytical initiatives to understand risk reduction through broader resilient programming should help to identify actions needed to address stand-alone DRR goals comprehensively. To strengthen planning and implementation of DRM operations, DRR capacity development, including training and re-training of personnel, should be sustained at all levels.
Successful implementation of mainstreamed DRR strategies and plans depends on effective, risk-informed decision-making by all stakeholders. To promote this, DRR strategies need to encourage individuals, communities and governments to recognize and accept their relative roles. This involves adopting a culture of prevention and self-protection, and balancing enforcement with incentives for self-regulation to improve compliance.

**Making solutions durable through consideration of the most vulnerable**

Effective integration of DRR in policy, planning and action requires inclusive DRR at the community level, and increasingly within urban contexts. This involves all population groups, particularly the most vulnerable, including women and young people.

The culture and practice of community-based action within DRM is well established in Africa, as exemplified by experience with community-based disaster risk management (CBDRM). To upscale effective community initiatives, and further grow the culture of community-led resilience, we need to prioritize local strategies and strengthen policy frameworks, institutional structures, capacities and the resource base for local risk reduction. Strengthening the policy environment for CBDRM will require: effective devolution and decentralization of DRR actions to the local level; involvement of community organizations; and incorporation of traditional knowledge in DRM practice. Ensuring and sustaining positive outcomes of CBDRM needs an all-state and whole-of-government approach, so that all institutions and stakeholders can collaborate and cooperate to achieve local resilience. In this way, people’s capabilities can be enhanced, and responsibilities expanded, for effective community disaster reduction actions at the local level.

Young people play major roles as key stakeholders in reducing existing risk, particularly at the local level. Recognition and awareness of their potential role in DRR needs to be transformed into active youth engagement in DRM. Young people need a conducive environment that enables leveraging of their many positive attributes for DRR, such as their energy, communication skills, social activism, innovation and entrepreneurial orientation. To enable young people to contribute to their full potential to community resilience, we need explicit integration of youth perspectives in DRR planning and action. We need better mapping of youth activities in DRR, and institutionalization of initiatives for youth engagement, such as those of the Africa Youth Advisory Board (AYAB) and youth resilience clubs.

Urban areas present both risk and opportunity. They also provide the setting for, and test of, risk-informed development because urban resilience requires measures to reduce both disaster risk from specific hazards and their underlying systemic risk threats. The key is to minimize risk factors in the urban setting while leveraging positive risk-conditioning attributes for risk reduction. Minimizing risk factors should emphasize effective DRR measures, including structural measures, climate and environmental risk reduction and risk transfer and social protection. Levering positive aspects of urban settings involves utilizing physical assets, services, knowledge and economic power, as reflected in the human capital base, diverse stakeholder groups and economies of scale in urban areas. Efforts to strengthen urban resilience in Africa are beginning to yield positive outcomes through initiatives such as the Making Cities Resilient (MCR) campaign. Such initiatives have contributed to progress in urban risk management and should be strengthened.
Mainstreaming gender equality and the empowerment of women is an essential task in considering vulnerable groups within inclusive risk-informed development. To fulfill this imperative effectively, DRR strategies need to incorporate explicit targets for achieving embedded gender objectives as well as mechanisms for assessing progress towards those goals. A key constraint is weak information on gender-responsive DRR in Africa. Addressing this paucity of information on gender-based DRR in the region calls for systematic development and dissemination of data disaggregated by gender, sex, age and disability, but also an in-depth assessment of gender-related systemic inequalities and vulnerability, so that these can be addressed by DRR programming and planning. We also need gender-sensitive guidelines and tools, such as gender markers for DRR.

To improve consideration of gender, civil society and non-governmental organizations, including women’s groups, need further support. This can be done through provision of technical capacities to mainstream gender in risk reduction and development programmes towards gender equality and empowerment in Africa. Above all, we need to minimize prejudices and ensure long-term commitment and dedication to the cause of gender-responsive risk reduction, to mainstream gender effectively in DRR strategy and practice for promoting resilience in Africa. This can be done by showcasing the cost-benefit of integrating gender concerns into risk reduction, and how much innovation potential is missed by excluding women and girls from the risk management planning process.

**Investment and practical action**

The assessment of progress of countries in achieving Target E of the Sendai Framework indicates that performance is weakest on strengthening investment in DRR for resilience. Overcoming this weakness to stimulate increased investment in DRR requires a multi-pronged approach, involving: strengthening the evidence base for positive returns to DRR investment; increasing and making more effective domestic financing; strengthening the policy framework for DRR investment; and increasing and sustaining access to mechanisms for financing DRR investment.

As a priority a dedicated analytical programme is required to generate the requisite information that shows that it pays to invest in DRR in Africa. The programme should also analyse other considerations that inform decisions to invest, such as effectiveness of risk communication, resource constraints and political factors.

There is a need to increase the availability and efficiency of domestic financing for direct DRR investment in Africa; as well as the tracking of such investments. Possible approaches include:

- specifically recording disaggregated DRR financing information in national budgets
- switching from viewing DRR investment as government budget financing to focusing on building incentive frameworks to catalyse private investments
- integrating a range of available financing sources through adoption of mixed financing
- implementing arrangements to coordinate all investment and funding sources
- developing guidelines for improving the efficiency of apportioning government budget financing across sectors, including directing resources to activities that most align national DRR objectives with the global frameworks for DRR, climate change adaptation (CCA) and the SDGs
Improving coherence of risk management and development policy frameworks is about creating synergies between development and disaster risk management frameworks, and ensuring coherent policy architecture at national and international levels. DRR strategies should be aligned with the Sendai Framework, and integrated with policy on development, humanitarian and climate themes. However, we find that promoting policy coherence relevant to DRR is also a relatively weak element of DRR strategies in Africa.

All the global frameworks have resilience at their core, and contribute to DRR. Therefore, for an integrated approach to DRR, it is necessary to strengthen coherence among the frameworks, for synergy. This will require: clear commitment to and leadership on pursuing coherence; explicit inclusion of coherence in DRR policy objectives and strategic actions; and sharing common understanding, backed by adequate data and information, of the policy frameworks, agreements and inter-linkages. We suggest also pursuing coherence as a programmatic activity with explicit objectives, strategic focus areas and governance mechanisms, including strengthened cooperation and coordinating arrangements, and common monitoring. This could be initiated by analysing the interlinkages and effects that current development approaches have on risk, or vice versa. It would also be helpful to undertake systematic stakeholder interaction within the various communities of practice, as well as collaborative planning and action between them. In particular, we recommend developing guidance on achieving coherence among DRR, CCA, the SDGs and the African Union’s Agenda 2063.

For effective coherence, we need pragmatic research to understand the typology, utility and challenges of different DRR entry points within the different frameworks. This in turn can inform guidance for countries on the choice and optimal mix of entry points to maximize coherence among them. Where countries choose to reduce disaster risks through measures that are part of broader resilience strategies, this analytical initiative can shed light on the implementation and outcomes of resilience processes. This could yield insights and lessons to guide future coherence among the different development agendas.
Introduction
Background

Countries in sub-Saharan have developed strategies, policies and institutional arrangements to protect the health, livelihoods and property of people and the environment in which they live from the impact of disasters. Given the increasingly complex nature of risk, expectations regarding risk reduction are high. Despite efforts to address risk, such as climate change, environmental degradation and increasing income inequalities, increasing inequalities in terms of access to social safety nets, basic services such as health and education, and continuing gender inequalities combined with inadequate risk reduction outcomes, have hindered progress in reducing risk and strengthening resilience in the region.

The UN Global Assessment Report on Disaster Risk Reduction (GAR) is the flagship report of the United Nations on worldwide efforts to reduce disaster risk and is published biennially by the UN Office for Disaster Risk Reduction (UNDRR). In parallel, the UNDRR Regional Office for Africa publishes the Africa DRR Status Report which has, this year, changed its name to the “Africa Regional Assessment Report (Af-RAR)”’. The aim of this report is to present an outline of disaster risk in the region and to detail actions being taken to address this risk. The report examines risk drivers that exacerbate impact on populations and analyses the state of Africa’s disaster preparedness, including the level of uptake and application of the Programme of Action for the implementation of the Sendai Framework in Africa (POA). Progress on disaster risk reduction (DRR) in terms of home-grown innovations, research, experiences and good practices are also shared. This report is therefore a useful benchmark for informing future planning and decision making based on disaster trends, historical knowledge and experiences and challenges encountered. The overall objective of the report is to serve as a key reference document for all including DRR practitioners, policymakers, the academia and researchers.

Approach to developing the Report

To develop Af-RAR 2020, UNDRR adopted a strategy of expanded engagement with institutions and agencies, as well as African experts, scientists, academia, professionals, DRR practitioners and stakeholders to share their knowledge, skills and expertise through this Report.

The Report is structured in three parts: Setting the scene; Possible lasting solutions, and Practical actions.

Part I. Setting the scene

The first part of this report describes the driving forces that have begun to change the landscape of risk management, or that are expected to do so in the coming decades. These include: conflict, displacement, urbanization trends, environmental changes (notably the wide-ranging impacts of climate change), technology-driven changes - from growing connectedness to scientific risks linked to recent technologies, and finally, socio-economic changes, ranging from rising poverty and inequalities, to transboundary shocks and food system risks. It highlights the growing threat of systemic risks and points to the need to address the full range of risks by adopting the systems approach to risk reduction.

In summary, Part I considers:

- Building the profile of natural and human induced-hazards in Africa
- Determining emerging risks since the last African Status Report on Disaster Risk Reduction (2015)
- Seeking a holistic understanding of the risk milieu by highlighting the complex nature of threats beyond hazard-induced disasters
- Identifying drivers for increased systemic risk, including the disaster-conflict interface
- Analysing factors of urban risk
- Highlighting progress, challenges and opportunities for building urban resilience drawing on evidence from Disaster Resilient Scorecards produced under the MCR campaign.
1 Status of disaster risks in Africa

This report builds the profile of hazards in Africa and identifies emerging risks since the last African Status Report on Disaster Risk Reduction (2015).

The most common disasters in Africa are technological, hydro-meteorological or climatological in nature. These include droughts, floods, storms and cyclones, infrastructure collapse, industrial accidents etc. Almost the entire Africa continent is vulnerable to droughts affecting adversely the highest number of people, livelihoods and food security. The chapter builds a disaster risk profile for the continent by describing hazards, exposure and vulnerability for 44 countries in sub-Saharan Africa over 2008-2018. The analysis emphasizes trends of hazards and their impacts. The chapter contextualizes not only biological hazards but also environmental and technological hazards and risks, reflecting the expanded scope of the Sendai Framework. The chapter also provides evidence of the effects of complex emergencies in the region by generating knowledge on the status and trends on hazard triggered displacements and other impacts in the continent.

2 Systemic risks

Chapter 2 develops ideas about systemic risks, highlighting the complex nature of threats that must be met by measures beyond traditional risk management. Systemic risk – disaster risk and its dynamic interactions with social, ecological, economic and political systems – generally refers to threats of damage or loss associated with the impact on or collapse of an entire system rather than failure of its individual components. UNDRR has defined systemic risk in GAR 19 as ‘risk that is endogenous to, or embedded in, a system that is not itself considered to be a risk and is therefore not generally tracked or managed, but which is understood through systems analysis to have a latent or cumulative risk potential to negatively impact overall system performance when some characteristics of the system change’. This definition is aligned to the notion of interconnectedness of social, economic, technological and biological systems that have transformed societies whilst creating new risks that are non-linear, unexpected and uncertain. GAR 2019 calls for increased efforts, political commitment and sustained funding and actions by all actors from governments to individuals with a better understanding of systemic risk. This more holistic understanding considers context and systemic characteristics of disaster risks. It argues that it is no longer enough to rely on historical data and observations to model present and future risk scenarios as we live in an era of increased human population, changing climate and the dynamic and global connectedness of biological and physical worlds, individuals and communities.

The chapter highlights the need to reduce systemic risks in Africa because of the significant threats they pose to sustainable development, given the increasing interconnectedness between global and continental economic and social systems, states of fragility and underlying vulnerabilities that compound the impacts of systemic risks on sustainable development. The chapter then presents key factors that condition systemic risks in Africa. These include transboundary shocks, risks related to population and urbanization, as well as to climate change. Other risks related to poverty linkages, technological hazards and the interaction between natural hazards and conflict are also considered.

Poverty is a key driver of risk. For example, rural-urban migration associated with increasing rural poverty and lack of opportunities in rural areas drives growing urbanization in developing countries. A lack of alternative livelihoods also drives increasing reliance on natural resources which in turn fuels erosion of ecosystems. This, as stated in GAR 2019, highlights the importance of systems and associated approaches in risk governance. Similarly, conflicts and disasters in Africa reinforce each other, thereby worsening human suffering and reversing development gains. Conflict and fragility increase the impact of natural disasters by increasing vulnerability to natural hazards, displacing people into areas more exposed to hazards and by directly impacting on physical and psychological health, basic service provision and the security of livelihoods. Building on the analyses on conflict-induced displacement in Chapter 1, this chapter adds knowledge on the interaction between natural hazards and conflicts and the systemic effects of that interaction on livelihoods and other risk-management factors in affected regions of the continent.

The complexity of risk is then illustrated through case studies of chain reactions linked to drought and the chapter concludes with approaches towards addressing systemic risks in Africa and the policy implications of the analysis.

3 Urban risks

Limited provisions of disaster risk-reducing infrastructure and services are exacerbating vulnerabilities and exposure to risk driven by rising urbanization across sub-Saharan Africa. Already, half of the world’s population lives in urban areas and one-third of the global urban population currently lives in slums. It is estimated that at least 61% of the global population will live in cities and over two billion people in the world will be living in informal settlements by 2030. Growth in urban settlement poses risks, particularly when it is associated with informal settlements, poorly planned and managed urban development, environmental degradation, poverty and inequality. The chapter establishes and explores these risks and associated pressure on infrastructure and services, focusing on vulnerabilities and exposure to hazards.

The chapter notes that growth in urban settlement also comes with opportunities as centres of intellectual, political, economic activity. A focus on urban settlement risk, therefore, creates real opportunity to leverage the benefits linked with urban expansion: economies of scale and the proximity of risk-reducing infrastructure and services such as clean water, sanitation, drainage, waste collection, health care and emergency services, and high-quality technical expertise and knowledge that cities often leverage to promote urban resilience.

Given the centrality of building resilient urban areas to promoting sustainable development, UNDRR and its partners launched the MCR campaign in 2010 based on the Ten Essentials for Making Cities Resilient, grouped into three resilience categories: the enabling essentials of governance and financial capacity, operational aspects of building resilience, and disaster preparedness, response and recovery. The chapter discusses the self-assessment conducted by 50 African cities/municipalities between 2017 and 2018 using the Disaster Resilient Scorecard to highlight the progress, challenges and areas for improvement in building urban resilience in Africa.
Part II. Towards durable solutions

From documenting existing knowledge of the risk landscape, the second part of the report moves to amplifying the roles of gender mainstreaming and science and technology for DRR.

It presents challenges and opportunities to consider when developing sustainable solutions, including factors that condition and facilitate DRR. This Part considers how to enhance inclusion and diversity in DRR by gendering disaster risk management (DRM) through the promotion of gender equality, identifying the advantages and success factors of this approach for improved risk-informed decision-making. The section also highlights strengthening the scientific and technical knowledge and information base of DRR towards knowledge-based risk reduction and risk-informed development.

This Part advocates and provides elements of a new policy approach to managing the response towards knowledge-based risk reduction and risk-informed development.

This Part considers how to enhance inclusion and diversity in DRR by gendering disaster risk reduction and risk-informed decision-making. The section also highlights strengthening the scientific and technical knowledge and information base of DRR towards knowledge-based risk reduction and risk-informed development.

This Part advocates and provides elements of a new policy approach to managing the response towards knowledge-based risk reduction and risk-informed development.

Part III. Practical actions towards DRR in Africa

Durable solutions to reduce risk require adequate investment to integrate local level DRR in development that is in line with the Sendai Framework and promotes policy coherence among DRR, climate change adaptation and the Sustainable Development Goals.

The report concludes by highlighting practical steps towards DRR and resilience in Africa, which can be taken as the overall theme of AFAR 2020. The Part considers investing in, and localizing, DRM as well as integrating DRR in disaster management strategies and practice in ways that promote resilient development through coherence among disaster reduction, climate change and sustainable development objectives.

Recognizing limited financial capacity as a major challenge to advancing DRR on the continent, this Part of the Report provides the case for, and ways of enhancing, investment in reducing risk. It discusses how community-based DRM can deepen stakeholder engagement, both as a means of sustaining DRM interventions as well as developing a sound scientific base for DRR, and how localizing DRM through community actions can be an entry point for integrating DRR in development. An assessment progress in meeting the Sendai Framework Target E presents opportunities to expand the mainstreaming of DRR for resilient development. The Part argues that effective mainstreaming of DRR requires policy coherence among DRR, climate change and sustainable development frameworks through enhanced national capacities to converge and synergize objectives across these policy domains in line with broader African and global objectives.
Part III considers:

- The economics of disasters, the trend in disaster costs and the evidence of the positive economic value and cost-effectiveness of DRR in Africa
- The status and trend in domestic resource financing for DRR, based on analysis of risk-informed budgetary resource allocation for DRR in Africa
- Mapping of the financial mechanisms used for investing in DRR on the continent
- Challenges and opportunities in investing in DRR in sub-Saharan Africa
- DRR themes pursued under various community-led resilience initiatives across the region
- Case study lessons for building local-level DRR and community resilience
- The role and potential of the youth as a key community stakeholder group in local-level DRR
- Progress in achieving Target E of the Sendai Framework and related gaps and challenges
- Initiatives undertaken in Africa to ensure coherence among DRR, climate change adaptation and sustainable development
- Challenges and lesson learning for enhanced coherence between global and regional policy, planning and programming

### 6 Investments in DRR

This chapter increases understanding of sustainable DRR financing in Africa. The chapter first reafirms the cost of hazard risk by presenting trends in damages and losses due to disasters in sub-Saharan Africa. This includes results of probabilistic loss assessment conducted by UNDRR in 16 countries to measure the potential economic losses from particular future hazards.

Losses can be reduced by investing in DRR but only if such investment demonstrates positive economic returns. The chapter considers the cost-effectiveness of DRR in Africa, notes the paucity of cost-benefit analyses and provides evidence of the economic efficiency of investing in DRR in the continent. This evidence includes results of three case studies undertaken by UNDRR in 2019.

The chapter then assesses resource allocations for DRR, highlighting the particular importance of domestic finance. It draws insights from risk-sensitive budget analysis of 16 sub-Saharan countries, conducted by UNDRR in 2019, highlighting the level of public on DRR and common emerging trends in domestic resource allocation.

To compliment domestic financing the chapter subsequently maps a broad range of financing mechanisms utilized by African countries for DRR investment. The chapter ends with presentation of challenges in investment in DRR in sub-Saharan Africa that still need to be overcome.

### 7 DRR at the grassroots through community action

Grassroots initiatives currently enhance the capacity of communities to prevent, prepare, mitigate, respond and recover from disasters. Learning from, and supporting such initiatives, including the youth, is therefore a key practical step to building resilience.

This chapter features case studies from local organizations that highlight key themes in community-led DRR, including: involving communities for risk-informed early actions; mainstreaming community-based DRR education and strengthening application of Indigenous Knowledge in DRR; strengthening partnership of community-based organizations with local and national governments, and bringing voices to global platforms. It also presents challenges of community involvement in DRR, informed by evidence from 17 African countries as documented by the Global Network of Civil Society Organization for Disaster Reduction (GNDR) in 2019.

By providing examples of good practices and solutions implemented at community level – prevalent in all regions across Africa – the chapter identifies how to enhance local DRR action through community level DRM, and how these initiatives can be upscaled as opportunities for reducing risks using local endowments.

An effective entry point for this by enhancing the involvement of the youth, a key community stakeholder group at the local community level. The chapter presents cases studies of youth initiatives in DRR (Nigeria, Uganda and Ghana as well as the sub-regional level of ECCAS). Many of these are under the Africa Youth Advisory Board (AYAB), a platform for African youth that is mandated under the African Union Commission (AUC) to institutionalize meaningful youth engagement with the AUC and other relevant stakeholders. The chapter also discusses challenges of youth-led involvement in DRR as exemplified by the case of AYAB DRR.

### 8 Target (E)

In 2015, Member States adopted the Sendai Framework for Disaster Risk Reduction 2015-2030 in order to achieve “The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.” The Framework consists of seven targets and 38 indicators and four priorities of actions agreed on by countries to achieve this goal. Target E, the substantial increase in the number of countries with national and local DRR strategies by 2020, is the first target to be achieved.

To measure progress towards this particular target, the chapter builds on the official reporting of sub-Saharan Africa countries in the Sendai Framework Monitor (SFM) online tool and on a qualitative analysis of DRR policy and strategy documents, in order to report on the number of sub-Saharan Africa countries that have taken practical action to develop, validate and ultimately adopt national DRR strategies in line with the Sendai Framework. The chapter documents the status of DRR strategies in sub-Saharan Africa and the various processes adopted by countries in developing their strategies. The chapter further presents case studies as national examples of good practices in sub-Saharan Africa based on the qualitative analysis of DRR strategy documents in sub-Saharan Africa countries undertaken by UNDRR to individually spotlight the 10 key elements of Target E of the Sendai Framework. The presentation highlights the extent, effectiveness and complementarity between stand-alone DRR strategies and broader resilience frameworks. Finally, it highlights key findings relevant to achieving targets related to Priority 1, Priority 3 and Priority 4 of the Sendai Framework.
9 Policy coherence

As a lasting solution the report underscores the need for concerted effort by stakeholders in Africa to advance the DRR agenda, starting from building coherence among the policy, planning and programming levels of the Sendai Framework for Disaster Risk Reduction, the Paris Agreement for Climate Change, the 2030 Agenda for Sustainable Development and Agenda 2063: The Africa We Want. These development agreements and frameworks are linked to each other intrinsically and have resilience building as the centrepiece for sustainable development. However, the many agreements present challenges of competing actions and implementation costs. Addressing this requires synergy and coherence between DRR, climate change adaptation (CCA) and the Sustainable Development Goals (SDGs), with the overall objective of bringing about risk-informed sustainable development through the most cost-effective approach by leveraging synergies and mutually beneficial opportunities across policies to support risk-informed development and to prevent or minimize potential adverse outcomes of policies on development. This chapter discusses issues relating to achieving this coherence, showcases initiatives on coherence building and identifies challenges and opportunities to reduce competing actions and implementation costs across the frameworks.

The chapter starts with a presentation of the similarities and differences between DRR and CCA and linkages with the SDGs. It discusses the extent to which the frameworks for planning and implementing CCA and DRR under the Post-2015 agreements calls for a convergence of approaches and identifies challenges and needs for achieving coherence between the conceptual frameworks for CCA and DRR.

The chapter next highlights national level initiatives to bring the much-needed coherence and discusses policy approaches for coherence as well as planning processes in support of policy coherence, focusing on the National Adaptation Plan (NAP) and Voluntary National Review (VNR) processes as opportunities for policy coherence. The subsequent section of the chapter looks at policy coherence in sub-Saharan Africa, stressing that policy coherence needs to be supported by coordination mechanisms and frameworks.

The chapter then covers planning instruments for policy coherence, emphasizing the need to leverage current national planning and reporting processes, particularly National Development Plans (NDPs) and budgets, with the support of UN system agencies operating with common entry points. The chapter ends with by identifying approaches to monitoring for policy coherence in sub-Saharan Africa.

10 COVID-19 in Africa: Impacts, Responses and Recommendations

This chapter summarizes the status of the COVID-19 outbreak in Sub Saharan Africa, discusses its impacts (including cascading effects), implications, response, and disaster risk reduction management in member States. Information used was gathered through desk research, desk analyses of national DRR strategies, contingency, and response plans, COVID-19 authorized websites like the African Centre for Disease Control, the World Bank, and other online publicly available resources. The chapter covers lessons learned, focusing on how countries used existing DRR tools - policies, strategies, and legislation - to contain the COVID-19, and discuss how the pandemic reveals the systemic nature of risks, as well as future interventions to prevent a rapid increase in the number of COVID-19 cases in the member states.

The first section of the chapter starts with a background section on COVID-19 numbers in Sub Saharan Africa. We highlight available data on the pandemic’s infection numbers and related losses of lives using available data from Africa CDC. The next section of the chapter digs deeper into the impact and implications of COVID-19 and its cascading effects. The section discusses the impact and implications by looking at i) Economic and Financial Impact, ii) Urbanization: A risk factor of COVID-19, iii) Informal employment, poverty, and inequality, iv) Health Sector, v) Information and Communication Technologies (ICT), vi) Increased vulnerability of women and girls.

The chapter then highlights Member States measures and responses in responding and containing COVID-19. It highlights some examples of i) National measures put in place by SSA Governments, ii) Local and city governments’ efforts in the fight against Covid-19. This section also looks at lessons learned from this pandemic to inform future Disaster Risk Reduction and inform the recovery process while ensuring sustainability.

The last section of the chapter concludes by showcasing the systemic nature of COVID-19 and connecting The Sendai Framework and the Bangkok Principles blueprints. The section also provides disaster risk reduction policy and practice recommendations to ensure a better and more resilient recovery. The proposals cover i) Strengthening local governments and community capacities, ii) Supporting Cities and Urban areas resilience, iii) Ensuring Socio-economic Resilience, iv) Strengthening Preparedness and Recovering Better and v) Strengthening Member States Capacity to Prepare, Respond and Recover.
1 Status of disaster risk in Africa

- Flood: 17%
- Drought: 78%
- Total affected: 157 m
Chapter 1 describes hazards, exposure and vulnerability for 44 countries in sub-Saharan Africa for the period 2008–2018. Emphasis is placed on trends of hazards and their impacts. The international Emergency Events Database (EM-DAT) is used as the major source of data for building hazard and loss profiles. The INFORM Index for Risk Management is used to assess vulnerability and hazard exposure. Cases where country data was available was supplemented with data from the national disaster loss databases (DesInventar). While EM-DAT provided most of the data used in this chapter, major data challenges and limitations were encountered, especially regarding economic losses where both EM-DAT and DesInventar have little or conflicting information.

The assessment found that between 2008 and 2018 there was a decline in occurrences of natural hazards, associated deaths and number of affected people. In contrast, the number of persons injured and economic damages rose over this period for the 44 sub-Saharan African countries.

Overview of disasters and their impacts

The EM-DAT methodology for disaster classification differentiates between disaster events resulting from natural hazards and those resulting from technological hazards (Annex 3). During the decade 2008–2018, over 157 million people were directly and indirectly affected, mainly by disasters associated with natural hazards. Disasters from natural hazards resulted in 47,543 deaths while disasters from technological hazards resulted in 15,173 deaths (Figure 1.1).

There were 225,237 injuries attributed to disaster events during 2008–2018, of which 210,861 were caused by natural hazards and 14,376 were caused by technological hazards. Natural hazards affected a higher number of people and resulted in 393 deaths per 100,000, compared to technological hazards which resulted in 106 deaths per 100,000.

Most deaths resulting from disasters associated with natural hazards were caused by epidemics (37,418 or 79 per cent), followed by floods (6,468 or 14 per cent) and landslides (2,055 or 4 per cent). Data for the period from 1986 to 2007 indicates an increasing trend in occurrence of natural-hazard related disasters. This trend was reversed in the 2008–2018, which saw a gradual decline in the number of recorded events (Figure 1.2).
Box 1: Probabilistic risk assessment of flood and drought risk

Information on the impacts of major hazards is constantly evolving and increasingly produced using quantitative methodologies. Quantitative risk assessments (such as probabilistic risk assessment) allow for vertical downscaling, which facilitates risk management, including strategic planning and resource allocation at the national and sub-national level. It also allows for cross-country comparison, providing valuable information for trans-boundary risk management.

In 2018 and 2019, supported by the European Union, two organisations – UNDRR and the Global Facility for DRR (GFDRR) – worked jointly with the technical-scientific partner the CIMA research Foundation to develop probabilistic risk assessment for select hazards across a number of sub-Saharan African countries. The maps below show combined results from the two projects providing estimates of the yearly average of population impacted by flood and drought (under current climate).

Estimates of % population affected by flood, relative to the total population of the country

![Map of estimated population affected by flood]

Estimates of % population affected by drought, relative to the total population of the country

![Map of estimated population affected by drought]

Total direct damages to property, crops and livestock for the period 2008–2018 resulting from all disaster events is estimated by EM-DAT at $9.1 billion. The most common disaster subgroups in the 44 African countries that were assessed were technological, hydrological, biological, meteorological or climatological in nature (Figure 1.3). Floods, epidemics, droughts, storms and cyclones were some of the most common natural hazards resulting in a disaster, while transport and industrial accidents were the leading technological hazards reported. All reported hazard categories maintained their position in terms of frequency of occurrence and exhibited a declining trend over the period.

Figure 1.3 Occurrence of hazards by group in Africa, 2008–2018

![Graph showing occurrence of hazards by group]

Most hazard exposed countries

The 10 countries in sub-Saharan Africa which faced the highest number of natural hazards leading to disasters in the 2008–2018 period are shown in Table 1.1. Kenya, which was ranked third in 1997–2007, topped the list for 2008–2018. The Democratic Republic of the Congo (DRC) ranked second in both decades. Niger ranked first in 1997–2007, but was the third most disaster impacted country in 2008–2018. Other countries such as Nigeria, Madagascar and Angola, which were ranked outside the top 10 in 1997–2007 were ranked in the top ten in 2008–2018.

Table 1.1: Top 10 sub-Saharan African countries with the highest natural hazard occurrences, 2008–2018

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>44</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>DRC</td>
<td>42</td>
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<td>2</td>
</tr>
<tr>
<td>Niger</td>
<td>36</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Nigeria</td>
<td>36</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Mozambique</td>
<td>33</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Madagascar</td>
<td>30</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Angola</td>
<td>29</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>South Africa</td>
<td>26</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Uganda</td>
<td>26</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Tanzania</td>
<td>25</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT: International Disaster Database.
Types of hazards, 2008–2018

Sub-Saharan Africa experienced multiple hazards over 2008–2018. Technological hazards were the most common cause of disasters in the 44 African countries assessed. Of the 1,228 recorded disaster events in this 10-year period, the highest proportion (42 per cent) were caused by technological hazards followed by hydrological hazards (29 per cent) and biological hazards (17 per cent) (Figure 1.4). In terms of composition, the top five hazards recorded in the 44 African countries assessed were road transport accidents, followed by riverine floods, water transport accidents, bacterial and viral epidemics.

Technological hazards accounted for the largest number of reported hazard occurrences in the period from 2008 to 2018. However, the number of deaths from natural hazards greatly exceeded deaths from technological hazards across all years recorded. Only in 2013 did the number of deaths from technological hazards (55 per cent of total reported deaths) exceed deaths from natural hazards (by 255 instances). The sharp rise in deaths which occurred in 2014 (which is visible in Figure 1.5) was related to the Ebola epidemic in Sierra Leone, Liberia and Guinea.

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Technological hazards

Transport accidents (road, water, rail and air) were the cause of 81 per cent of disaster events associated with technological hazards. These were followed by miscellaneous accidents (structural collapse, explosions, fires and others) at 12 per cent and industrial accidents (chemical spills, collapse, explosions, fire, gas leak, poisoning, radiation and oil spills) at 7 per cent. Over 100,000 people were affected by technological hazards and 15,173 people died in the period between 2008 and 2018 (Figure 1.6).

Hydrological hazards

Floods and landslides were the most prevalent disaster events associated with hydrological hazard. Floods contributed to 74 per cent of total occurrence, while landslides contributed 6 per cent. In total, 27 million people were affected by hydrological hazards and nearly all of these (99.8 per cent) were due to floods. A total of 8,523 people died in 2008–2018 as a result of hydrological hazards and the majority (76 per cent) were due to floods (Figure 1.7).
Biological hazards

Epidemics, insect infestation and animal accidents were the biological hazards reported in the period of analysis. A total of 206 disaster events associated with biological hazard were reported, most (98.5 per cent) of which were epidemics. Close to four million people were affected by biological hazards and 37,430 people died as a result of this hazard in the period 2008–2018 (Figure 1.8).

Natural hazards by country

Floods

The EM-DAT database recorded 331 flood occurrences for the period between 2008 and 2018 for the 44 sub-Saharan African countries under consideration. Kenya, Angola, Niger, Nigeria, Tanzania, DRC, Malawi, Ghana, Mozambique and Burundi were the top 10 countries with records of the highest number of flood occurrences between 2008 and 2018. All the top 10 countries except for Nigeria, Malawi, Mozambique and Burundi registered increased occurrence of floods in 2008–2018 compared to the previous decade, 1997–2007.

Droughts

EM-DAT recorded 56 droughts across 24 countries for the period from 2008 to 2018. Ethiopia, Kenya, Madagascar, Niger and Burundi were the five top-ranked countries with the most drought occurrences for the period. All the top eight countries worldwide with the highest drought risk as per the INFORM index were African nations (Annex 1), including Zimbabwe, Namibia, South Africa and Eritrea.

Epidemics

A total of 203 disasters as a result of epidemics were reported in the EM-DAT international loss database between 2008 and 2018, compared to the 394 occurrences reported a decade earlier between 1997 and 2007. The DRC, Nigeria, Niger, Uganda and Chad were the five top-ranked countries that experienced the most epidemic hazard occurrences between 2008 and 2018. The same countries, as well as Kenya, Benin, Mozambique were among the top 10 countries with epidemic occurrences in the previous decade (1997–2007) and were ranked highly by other sources, including the INFORM index.

Storms and tropical cyclones

Storms are categorized into three types – extra-tropical, tropical and convection storms. EM-DAT records reveal that Madagascar, South Africa, Central African Republic, Mozambique and Tanzania were ranked as top five countries with the highest storm occurrences during the period from 2008 to 2018.
Tropical cyclones are a common hazard that affect the island nations of Madagascar, Mauritius, Comoros, Seychelles and Cabo Verde, and coastal countries like Mozambique. However, records from EM-DAT shows that even in-land countries like Malawi and Zimbabwe experienced tropical cyclones in the period from 2008 to 2018. EM-DAT records show that Madagascar (19 occurrences) and Mozambique (six occurrences) experienced the highest number of tropical cyclones between 2008 and 2018. Cabo Verde, Malawi, Mauritius, Seychelles, South Africa and Zimbabwe each experienced one tropical cyclone in the same period. The INFORM index ranks Madagascar, Mauritius and Seychelles as the countries that are most at risk of tropical cyclones.

Earthquakes

The EM-DAT records show that eight earthquakes occurred in six countries between 2008 and 2018. The DR and Malawi each experienced two earthquakes, while Rwanda, Uganda, South Africa and Tanzania each experienced one earthquake in the same period. The INFORM index ranks Ethiopia as the country with the highest earthquake risk. Tanzania, Uganda, Kenya, Malawi, DRC, Burundi, Rwanda South Sudan and Mozambique are also ranked in the top ten.

Other hazards, including landslides and fire, have not been widely recorded but are of increasing interest due to their cascading nature.

Exposure and vulnerability

The GAR 2019 report elaborates on three types of exposure – structural exposure, which mainly relates to the built environment; dynamic exposure, which relates to population and economic growth; and exposure associated with the changing characteristics of environmental systems and their relationship to humans.

Vulnerability is defined as the “conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, community, assets or systems to the impacts of hazards.” According to GAR 2019, much of the literature on risk treats vulnerability as people’s exposure to hazards. Rapid population growth, urbanization, informal settlement and poverty are among the key drivers of exposure and vulnerability in Africa. Between 1990 and 2015, the population in urban clusters increased by 484 million. However, the rate of infrastructure development, regulatory structures and risk management capacity in many African countries is not keeping pace with the rapid population growth and urbanization. Poverty and social marginalization generate conditions of vulnerability where poor housing quality, overcrowding, lack of access to basic services and political marginalisation prevent individuals and communities to benefit from or invest in protective measures. Other factors, such as climate change, environmental degradation and conflict, increase disaster risk and reduce the coping capacity and resilience of communities.

The analysis in this report relies on the INFORM index, which ranks countries by risk, hazard exposure, vulnerability and lack of coping capacity. INFORM provides disaster risk profiles of 191 countries and utilizes 50 different indicators related to the conditions that lead to crises and disasters. The INFORM data from mid-2019 was used for this analysis. The INFORM Index for Risk Management ranks more than half of sub-Saharan Africa countries as either high or very high risk. Most of the countries also ranked highly on the index for lack of coping capacity, with South Sudan, Central Africa Republic, Chad and Eritrea having the least coping capacity (Figure 1.10).

Table 1.2 shows the top 10 countries ranked by risk status on the INFORM Index for Risk Management. Eight out of 10 countries also topped the exposure list and most of them also ranked highly on vulnerability and lack of coping capacity. Central African Republic, South Sudan, Chad and DRC are all in the top three for either risk, vulnerability or lack of coping capacity.

Table 1.2: Ranking of countries by risk, exposure, vulnerability and lack of coping capacity (out of 44 countries in sub-Saharan Africa)

<table>
<thead>
<tr>
<th>Country</th>
<th>Inform risk (top 10)</th>
<th>Hazard &amp; exposure rank</th>
<th>Vulnerability rank</th>
<th>Lack of coping capacity rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central African Republic</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<tr>
<td>South Sudan</td>
<td>2</td>
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</tr>
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<td>Chad</td>
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<td>8</td>
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<td>2</td>
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<td>DRC</td>
<td>4</td>
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<td>Ethiopia</td>
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<td>Mali</td>
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<td>Uganda</td>
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<td>6</td>
<td>17</td>
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<tr>
<td>Mozambique</td>
<td>10</td>
<td>11</td>
<td>8</td>
<td>21</td>
</tr>
</tbody>
</table>

Note: Ranking 1–10 (1=highest risk, hazard exposure, vulnerability and lowest coping capacity).

Source: INFORM Index for Risk Management.

Disaster impacts

The Sendai Framework provides a systematic way to capture and report the impacts of disaster events. Assessment of disaster impact for the 44 sub-Saharan Africa countries indicates that loss of life and the number of people affected by natural hazards declined during the period from 2006 to 2018. However, economic damages as a result of disasters associated with natural hazards rose during this period.

EM-DAT records show that over 155 million people were affected by disasters in the period between 2008 and 2018. As Figure 1.11 shows, this number declined over the decade. The three spikes in 2009, 2011 and 2015 coincided with years when countries suffered from major droughts. For example, the drought in 2011 affected over 25 million people across nine countries while the 2015 drought affected over 10 million people.
The highest number of deaths per 100,000 population occurred in 2014. This year also had the highest recorded number of injuries from disasters over the 10-year period (Table 1.3).

Data was evaluated from the national disaster loss databases of 10 African countries where complete data was available. The evaluation showed that while fires and floods were the most common hazards reported, cyclones were responsible for more than half (58 per cent) of reported injuries, while landslides caused close to half (48 per cent) of the recorded deaths from the 16 natural hazards reported (Figure 1.12). Most of the reported landslide cases, and over 90 per cent of the deaths caused by landslides, occurred in Uganda. Most (95 per cent) of reported cyclone injuries occurred in Madagascar.
Overall economic impact

EM-DAT data recorded a total of $9.1 billion in direct economic losses over the period between 2008 and 2018 due to disasters caused by natural hazards. The highest recorded losses were incurred in 2013 and 2017 (Figure 1.13).

Source: Adapted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT: International Disaster Database.

Available records show that Malawi, Niger and Madagascar suffered the highest economic losses in relation to GDP from natural hazards in the period from 2008 to 2018 (Figure 1.14).
Figure 1.14: Ranking of countries by economic losses from natural hazards in relation to GDP, 2008–2018

Source: Adapted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT: International Disaster Database

Impact by major hazard types

Impact of technological disasters

A total of 516 technological disaster events were recorded by EM-DAT in the period from 2008 to 2018, with an average of 47 disasters per year. Transport accidents accounted for 81 per cent of the disasters while the rest were attributed to industrial (seven per cent) and miscellaneous accidents (12 per cent). Records show a general decline in both the occurrence of technological hazards and number of deaths over the period of analysis. Over 100,000 people were affected by technological hazard with miscellaneous, industrial and transport accidents affecting 70 per cent, 19 per cent and 11 per cent respectively.

Data on economic damage from technological disasters is scant. EM-DAT does not have economic damage data for any of the recorded technological disasters. Figure 1.15 reveals that there was a declining trend in occurrence of technological hazards. The number of deaths from transport-related hazards far exceeded deaths from miscellaneous and industrial accidents in the period from 2008 to 2018.

See Annex 2 and 3 for terminologies and categorisation of industrial, transport and miscellaneous accidents.

Source: Adapted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT: International Disaster Database.
Nigeria had the highest number of technological disasters among the 44 African countries assessed for the period 2008 to 2018. It was followed by DRC, South Africa, Kenya and Tanzania. These top five countries account for 54 per cent of reported technological and transport-accident related deaths in the 44 countries analysed.

Impact of floods

Floods are the most prevalent hydrological events across many African countries. More than half of the countries assessed were impacted by flood in the period between 2008 to 2018. Overall, records indicate that the frequency of floods occurrence declined over the 10-year period, with fluctuation in both occurrence and number of people affected. During this period, the highest number of people impacted by floods was recorded in 2012 when over nine million people were affected, mostly by floods in West Africa (Figure 1.16). The total number of deaths recorded as a result of flood-related disasters over the period of analysis was 6,468.

Recorded economic loss from floods over the period of analysis amounted to $3 billion. Economic loss from floods showed an increasing trend, even when there was declining trend in the occurrence of floods from 2008 to 2018, (Figure 1.17). Absolute total economic losses over the period of analysis incurred by the top five countries were as follows: Nigeria ~ $835 million; South Africa ~ $777 million; Kenya ~ $486 million; Malawi ~ $390 million; and Niger ~ $181 million.

Available flood damage records from DesInventar show that 6,633 houses were destroyed, 2,776 houses were damaged, 21,693 hectares of crops were damaged and 1,298 cattle were lost due to floods that occurred in the period from 2008 to 2018 in eight countries.

Figure 1.16: Flood occurrence and number of people affected, 2008–2018

Source: Adapted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT: International Disaster Database.

Impact of droughts

Drought is said to be one of the most complex weather-related natural hazards due to its nature and widespread impacts. EM-DAT recorded 56 drought events for the countries under consideration between 2008 and 2018, affecting close to 122 million people at an average of 12 million per year (Figure 1.18). While only four deaths were recorded as a result of the drought, the death toll could be much higher given that total disaster death counts exclude indirect deaths from drought-related malnutrition, disease and displacement. Drought has been described as a hidden hazard because its impacts are less visible than those of other natural hazards such as floods or storms. This makes it difficult to quickly quantify its damage in economic terms.

Figure 1.17: Economic losses caused by flooding, 2008–2018

Source: Adapted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT: International Disaster Database.

Source: Adapted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT: International Disaster Database.

Note: Analysis carried out for Cabo Verde, Madagascar, Mozambique, Nigeria, Seychelles, South Africa and Zimbabwe where flood damage data was available.
Some of the direct and indirect impacts of droughts include loss of crops and livestock and rising food prices, coupled with deteriorating livestock prices that worsen food and nutrition security conditions for millions of people in affected areas.24 While 24 countries were recorded to have suffered drought-related disasters in the period from 2008 to 2018, data on economic damage losses was only available for Botswana, Ethiopia, Namibia, South Africa and Zimbabwe. The total economic damage for these countries amounted to $3.5 billion, with $1.45 billion incurred in South Africa, $1.4 billion incurred in Ethiopia, US$0.5 billion incurred in Zimbabwe, $0.12 billion incurred in Namibia and US$0.04 billion incurred in Botswana over the period of analysis. The highest recorded economic loss from drought in relation to GDP (3.1 per cent of total GDP) was recorded in Zimbabwe for the 2013 drought, followed by Ethiopia at 2.9 per cent of GDP for the 2015 drought (Figure 1.19).

Impact of epidemics

EM-DAT recorded 203 epidemics between 2008 and 2018, at an average of 18 events each year. These events affected close to 1.2 million people and killed more than 37,000 people. Most of the recorded natural-hazard related deaths occurred in 2014, when 13,386 people died. Most (96 per cent) died as a result of Ebola epidemics in West Africa. The largest number of people affected by epidemics was recorded in 2008 and 2013 (Figure 1.20). Most of those affected in 2008 were from Zimbabwe where an outbreak of bacterial and viral epidemics affected over 98,000 people, and in Burkina Faso where it affected over 50,000 people.

Ebola virus outbreaks were a common occurrence during 2008–2018 in countries including the DRC, Uganda, Guinea, Liberia, Sierra Leone, Nigeria, Mali and Gambia. These outbreaks killed 13,578 people, of which 11,373 died in 2014 during the Ebola outbreak in West Africa. Other major epidemics that severely impacted the African continent in the ten-year period were cholera, meningitis and measles. Cholera affected mostly the Southern African countries, killing over 4,000 people in Zimbabwe alone and close to 6,000 people across the 44 countries assessed. No economic loss records for epidemics are available in the EM-DAT or DesInventar data sets.
Impact of storms and cyclones

A total of 77 storms were recorded across 22 countries, affecting over 3.5 million people, of which 1,395 lost their lives. Total reported economic losses from these storms totalled $1.1 million, which is equivalent to 0.02 per cent of the GDP of the countries where loss damage was recorded (Table 1.4).

Table 1.4: Storm occurrence and impact, 2008–2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Occurrence</th>
<th>Total affected</th>
<th>Total deaths</th>
<th>Total damage ($ thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>10</td>
<td>762,240</td>
<td>129</td>
<td>80,000</td>
</tr>
<tr>
<td>2009</td>
<td>13</td>
<td>155,829</td>
<td>49</td>
<td>23,000</td>
</tr>
<tr>
<td>2010</td>
<td>5</td>
<td>203,162</td>
<td>169</td>
<td>–</td>
</tr>
<tr>
<td>2011</td>
<td>8</td>
<td>123,478</td>
<td>100</td>
<td>10,000</td>
</tr>
<tr>
<td>2012</td>
<td>11</td>
<td>471,800</td>
<td>160</td>
<td>101,000</td>
</tr>
<tr>
<td>2013</td>
<td>5</td>
<td>59,493</td>
<td>54</td>
<td>34,300</td>
</tr>
<tr>
<td>2014</td>
<td>2</td>
<td>4,336</td>
<td>17</td>
<td>–</td>
</tr>
<tr>
<td>2015</td>
<td>7</td>
<td>189,490</td>
<td>167</td>
<td>47,100</td>
</tr>
<tr>
<td>2016</td>
<td>3</td>
<td>4,700</td>
<td>71</td>
<td>1,500</td>
</tr>
<tr>
<td>2017</td>
<td>9</td>
<td>1,315,049</td>
<td>382</td>
<td>829,000</td>
</tr>
<tr>
<td>2018</td>
<td>4</td>
<td>253,731</td>
<td>97</td>
<td>–</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>3,543,328</td>
<td>1,395</td>
<td>1,125,900</td>
</tr>
</tbody>
</table>

Disaster loss by region

The West African region experienced the highest proportion (47 per cent) of deaths from disasters due to natural hazards over the period from 2008 to 2018. Half of the deaths in West Africa occurred in 2014 and resulted from the Ebola virus outbreak in Liberia, Sierra Leone, Guinea and Nigeria, where a total of 11,318 people died from Ebola.

Southern Africa had the second-highest proportion (23 per cent) of disaster-related deaths. During the same decade, 40 per cent of deaths occurred in 2008 as a result of a cholera outbreak in Zimbabwe, Angola, Zambia, Mozambique, Malawi South Africa and Namibia, which killed a total of 5,154 people in the region including 4,276 deaths in Zimbabwe alone.

The lowest number (seven per cent) of deaths from disasters due to natural hazards occurred in the Greater Horn of Africa region (Figure 1.22).

While the Greater Horn of Africa region experienced the lowest number of deaths from disasters due to natural hazards, it registered the highest number (60.4 million or 39 per cent) of total people affected by disasters due to natural hazards in the countries assessed. This was followed by Southern Africa (27 per cent) and the Sahel region with 22 per cent (Figure 1.23). The natural hazard that resulted in the highest number of disasters was drought, which affected 56.4 million people (or 93 per cent) in the Greater Horn of Africa region.

Figure 1.21: Economic loss from storms, 2008–2018

Figure 1.22: Total death from disasters due to natural hazards in Africa by region, 2008–2018
This was followed by floods, which affected 3.7 million people or 6 percent of all those affected by disasters caused by natural hazards in the Greater Horn of Africa region.

In Southern Africa, drought and flood were also the major natural hazards resulting in disaster that affected the highest number of people between 2008 and 2018. Drought alone affected 31.5 million or 74 per cent of all those affected by natural hazards. Floods affected 4.9 million or 11.4 per cent of all those impacted by natural hazards.

The Southern Africa region accounts for more than half ($3.8 billion or 64 per cent) of the total costed economic damage from disasters caused by natural hazards in the continent over the period 2008 to 2018. The Horn of Africa had the second-highest ($2 billion or 21 per cent) of costed disaster-related economic loss, while the Central Africa region had the lowest proportion ($0.1 billion or one per cent) of recorded economic damage from disasters for all the countries under consideration (Figure 1.24). Drought was the leading cause of economic damage in Southern Africa and the Greater Horn of Africa, while flood was the leading cause of economic damage in West Africa, Central Africa and the Sahel.

Disaster related displacements

Internal displacement is also a major consequence of disasters resulting from natural hazards. The International Displacement Monitoring Centre’s Africa Report on Internal Displacement 2019 stated that 2,611,000 displacements occurred in Africa in 2018 due to disasters (compared to 7,446,000 from conflict), the majority of which were weather-related. Disaster-induced new displacements in Africa constituted 15.2 per cent of the global total. Records from the IDMC report show that in 2018 alone an estimated 1.94 million displacements occurred due to natural hazards in the 44 countries analysed. The majority (1.6 million or 84 per cent) of these displacements occurred due to floods, followed by storms (226,926 or 12 per cent) and droughts (121,852 or 6 per cent) (Figure 1.25).

Since the previous assessment in 2015, only Ethiopia had more total displacements than Nigeria or Kenya, at over one million. This comprised 660,000 displacements due to flooding and 501,000 resulting from droughts throughout 2017 and 2018, highlighting the volatility of the weather-related hazards faced by the country. The combination of severe droughts and flooding devastated crops and livestock, leaving the “pastoral livelihoods in southern and eastern Ethiopia in crisis.” Displacements in Ethiopia have become increasingly significant in recent years. For every year from 2014, Ethiopia has been in the top four countries in terms of total displacements.

Similarly, Kenya and Madagascar experienced increasing displacements between 2014 and 2018. Niger, Nigeria, and Mozambique all had significant numbers of displacements for every year between 2008 and 2018. South Sudan however showed positive progress; the country had over 100,000 displacements due to natural hazards for 2012, 2013, and 2014, but had less than 100,000 total displacements between the start of 2015 and 2018.

Records show that there was a general rise in displacements between 2008 and 2018. However, there was a huge spike in new displacements in 2012 due to devastating flooding in Nigeria, coupled with many displacements in Niger and Chad. Displacements increased each year between 2016 and 2018, with Nigeria again recording the most displacements in 2018, at 613,000 (Figure 1.26).

While the number of new displacements declined globally from 2015 to 2018, the analysed countries in sub-Saharan Africa recorded a sharp rise between 2017 and 2018, consequently becoming the region with the highest proportion of new flood-related displacements (Figure 1.27).

Notes: Data shows new displacements, so aggregations may therefore double count the same people if they are displaced on more than one occasion.
Figure 1.26: New internal hazard related displacement in Africa

Source: Development Initiatives based on IDMC data (accessed on 1 November 2019).

Figure 1.27: Comparison of new flood-related displacement in Africa with other regions

Source: Development Initiatives based on IDMC data (accessed on 1 November 2019).

Summary of findings

- Lack of complete data on disasters in Africa presents a major challenge to the assessment of the true nature of disaster risk profiles in the continent. There is, therefore, a need for better national disaster databases.
- Cases of reported disasters occurrences resulting from natural hazards increased from 1986 to 2007. However, this trend was reversed in the period between 2008 and 2018, when there was a gradual overall decline in the number of hazards that resulted in disasters, although some fluctuations occurred from year to year.
- From 2010 to 2018, the number of reported disasters declined. Technological hazards dominated the occurrence of reported hazards and economic damages appeared to be rising.
- Apart from a spike related to the Ebola outbreak in 2014, less people lost their lives as a result of disasters caused by natural hazards in the period from 2008 to 2018, compared to the number of disaster-related deaths reported in the period from 1997 to 2007.
- Comparing the 1997–2007 and 2008–2018 periods, there was a decline in disaster-related deaths and a big increase in disaster-related injuries. Injuries from disasters during the second half of the decade (2014–2018) were higher than during the first half, even as the number of disaster occurrences dropped.
- The most common natural hazards to cause a disaster were hydrological, biological, meteorological and climatological in nature.
- Floods and epidemics were the most common natural hazards to cause a disaster in the period from 2008 to 2018.

- In terms of hazards composition, the top five hazards recorded in the 44 African countries being assessed were road transport accidents, followed by riverine floods, water transport accidents, bacterial and viral epidemics.
- Epidemics, drought and floods were the leading cause of death by natural hazard.
- Transport accidents account for most of the recorded deaths from technological hazards.
- Most disaster related injuries were caused by natural hazards.
- Human induced hazards (conflicts) were responsible for most of the new displacements that occurred in Africa in 2018. While the number of new displacements declined globally from 2015 to 2018, countries in sub-Saharan Africa recorded sharp rise and the highest number of new displacements in the same period.
- Kenya, DRC and Nigeria reported the most disaster occurrences among the 44 countries assessed for the period 2008–2018.
- Drought was the most common natural hazard in countries in the Greater Horn of Africa, Southern Africa, and parts of West Africa. Tropical cyclones were most common in Madagascar, Seychelles and Mauritius and most countries across the continent were prone to floods.
- Half the African countries being assessed ranked as either high or very high on the INFORM Index for Risk Management. Most of the countries ranked on the higher end with respect to lack of coping capacity. South Sudan, Central African Republic, Chad and Eritrea have the least coping capacity.
2 Systemic risk
CHAPTER 2:
Systemic risk

Introduction

UNDRR defines systemic risk as "risk that is endogenous to, or embedded in, a system that is not itself considered to be a risk and is therefore not generally tracked or managed, but which is understood through systems analysis to have a latent or cumulative risk potential to negatively impact overall system performance when characteristics of the system change".30 This definition assumes a systems perspective rooted in an appreciation of the interconnection of distinct elements, and therefore in the recognition that failure in one element of the system can trigger cascading events in others, leading to a systemic failure.31 Accordingly, systemic risks occur when a hazard leads to failure of a system as a whole rather than only impacting negatively on some of its elements.32 Systemic risks are associated with a number of generic characteristics that distinguish them from other types of risks. In particular, systemic risks are (1) characterized by high complexity; (2) are transboundary and global in nature; (3) are characterized by stochastic relationships between trigger and effects; and (4) are non-linear and include tipping points.33 In addition, systemic risks are often given little policy attention, partly because they are not fully understood. The fact that systemic risks are complex and not fully understood does not mean that nothing in disaster risk management is certain anymore. With greater effort, improved understanding of systemic risks including their impacts can be achieved to ensure better preparedness. The GAR 2019 calls for increased efforts, political resolve, sustained funding and actions by all actors from governments to individuals to ensure a better understanding of the systemic nature of risk. This holistic understanding considers context and systemic characteristics of disaster risks. It argues that it is no longer enough to rely on historical data and observations to model present and future risk scenarios as we live in an era of highly dynamic and poorly understood drivers and increased interconnectedness.

The need to reduce systemic risks in Africa

Reducing systemic risks is critical for achieving sustainable development in Africa. Sustainable development refers to "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."34 For this to be achieved, concerted efforts are needed to establish an inclusive, sustainable and resilient future. This calls for harmonization of three core elements that are interconnected and vital for the wellbeing of individuals and societies. These are economic growth, social inclusion and environmental protection.

Systemic risks pose significant threats to sustainable development in Africa through their impacts on environmental, social and economic systems in a number of ways. For example, economic growth in African countries can be slowed by systemic risks originating in regional and global markets, which can adversely affect livelihoods, government revenue and employment. Additionally, systemic failures can exacerbate existing inequalities. For instance, the cascading impacts of climate change can disproportionately affect particular groups such as women, therefore reinforcing existing gender inequalities.35

Given the growing interconnectedness between Africa’s economic and social systems and global systems, decisions to address disaster risks in one territory can have unintended knock-on effects in Africa. This means that in the absence of an effective governance structure that includes cross-border cooperation, systemic risks are likely to remain a barrier to sustainable development in the continent.

Fragility — the “combination of exposure to risk and insufficient coping capacity of the state, systems and/or communities to manage, absorb or mitigate those risks” — is also a major concern in Africa. Fragility can exacerbate the negative outcomes of disasters such as conflict, floods and displacement, with the resulting breakdown of institutions leading to a vicious cycle of vulnerability. Of the 58 countries that were considered fragile based on the OECD’s 2018 fragility framework, 39 countries (67.2%) were in Africa. Many of these countries are facing either severe or high levels of fragility in the economic, environmental, political, security and societal dimensions (Figure 2.1).

Fragility exacerbates poverty and limits the opportunities that individuals have to escape poverty. This is especially true in contexts that are characterized by violence that leads to displacement of populations, destruction of livelihoods and deterioration of macroeconomic conditions including reduction in foreign direct investments, trade and economic growth.36 The risk of violent conflicts is likely to be high in countries that are characterized by severe or high political and security fragility. Furthermore, societal fragility stemming from poor access to justice, a lack of voice and accountability, gender inequality and the influx of displaced people, as seen in many fragile African countries can exacerbate violence and undermine efforts to build resilience, eradicate poverty and address inequalities.37 Environmental fragility is also a concern in Africa as it threatens the long-term sustainability of key livelihood activities such as livestock and rain-fed agriculture.

African countries are also characterized by underlying vulnerabilities that compound the impacts of systemic risks on sustainable development. These include a lack of adequate social protection programmes especially in countries which experiences weak governances, limited ability to provide public services, intra-country conflicts, and reliance on livelihoods that are vulnerable to climate change.38 These challenges make reduction of disaster risks a complex and potentially expensive process in Africa.
Transboundary shocks

African economies are increasingly integrating as evidenced by the formation of a number of regional economic blocs (RECs) plus bilateral and multilateral trade agreements with countries or economic blocs outside the continent. Recent initiatives such as the establishment of the African Continental Free Trade Area (AfCFTA) is expected to strengthen integration and trade in the continent. Economic integration is a double-edged sword that can either exacerbate or reduce risks. Integration can address challenges such as food insecurity by facilitating access to affordable imports to address domestic consumption deficits. For instance, rice and wheat imports play a critical role in addressing deficits resulting from inadequate domestic production in West Africa. Improved export performance due to integration can also contribute to resilience through the creation of job opportunities and export revenues that can be channeled to provision of risk-reducing basic services such as health care.

However, integration can also worsen exposure to economic and financial risks. For instance, global oil price spikes have been found to increase maize prices in East Africa through increased transport costs, leading to food insecurity. Furthermore, interdependencies in global and continental food systems and value chains can cause systemic failure, leading to food price volatility or price shocks with negative implications for food and nutrition security. Significant reduction in the supply of primary cereals such as maize, rice and wheat due to inadequate production in regional or global breadbaskets will also lead to food insecurity. A breadbasket refers to an agricultural production area where one of the world’s three main cereal crops, rice, wheat and maize, is produced. A breadbasket failure refers to a “major yield reduction in annual crop cycle of a breadbasket region where there is a potential impact on global food systems”. Concentration of food production in a few geographical locations coupled with urbanization, population growth, changing consumption patterns, and climate change are likely to exacerbate the risk of multiple breadbasket failures. Apart from causing food insecurity, multiple breadbasket failure will also have knock-on political, social and economic consequences in African countries that depend on imports to meet their food needs. These are likely to be compounded by country-specific stressors including poverty, weak governance, violent conflicts, insecurity and infrastructural defects, leading to mass displacement of populations, social unrest and political instability.

Africa experienced 141 financial/fiscal (banking, currency and sovereign debt) systemic crises between 1970 and 2009, with majority (71) being currency crises. More recently, sub-Saharan Africa’s sovereign debt rose rapidly from a median of 31% of GDP in 2013 to 56% of GDP in 2018. As a result, about a third of countries in the region are either in or at high risk of debt distress. The risk of systemic sovereign debt crisis in the region is driven by the fact that a significant component of the debt (60%) is denominated in foreign-currency, thereby exposing countries to shocks in global financial markets. Additionally, the cost of debt servicing is increasing, with the share of interest as a proportion of government revenue increasing from 5% in 2012 to 10% in 2017. The rise in commercial debt has also contributed to the diffusion of the creditor base, which can make debt resolution, restructuring or relief protracted and difficult to coordinate.

Cross-border movements of goods, people and livestock are important coping mechanisms in Africa. Nonetheless, these strategies can also trigger or amplify systemic risks. Migration can lead to the cross-border spread of infections such as cholera, measles, Ebola and yellow fever. For instance, the 2008-2009 cholera outbreak in southern Africa that affected 155,708 people has been linked to an outbreak that was first reported in Zimbabwe and spread to other countries including Malawi, Mozambique and Zambia. Additionally, some livestock diseases such as foot and mouth are endemic in Africa and can easily spread across borders through movement of livestock. In West Africa and the Sahel region, crop production is affected by pests that move across-border such as desert locust, Senegalese grasshopper and seed-eating birds and rodents. Plant and livestock diseases have adverse impacts on income and access to food, especially among poor households.

Population and urbanization related risks

The expected growth of population in Africa will be accompanied by an increase in human activities associated with production and consumption, which in turn may compromise the quality of the environment/biodiversity and ecosystems services. Production can contribute to improved resilience if it facilitates development of protective infrastructure, improved incomes, and enhanced availability of basic goods and services. However, production and consumption can also exacerbate risks through rising pollution, over-exploitation of natural resources and increased income inequalities. In most African countries, average economic growth rates are too low while population growth rates are too high to facilitate rapid reduction of poverty or improvement of average income levels. Accordingly, many countries find it difficult to create adequate job opportunities, leading to high unemployment rates and poverty that can trigger social and political unrest or the involvement of youth in crime.

FIA activities, that supported DRR through strengthening resilience, highlights WFP’s investment in government capacity strengthening and local capacity, as part of ongoing efforts to increase resilience levels of the most vulnerable populations and promote better management of natural resources. For example, in Niger, 776 ha of land have been returned to production by communities. Meanwhile, hundreds of communities contributed to building or restoring assets, which could in turn be used as additional shelter during seasonal climatic shocks, or as mechanisms for water collection and storage prior to seasonal droughts – all contributing to DRR and building resilience to adapt to climate change. Similarly, in Burkina Faso, more than 3,000 ha of land was rehabilitated or treated with soil and water conservation measures, as well as more than 800 m of flood protection dykes constructed or rehabilitated benefitting populations to improve their resilience to natural shocks and adaptation to climate change.

Figure 2.1: State of fragility in African countries

Source: Development Initiatives based on OECD’s State of Fragility Framework 2018 data.
Climate change related hazards

Climate change increases the probability of multiple extreme events such as droughts and heatwaves occurring simultaneously and modifies the inter-relationships between them, leading to severe societal and ecosystem stresses. Drought conditions exacerbate risks of wildfires that often cause extensive damage to the soil, thereby setting the stage for the occurrence of landslides and flooding during rainy seasons. For instance, the dry and hot weather conditions in South Africa in 2010 increased the occurrence of wildfires that affected several areas including Amalienstein in the Klein Karoo and the Langkloof, causing destruction of forests and vegetation.

Climate change can cause systemic failure, affecting large populations through global damage or localized extreme events that spread across a number of territories through physical, social or financial channels. For instance, cascading impacts of extreme weather events such as floods can cause systemic failure through disruption of supply chains, transport and communication systems, food systems, and trade networks. The impacts of these disruptions can be severe in Africa where most production and distribution systems are vulnerable because of a lack of adequate capacity to ensure continued production after a disruption.

In Dar Es Salaam, Tanzania floods often affect water supply through contamination and destruction of water infrastructure as was the case in 2017. This can lead to the outbreak of waterborne diseases, public water scarcity and economic losses as households have to spend more to access water from alternative sources. With limited knowledge of the changing patterns of climate related hazards, many communities in Africa will face difficulties in adopting effective coping strategies. For example, in Zimbabwe local communities are vulnerable partly because of their limited capacity to predict floods based on changes in weather patterns, flora and fauna. The impacts of climate change related disasters can be compounded by economic and health risks as illustrated in Textbox 2.1.

Textbox 2.1: Impacts of exposure to climatic, economic and health risks in Lesotho

In Lesotho, the exposure of poor households to multiple climatic, economic and health risks have created a complex risk profile. The impacts of natural hazards such as droughts, floods and early frost on crop yields is compounded by a high prevalence of HIV that has led to an increase in the number of fallow fields. For instance, floods in 2010/11 followed by delayed rains and early frost in 2012 led to a 70% reduction in food production in 2011/12 that affected 725,000 people. In Lesotho reliance on commodity exports whose earnings are dependent on external market conditions compound the effects of natural hazards through declining government revenue, which in turn affects investment in resilience building programmes.

Adapted from Holloway, A., et al. 2013

Risks related to interaction between natural hazards and conflicts

Conflicts and natural hazards in Africa are interlinked creating political, social and economic challenges that exacerbate vulnerability and inhibit development. The interaction between conflicts and natural hazards is complex as natural hazards can alleviate some drivers of conflict while exacerbating others. In a few cases, natural hazards have provided an opportunity to end protracted violent conflicts. For instance, the 2004 Tsunami is considered to have contributed to peacebuilding efforts in Aceh, Indonesia by creating the moral, political, economic and social impetus to end the conflict.

On the other hand, grievances that trigger violent conflicts can be deepened by natural hazards such as droughts that cause a scarcity of resources or unequal access to livelihood opportunities and humanitarian aid. In northern Mali, scarcity of resources as a result of frequent droughts and other political, social and economic dimensions have contributed to increased conflicts that are also driven by other factors including economic fragility, unemployment and weak governance. Natural hazards can also contribute to conflicts by creating economic opportunities for criminal activities. In the Lake Chad Basin, climate change induced resource scarcity has led to loss of livelihoods, with some pastoralists who lack alternative income generating opportunities opting to join armed groups to earn a living.

Conflicts can worsen the impacts of natural hazards by causing displacement to areas that are more prone to hazards or have limited availability of basic services such as water, sanitation and health care. In fragile and conflict affected countries such as Somalia and Mali, conflict can lead to systemic failure by limiting the ability of government and non-governmental organizations to build resilience by providing basic services, aid, and early warning information.

The Horn of Africa drought crisis in 2011 that affected an estimated 13 million people, mainly in Somalia, illustrates how a complex interaction between natural hazards and conflicts can result to systemic failure. The drought came after successive seasons of poor rains plus rising inflation, which exacerbated the region’s livelihood crisis by increasing food prices, worsening water scarcity and undermining livestock survival. These impacts were accentuated by armed conflicts in Somalia, the Somali region of Ethiopia and Northern Kenya. These conflicts slowed investment in DDR, humanitarian response, crisis prevention and early recovery. Huge displacement of populations led to the emergence of many camps for internally displaced persons and refugees that strained the absorptive capacity of host communities.

Systemic risks related to technological hazards

Technological hazards stem from “technological or industrial conditions, including accidents, dangerous procedures, infrastructure failures or human activities that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption or environmental damage.” Technological hazards include toxic waste, dam failures, transport accidents, chemical spills, and industrial pollution. Many toxic pollutants such as air particulates, heavy metals and pesticides have transboundary impacts as they can spread across territories through ecosystems and global economic systems. Increased growth of industries in cities and urban areas coupled with poor industrial waste management practices and weak enforcement of environmental regulations have led to discharge of effluent and toxic chemicals into bodies of surface water across the African continent. In many countries in sub-Saharan Africa, irrigated farming using highly polluted water sources in urban and peri-urban areas is an important source of fresh vegetables. For instance, in Kumasi, Ghana farmers rely on polluted water bodies for irrigation of vegetables for commercial production. This has enabled farmers in Kumasi to increase their incomes. However, using polluted water for irrigation poses significant health risks to both...
farmers and consumers in Kumasi due to microbial contamination of the vegetables. Long-term health conditions resulting from contaminated foods can lead to catastrophic health expenditures, further exacerbating vulnerability to shocks within households. Furthermore, the health impact can escalate if the contaminated food is exported and consumed in other countries.

Technological hazards also lead to complex trans-boundary air pollution with significant health and climate change impacts. Industrial production and transportation can lead to the emission of greenhouse gases or toxic gases into the atmosphere which are in turn carried to other countries by strong winds. For instance, generation of power using coal in South Africa leads to smog that is often carried by the wind to neighbouring countries such as Botswana.

Another important technological hazard stems from activities in the oil sector. Accidents during transportation and malfunctioning of equipment at the production stage have led to a number of oil spills, especially in Nigeria and Angola which are the leading oil producers in Africa. Depending on their magnitude, oil spills can have both short-term and long-term impacts on the environment and on health. Oil spills on land cause soil contamination, thereby affecting vegetation, underground water sources and agricultural production which in turn worsens food insecurity. For instance, oil spills in the Niger Delta sink into aquifers and adversely affect the quality of soil with negative implications for farming, and for local communities who depend on the aquifers so are soiled and polluted drinking water. For instance, in Ghana, Togo, Benin, Nigeria and Cameroon, households in poverty have been found to be disproportionately exposed to drought. Systemic risks can push households further into poverty or prevent them from getting out of poverty.

Poverty linkages to systemic risks

Poverty and systemic risks are linked and mutually reinforcing. Disasters have negative implications for poverty reduction since systemic failures can lead to loss of livelihoods, disruptions in the supply of goods and services, weakening of public institutions and reallocation of budgets from development to relief support. Small countries in Africa with high levels of poverty have limited technical capacity, resources and fiscal space to support effective systemic risk reduction, as well as relief and recovery efforts after a disaster. This constrains investment in DRR, thereby perpetuating a vicious cycle of poverty and vulnerability.

Many African countries are reliant on commodity exports as a key source of revenue and employment, making them vulnerable to systemic risks stemming from regional and international commodity markets. In sub-Saharan Africa, nine in every ten countries are commodity dependent, which is significantly higher than Latin America and the Caribbean where half of the countries are commodity dependent and South Asia where a quarter of the countries are commodity dependent. Heavy reliance on commodity exports exposes African countries to commodity price shocks and volatility which can undermine economic growth, lead to deterioration of the fiscal situation and the accumulation of public debt. Oil producers, for instance, have experienced significant revenue reductions due to the decline in global prices. This has led to expenditure cuts in countries such as Algeria, Angola, Chad, Gabon and Nigeria, with negative implications for income and employment in the affected sectors.

Rainfed agriculture is the main source of income and food for a majority of the rural population living in poverty in African countries. Systemic risks related to climate change and hazards that disrupt agricultural production such as violent conflicts can exacerbate poverty. Disruption to agricultural production can affect economic growth and government revenues negatively, thereby limiting the amount of resources available to invest in resilience building programmes. At the household level, the poorest face significant difficulties in coping with shocks owing to their limited access to resources that are critical for building resilience, including education, information, health care, wealth and social protection. Accordingly, households living in poverty are likely to be disproportionately affected by or exposed to hazards.

For instance, in India, it has been estimated that at least 70% of the population of Madagascar, Democratic Republic of Congo, Burundi and Malawi live in extreme poverty.

Incidence of poverty in Africa

Africa has the highest proportion of population living in extreme poverty, estimated at 35.1% for the whole continent and 41.4% for the sub-Saharan Africa region. Poverty reduced in sub-Saharan Africa between 2005 and 2015 (Figure 2.2) but significant disparities remain across the continent. Extreme poverty is relatively low in Mauritius, Morocco, Seychelles and Egypt where the proportion of the population living on less than US$1.90 a day is below 1.5%. On the other hand, at least 70% of the population of Madagascar, Democratic Republic of Congo, Burundi and Malawi live in extreme poverty.
The level of inequality, measured by the Gini index, varies considerably across the continent, with Algeria being the most equal country (Gini index of 27) while South Africa has the highest level of inequality (Gini index of 63.03). Inequality is also high in Namibia, Zambia, Central Africa Republic, Lesotho, Mozambique, Botswana, Eswatini and Guinea-Bissau which all have a Gini index of between 51 and 59.

The extent to which economic growth can contribute to poverty reduction depends in part on the initial level of inequality since a more equitable distribution of income and assets allow people in poverty to access the means and opportunities to improve their living conditions including the capacity to cope with or recover from the impacts of systemic crises. Accordingly, building resilience in a context of high inequality can be difficult since those least able to manage risks are likely to be left behind.

The sub-Saharan Africa region also has the lowest levels of human development. Across Africa, only six countries – Seychelles, Mauritius, Tunisia, Botswana, Libya and Gabon have achieved high human development. The mean years of schooling in sub-Saharan Africa stands at 5.6 which is substantially lower than regions such as East Asia and Pacific (7.9) and Latin America and Caribbean (8.5). Additionally, sub-Saharan Africa has the lowest gross national income per capita at US$3,399. Low educational achievement can negatively affect access to employment opportunities, thereby perpetuating poverty which in turn affects people’s ability to cope with shocks. Poor health can exacerbate vulnerability to systemic risks through catastrophic health expenditure and by limiting people’s ability to work and earn sufficient income to build their resilience.

Gender inequality is reducing in sub-Saharan Africa as illustrated by the reduction in the Gender Inequality Index from 0.735 in 2008 to 0.569 in 2017. However, the region still has the highest level of gender inequality in the world. In many African countries, women and girls often have less access to or control over assets, including the resources that are critical for managing, mitigating or coping with hazards or shocks, such as information, education, wealth, and health care. As a result, women and girls are relatively more vulnerable than men and are likely to be disproportionately affected by disasters. In Senegal, for instance, women’s farms are often only ploughed and planted after men who, by and large, control the means of production – donkeys and carts – have completed work on their farms. Consequently, women’s farms are often not ready for harvesting until later into the rainy season when a dry spell or early cessation of rainfall adversely affect crop production. However, it is worth noting that in some contexts, men may be more vulnerable to disasters due to their greater risk-taking behaviour.

In sub-Saharan Africa, just under a quarter (23.5%) of seats in parliament are held by women and only 28.8% of women aged 25 years and older have some form of secondary education. Low representation of women in key decision-making bodies has negative implications for articulating and mainstreaming gender in risk reduction policies and legislation.

**Complex nature of risks: the case of feedback loops of drought**

Drought is among the most complex and severe natural hazards in Africa with wide-ranging impacts that spread across various human and physical systems, thereby creating multiple impacts in different sectors. This is normally brought about by three types of drought namely meteorological drought, soil moisture/agricultural drought and hydrological drought. Meteorological drought occurs when there is a deficit in precipitation or climatological water balance that lasts for months to years in a region. Agricultural drought refers to a period characterized by reduced soil moisture due to below average precipitation, which negatively affects crop production, the function of ecosystems and can cause land degradation. Hydrological drought occurs when “river stream flow and water storage in aquifers, lakes or reservoirs fall below long-term mean levels.”

Apart from direct impacts such as inadequate public supply of water and crop failure, droughts have several indirect effects as a result of the reliance of livelihoods and economic systems on water. To begin with, droughts contribute to contamination of water sources through an increase in pollutants and reduced concentration of oxygen in water reservoirs. This can lead to an increase in the level of disease-causing bacteria and protozoa thereby exacerbating the occurrence of waterborne diseases. For example, drought conditions coupled with anthropogenic activities have contributed to a reduction in availability of water and degradation of water quality in Ghana.

Most African countries are vulnerable to drought-related crop failure because of their reliance on rainfall agriculture. A decrease in production of key crops such as corn or maize often drives up prices for animal feeds, which in turn affects the prices of livestock and livestock products. In the Sahel region and West Africa, for instance, severe droughts have been linked to a feedback loop, where they cause water scarcity, leading to poor crop yields that affect the availability of food for people and livestock. This, in turn undermines the capacity of local communities to cope with future droughts.

A reduction in agricultural output also has indirect impacts including a reduction in demand for farm labour and for goods and services used for agricultural production as illustrated in Textbox 2.2. This leads to unemployment, loss of income, an increase in credit risks for lenders, capital deficits, and lost agricultural tax revenue.
Textbox 2.2: Cascading impact of drought in Langkloof, Western Cape, South Africa

In 2007, heavy rains led to severe floods that damaged farm dams, thereby exposing farmers to droughts in subsequent years. The floods also damaged fruit trees and made it impossible to access orchards for protective spraying, leading to poor yields. The dams were rebuilt in 2008, but rainfall was below average making it difficult to store adequate water for irrigation. Moreover, additional losses were incurred by farmers due to a hailstorm. As a result, many farmers were already vulnerable by the time the drought started as they had little water for irrigation. With inadequate irrigation in 2009, crop yields reduced, and this was compounded by a second hailstorm in early 2009. Declining crop yields led to a reduction in the demand for farm labour. This adversely affected household incomes, prompting the government to provide relief food and implement a school feeding programme to support vulnerable households.

Adapted from Holloway et al 2012.

Droughts also have significant impact on the resilience of energy systems in Africa as they directly affect the generation of electricity through hydropower plants which account for 20% of sub-Saharan Africa’s installed capacity.95 Reduction in electricity generation leads to outages and high tariffs that in turn impact the provision of services such as health care and economic activities such as manufacturing. For example, in 2010, Tanzania had to invest in diesel generators to produce 100MW of electricity at a time when diesel prices were high, leading to high electricity costs and increased emission of greenhouse gases.96 In Malawi, the 2015-2016 drought led to a reduction in hydroelectricity generation and increased use of diesel generators, loss of industrial man-hours and increased use of wood for fuel.97 At the household level, power outages or high electricity costs may mean relying on polluting and disease-causing fossil fuels such as paraffin, thereby perpetuating exposure to respiratory infections.

The health effects of drought are those linked to water scarcity, use of contaminated water and food shortages. The significance of these impacts depends on the severity of the drought, pre-existing socio-economic vulnerabilities and the availability of resources including health and sanitation infrastructure. The health impacts include dehydration and diarrhoeas, which are leading causes of infant mortality in Africa. Insufficient caloric intake and micronutrient malnutrition caused by food and mineral shortages during droughts can put at risk the health of pregnant women and development of the fetus.98 Furthermore, malnutrition negatively affects the immune system, thereby increasing an individual’s predisposition to a wide range of infections caused by virus, bacteria and fungi.

Drought can also lead to mass displacement of populations, with knock-on effects on access to basic services including education, health and shelter. In 2015, for instance, Ethiopia experienced one of its worst droughts in 50 years. This triggered the displacement of an estimated 280,000 people.99

Approaches towards addressing systemic risks in Africa

A number of actions are being implemented throughout the African continent, albeit with varying degrees of success, to address risks. To begin with, there are remarkable efforts to coordinate development and implementation of policies aimed at addressing risks. For instance, in 2004 the African Union adopted the Africa Regional Strategy for Disaster Risk Reduction. The strategy acknowledges the importance of a coordinated approach to risk reduction and calls for implementation of country and regional interventions. Regional economic communities (RECs) have also developed their own policies that are linked to the global, African Union and national policy frameworks. These include the East African Community Climate Change Policy and the Economic Community of West African States’ Policy for Disaster Risk Reduction.

Regional economic communities play a key role in coordinating and facilitating implementation of regional disaster risk reduction policies. For instance, the Economic Community of West African States (ECOWAS) has established technical centres through which it provides leadership on implementation of regional DRR initiatives in collaboration with the Permanent Interstate Committee on Drought Prevention. Additionally, creation of regional agencies dedicated to management of transboundary resources facilitates coordination of risk reduction interventions. For example, the Lake Chad basin Commission, Senegal River Basin Authority and Lake Victoria Basin Commission all play a key role in flood management in their regions.99

The need to establish effective risk financing mechanisms is gaining traction, but challenges abound.100 For instance, there are efforts to develop risk transfer mechanisms, particularly index-based insurance products that cover climate related hazards including droughts and floods. Initiatives that have been implemented include the Africa Risk Capacity Insurance scheme that provides a sovereign parametric risk pool for drought in member countries such as Kenya, Mauritania, Niger and Senegal.101 Meanwhile in West Africa, crop index insurance has contributed to improved resilience among farmers by protecting their revenues from climate variations and enhancing their access to credit so they can purchase high quality agricultural inputs to increase productivity. Despite this progress, insurance penetration remains low in most African countries as a result of a number of factors including low financial literacy, unaffordable premiums and low willingness to pay.102

African countries are also investing in early warning systems to prevent systemic failures. For instance, the Inter-Governmental Authority on Development has developed the Conflict Early Warning and Response Mechanism to facilitate regional conflict prevention in the Horn of Africa. In West Africa, the ECOWAS Early Warning and Response Network has been established as an observation and monitoring tool for conflict prevention. However, the effectiveness of early warning systems in Africa is still constrained by several challenges including a lack of technical skills, limited availability of data and the difficulties of translating early warning into early action.103

ECOWAS is in the process of establishing a regional food security programme known as the Regional Reserve. The project aims to ensure food security by building a regional food security reserve and increasing the level of national public stocks. The buffer stock will include staple grains such as millet, sorghum, maize, rice, enriched cereals and milled cassava which will be used to avert food crises.104 Establishing adequate buffer stocks has the potential to ensure stable supply of staples, thereby cushioning households from price volatilities that may arise due to inadequate supply. However, the project will require adequate funding and cooperation among the member states to succeed.

African countries have also established regional power pools to reduce systemic risks that may affect their energy sectors. These include the West African Power Pool, South African Power Pool, and the East African Power Pool.105 Regional power pools facilitate cross-border trade in electricity, thereby allowing countries to meet their domestic deficits through imports while allowing countries with surplus capacity to earn from their electricity exports. For instance, electricity imports from Uganda play a key role in ad-
Africa is facing a number of risks with a potential range of direct and indirect impacts on welfare and sustainable development. The continued integration of Africa’s social and economic systems between countries and with global systems is likely to exacerbate exposure to systemic risks. Systemic risks have the potential to derail efforts to eradicate poverty, reduce inequality and promote sustainable development in Africa due to their cascading impacts that are often felt in multiple sectors. Additionally, African countries are characterized by several underlying country-specific factors that accentuate the impacts of systemic risks. These include high poverty levels, armed conflicts and weak capacity to provide basic services such as health care and social protection. The success of efforts to create livelihood opportunities, protect the environment, and improve living standards will depend in part on the measures taken to manage systemic risks. Important efforts are being made to improve cooperation in the development and implementation of policies to address systemic risks in Africa. However, a lot remains to be done to ensure adequate capacity to build resilience.

Policy implications

- Strengthen inter-governmental cooperation in designing and implementing actions aimed at addressing the systemic drivers of risk. Cooperation is particularly important because of the spatial-temporal nature of risks that call for a holistic and well-coordinated approach to DRR through enhanced coherence of development frameworks and cooperation mechanisms.

- Investments in understanding the systemic nature of risk to identify drivers will in turn inform development of appropriate measures. A fundamental step in addressing systemic risks in Africa will be to map the existing economic, social, technological and environmental systems to understand how their components interact and how risks are propagated and cascade across systems and sectors.

- Enhance adoption of a systems approach to DRR and development by integrating DRR, humanitarian action, sustainable development, environmental management and conflict reduction to build resilience. Efforts aimed at building resilience should move away from interventions targeted at single hazards to actions to a multi-hazard approach.

- African governments in collaboration with development partners need to invest in actions aimed at addressing the underlying drivers of vulnerability. This calls for establishing effective peacebuilding efforts, and better enforcement of legislation to ensure protection of economic and environmental systems.

- Strengthen early warning systems to better link information to action. This calls for building adequate capacity to translate early warning information to rapid response and paying attention to weak signals such as small threats that can accumulate and predispose communities to larger disasters. Additionally, it is important for African countries to invest in multi-hazard modelling and assessments to establish and implement effective risk reduction measures.
3 Urban risk

No plans/compliance

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Americas</td>
<td>6%</td>
</tr>
<tr>
<td>Arab States</td>
<td>8%</td>
</tr>
<tr>
<td>Asia</td>
<td>16%</td>
</tr>
<tr>
<td>Africa</td>
<td>22%</td>
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</table>
CHAPTER 3: Urban risk

Introduction

African countries are undergoing rapid urbanization: the urban population in Africa increased sixteen-fold from 33 million people in 1950 to 548 million people in 2018 and is projected to increase by 50% (824 million people) by 2030.10 Globally, Africa is still the least urbanized region. However, the continent’s annual urban population growth rates have been the highest in the world – above 4% between 1950 and 1990 – and this is projected to remain at or above 3% annually through to 2035-2040.10 Urbanization in Africa is being shaped by a complex interaction between several factors including current and historical urban planning policies and practices, traditional land ownership systems, migration, private sector development interests and direct foreign investment flows.11

As hubs for trade, productivity, science and culture, cities and urban areas in Africa provide opportunities for socio-economic development, including diversifying economies and providing better living conditions, whilst also creating new or exacerbating existing vulnerabilities and disaster risks. In the face of a changing climate, high incidence of poverty, ecological degrada
tion and weak governance or inadequate capacity to plan for and manage rapid urban growth, Africa’s urban areas are increasingly being exposed to a wide range of hazards including epidemics, floods, landslides and tropical storms.10 Across Africa, the population exposed to coastal hazards such as storm surges and sea level rise is increasing with the rapid growth of coastal cities – both capital cities and rapidly growing secondary cities – and cities located in major river deltas.11

The aim of this chapter is to articulate the key factors that drive urban risk in Africa, the progress of African cities in building resilience and the roles that local governments should play in this regard. Based on this, conclusions and recommendations for improving urban resilience are proposed. The chapter consists of four parts. The first part discusses urban risk in Africa with a focus on vulnerabilities and exposure. The second discusses the progress and challenges in building resilient cities and urban areas in Africa. The third section focuses on the role of local governments in urban risk management. The final section highlights the key policy implications drawn from analysis in this chapter.

Urban risks in Africa – vulnerabilities and exposure

The New Urban Agenda, adopted at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in 2016, affirms that urban centres have characteristics that make them vulnerable to the impacts of natural and human-induced hazards.11 The vulnerability of urban areas to hazards can stem from a wide range of factors including unsustainable consumption and production systems, pressure on ecosystems, climate change, poor planning, land use change and population pressures. In Africa, as in other developing regions, rapid spatial expansion of urban areas is causing significant ecological impacts, including destruction of habitats, deforestation and alteration of hydrological cycles, thereby exacerbating disaster risks. For instance, in Lagos City, Nigeria, most informal settlements that house an estimated 70% of the city’s population are located in marshy areas and near lagoons that experience regular flooding events.11 In Lomé, Togo, most of the informal settlements where over 250,000 people live are located in areas that were previously earmarked for waterways or natural water collection points, thereby exposing the poor to flood risks.11 In Kampala, Uganda, flooding is a concern as it causes an estimated loss of US$99.7 million annually on average and affects at least 170,000 people regularly.11 The main drivers of flood risks in Kampala are closely linked to poor planning and the limited capacity of residents to adapt to and/or respond to flooding. The land use change associated with urban sprawl also creates vulnerabilities in the peri-urban areas through loss of farmlands, leading to poverty and unsustainable farming practices among small scale farmers.

Poverty and unequal access to basic services also exacerbate the vulnerability of urban residents to disaster risks. Limited access to affordable housing and transport services, for instance, forces residents of many African cities to live in informal settlements located in hazard-prone areas such as floodplains and unstable hillside. In such informal settlements, infrastructure and basic services that are aimed at reducing risks such as potable water supply systems, health care and firefighting services are often inadequate or not available. Furthermore, a lack of secure tenure in informal settlements discourages residents from investing in amenities such as sanitation facilities and retrofitting their houses to reduce disaster risks.11

Many urban areas in Africa lack the financial and technical capacity to invest in DRR programmes. The subnational governments that manage cities often have narrow revenue bases and limited technical capacity to enforce tax measures, forcing them to rely on national governments and donor agencies for funding which is often unreliable. For instance, the share of own source revenue in the total annual funding for the 47 county governments in Kenya averaged 10.8% between 2013/14 and 2017/18 and reduced from 12.8% in 2014/15 to 9.1% in 2017/18.11 Many local governments have inadequate technical staff to perform functions such as planning, data collection and analysis11 and enforcement of regulations because of limited financial resources, a lack of appropriate training programmes11 and high staff turnover.11

Africa’s urban centres are characterized by a large informal sector, providing a wide range of goods and services and allowing residents to access diverse livelihoods. However, the informal sector often operates with little or no regulation of economic activities such as enforcement of environmental standards, workplace safety standards and minimum wages. This provides loopholes for supplying substandard goods and services, sometimes at unaffordable prices,11 thereby increasing risks for urban workers and consumers, especially the poor who rely on the informal sector to meet their basic needs. However, it is worth noting that the informal sector can also contribute to building resilience. For instance, informal businesses can play a key role in risk mitigation by facilitating mobilization of savings through groups and networks of traders. Additionally, city inhabitants including informal business operators and their associations can collaborate with local governments to promote resilience through awareness raising and implementation of resilience programmes in sensitive sectors such as building and construction.12

Limited local governance capacity and inadequate involvement of all stakeholders in planning promotes urban development outside the ambit of official spatial plans and regulatory frameworks. In many small towns and peri-urban areas, traditional and formal governance entities coexist with unclear or overlapping mandates in DRR. Furthermore, there is limited coordination among actors involved in urban risk governance and inadequate participation of all actors in key DRR processes such as urban planning.

Planning and decision-making processes related to urban DRR and management is beset with inadequate access to and use of quality data in Africa. For instance, most countries rely on demographic surveys to provide data about losses to health caused by everyday hazards. However, such surveys often fail to provide accurate and disaggregated data on specific urban centres or locations of interest such as informal settlements.11
In the absence of robust datasets, making informed and location-specific decisions regarding urban risk reduction remains a significant challenge.

Limited decentralization of authority and responsibilities also makes it difficult for local governments to plan and implement various DRR activities. For instance, local governments need to develop or connect their cities to available early warning systems for effective preparedness and response. However in Senegal, providing early warning is mainly undertaken by the national government. Concentrating authority and responsibilities regarding DRR at the national level can constrain implementation at the sub-national level, especially where there is poor coordination between national and local governments. Even where local governments have authority and responsibility, their ability to implement policies is still constrained by limited technical capacity.

Despite the challenges, cities and urban areas can contribute to DRR if their developers, managers and dwellers make concerted effort to promote urban resilience. Large urban areas can benefit from “agglomeration economies”, whereby proximity of labour, capital and ideas create fertile markets and opportunities for knowledge spill-overs and specialization. This can contribute to development of diverse and innovative livelihood strategies that spread risks and enable adaptation to climate change. Since disasters know no boundaries, collaboration among local governments can promote standardization and coordination of implementation of DRR and management policies to ensure resilience. Collaboration can also provide a platform for sharing expertise to improve local governments’ capacities to reduce disaster risks.

Large urban areas can also benefit from economies of scale as high population density reduces the per capita cost of providing infrastructure and services that are necessary for risk reduction. Additionally, urban areas tend to have a greater capacity than rural areas to attract human capital (professionals and skilled laborers) whose expertise can be leveraged by local governments to design and implement resilience measures. Furthermore, the presence of multiple government institutions, especially in urban areas that serve as government headquarters, can facilitate multi-agency collaboration to ensure synergies in DRR.

Disaster resilient cities: Progress and challenges

Building resilient cities and urban areas is central to promoting sustainable development. Accordingly, in 2010 UNDRR and its partners launched the MCR campaign, to enhance sustainable development through activities that promote resilience and improve understanding of disaster risk at the local level. The campaign is based on the Ten Essentials for Making Cities Resilient, which align to the Sendai Framework priorities of action, and provide the critical steps that have to be taken to promote resilience. The Ten Essentials are grouped into three categories (Table 3.1). The first three cover governance and financial capacity, and are enabling essentials, Essentials four to eight focus on operational aspects of building resilience, and the last two cover disaster preparedness and response plus building back post-disaster. UNDRR and partners have developed a Disaster Resilient Scorecard for Cities – a self-assessment and monitoring tool that enables cities to assess their resilience and to develop local DRR strategies. 50 African cities and municipalities conducted the self-assessment between 2017 and 2018. The next section discusses these assessments to highlight the progress, challenges and areas for improvement in building urban resilience in Africa.

Table 3.1: The Ten Essentials for making cities resilient

<table>
<thead>
<tr>
<th>Category</th>
<th>Essentials</th>
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<tr>
<td>Governance and financial capacity</td>
<td>Organize for disaster resilience</td>
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<tr>
<td></td>
<td>Identify, understand and use current and future risk scenarios</td>
</tr>
<tr>
<td></td>
<td>Strengthen financial capacity for resilience</td>
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<tr>
<td>Planning and implementation</td>
<td>Pursue resilient urban development and design</td>
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<tr>
<td></td>
<td>Safeguard natural buffers to enhance the protective functions offered by natural capital</td>
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<tr>
<td></td>
<td>Strengthen institutional capacity for resilience</td>
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<tr>
<td></td>
<td>Understand and strengthen societal capacity for resilience</td>
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<tr>
<td></td>
<td>Increase infrastructure resilience</td>
</tr>
<tr>
<td>Disaster response and post-event recovery</td>
<td>Ensure effective disaster response</td>
</tr>
<tr>
<td></td>
<td>Expedite recovery and build back better</td>
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As a next step, cities whose plans offer partial compliance with the Sendai Framework and coverage of the Ten Essentials should review their plans to ensure full compliance and coverage. Despite the progress, Africa has the largest proportion (22%) of cities with no DRR plans (Figure 3.1). Moreover, in 84% of the cities, lead agencies have inadequate inter-agency support and face resource constraints. This has negative implications for coordination of implementation of DRR measures that often requires participation of diverse stakeholders. The benefits of integrating resilience in city and local government functions is generally well understood by African cities and local governments. However, resilience is only integrated occasionally and formal processes to integrate risk reduction in city functions are lacking in many cities. Failure to integrate risk reduction in all functions is a missed opportunity to promote sustainable and resilient development and may lead to perpetuation of the vulnerability of urban populations to disasters.
Reducing disaster risks in urban settings requires adequate knowledge for informed decision making and coordination of action. Analysis of progress in implementing Essential 2 shows that about two thirds of the cities understand their main hazards. Additionally, 60% of the cities have at least some disaster scenario information and 64% of the cities have some understanding of cascading impacts under some disaster scenarios. Such knowledge is expected to inform planning and designing DRR programmes. Despite this important progress, only 40% of the cities have made efforts to promote sharing of risk information with various utility providers and to achieve some consensus on points of stress. In 34% of the cities, the individual system risks are known, but there is a lack of an appropriate forum to share this information. Of concern is the fact that 64% of the cities have not developed hazard maps. Furthermore, 36% of the cities lack a clear understanding of the cascading impacts of disasters. Lack of such understanding can be an impediment to development of effective systemic risk reduction measures that not only address the direct and immediate impacts of a disaster but also the long-term knock-on effects across different sectors.

Progress in strengthening financial capacity for resilience (Essential Three) is weak across all regions, with Africa being the worst affected. In particular, just under half of the cities in Africa have inadequate understanding of the available sources of funding for DRR (Figure 3.2). This is exacerbated by the fact that even in cases where there is some understanding of available funding sources, little effort is made to pursue such opportunities. Mobilizing adequate resources for DRR is also constrained by a lack of clear financial plans in over a third of the cities, as well as poor coordination of financial plans that exist in various city agencies or departments. Risk transfer mechanisms such as insurance are particularly underdeveloped, limiting the ability of cities to promote resilience. For instance, in 42% of the cities, there is little or no insurance cover, while in 48% of the cities there is some insurance cover, but it varies significantly by sector or area and uptake of insurance is not actively promoted by city authorities.

The penetration of insurance for DRR in Africa is slowed by a number of challenges including regulatory constraints, shortage of skills and data to design appropriate products, unaffordable premiums and limited incentives to promote uptake of insurance.

**Planning and disaster preparedness**

African cities are increasingly investing in programmes and policies to promote resilient urban development – Essential 4 – but challenges abound. Development of building codes is one of the areas where significant progress has been made as they have been developed in 71% of the cities. However, a key challenge is the fact that only 18% of cities regularly update their building codes for all known hazards. Additionally, enforcement and compliance with building codes remains weak in most African cities due to limited financial and technical capacity, bribery and corruption, lack of awareness among practitioners and investors and logistical challenges, leading to disasters such as collapse of buildings. Over half of the cities (56%) have developed policies to facilitate integration of resilience in new urban development, but implementation of the policies is constrained by a lack of supporting guidance for practitioners such as architects and engineers.

World Food Program (WFP) Food Assistance for Assets activities that supported DRR in Africa focused on developing and rehabilitating natural assets related to landscapes, and physical assets such as roads and pathways, to improve access to food or markets, and community infrastructure. Examples of these types of assets include community water ponds for irrigation and livestock use, or income generating infrastructures such as market stalls, facility centres, and community buildings etc. These projects put communities at the centre of planning, empowering them to invest in DRR to build their resilience to shocks over time.

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**Figure 3.1: Progress in making disaster risk reduction plans**

- Fully integrated DRR plan complying with Sendai Framework and addressing all of the Ten Essentials
- Stand-alone DRR plan complying with Sendai Framework and addressing some of the Essentials
- Plans offering partial compliance with Sendai Framework and covering some of the Essentials
- No plans/compliance

Source: UNDRR, 2019

**Figure 3.2: Knowledge of approaches to attracting new investment to the city**

- There is little understanding/awareness of available sources of funding for DRR
- There is some visibility of routes of funding, but the picture is incomplete and little is done to pursue these funds
- The city is aware of numerous routes to secure funding for DRR activities and is actively pursuing a range of these
- The city understands all routes to secure funding for DRR activities, is actively pursuing a range of these and has had some success

Source: UNDRR, 2019
Incorporating DRR in urban land use planning has the potential of improving sustainability and resilience. Just under half (46%) of African cities have been zoned according to land use, considering hazard and risk mapping. However, in 40% of the cities, zoning is not complete and is not reviewed regularly to incorporate new risks and hazards. Poor zoning may provide loopholes for development in areas that are prone to risks or failure to take into account the potential impact of various disaster scenarios in new urban development, thereby exacerbating risks.

Analysis of Essential Five reveals that major progress is being made by cities to promote green infrastructure including greening streets and blue infrastructure such as river corridors, wetlands and waterways. In particular, 82% of the cities promote some green and blue infrastructure (Figure 3.3). However, much effort is still required to develop supportive policies and guidance to strengthen investment in green and blue infrastructure. Over half of the cities and their stakeholders understand the majority of the functions provided by key local natural assets including water attenuation and growing food. However, these functions are still not economically valued due to lack of technical and financial capacity.

Establishing institutional capacity – Essential 6 – is one of the areas where little progress has been made. For cities to discharge their resilience-building roles effectively, they need access to appropriate skills and experience so they can establish public education and awareness programmes to engage with citizens, and promote data sharing, training and learning from others. However, over half of the cities still face significant challenges in accessing the skills, experience, and resources they need to respond to identified disaster scenarios (Figure 3.4). This is compounded by a lack of appropriate training programmes to develop the required skills or expertise. Even where some training programmes have been developed, the coverage is often limited, and the content has significant gaps. For instance, over two thirds (68%) of the cities have little or no relevant training programmes tailored to their needs, whereas just under three quarters (72%) lack training materials that have been translated to all commonly used languages.

Figure 3.3: Integration of green and blue infrastructure in policy and projects

There is little/no active push to promote green infrastructure in new urban development or infrastructure projects

Some green and blue infrastructure is being promoted, but this is not universal and it is not supported by policy

Green and blue infrastructure is being promoted through policy, but there is little supporting guidance for practitioners

Green and blue infrastructure is being promoted on major urban development and infrastructure projects through policy and supporting guidance material in the city

Source: UNDRR, 2019

African cities are making important efforts to create awareness of disaster risks and to promote peer learning. For example, 76% of the cities have some campaigns or public relations and education programmes aimed at disseminating critical information that reach at least 25% of the city population, whereas 60% of the cities share at least some useful data to inform resilience-building initiatives, with 10% of the cities having a portal that brings together different datasets. Furthermore, 82% of the cities share some knowledge with other cities that are facing similar challenges, but this tends to be ad hoc in 32% of the cities.

Understanding and strengthening social capacity for resilience – Essential Seven- requires involvement of community organizations in DRR programmes, developing appropriate training programmes for the most vulnerable/needy populations, establishing appropriate citizen engagement techniques and assessing business continuity plans. The assessment shows that in 46% of the cities, there is no involvement of community organizations, whereas in 20% of the cities, community organizations are involved in awareness creation initiatives, but do not participate actively in disaster response and planning. Limited participation of community organization has negative implications for building resilience since risk reduction is often beyond the capacity of governments alone due to the significant resources and expertise that must be mobilized. For instance, in Accra, Ghana flood risks are increasing because of reliance on top-down approaches to DRR coupled with inadequate enforcement of regulations and failure to incorporate local collective action in policies. Therefore, a key objective of cities in Africa should be to work with a strong network of community organizations and a committed private sector to build resilience.
In 46% of the cities, socially vulnerable populations have not been mapped. There is a risk that some vulnerable populations in such cities will be left behind if their needs and vulnerabilities remain unknown to local authorities. The assessment shows that 56% of the cities have done some mapping of the socially vulnerable. Furthermore, business continuity plans in 70% of the cities cover less than 20% of businesses. Without effective business continuity plans, cities risk losing the businesses operating in them after a disaster, thereby exacerbating the vulnerabilities of their residents through lost income and property, as well as lost tax revenue for the cities.

Developing critical infrastructure with adequate capacity to cope with disasters as articulated in Essential Eight, is a fundamental aspect of improving urban resilience. Infrastructure risks are generally well-understood in cities in Africa, but there remain significant gaps in developing protective infrastructure. For instance, significant parts of 44% of the cities are unprotected from known risks and hazards. Even in cities where some protective infrastructure has been developed, the design and management are often not consistent with best practice.

In 72% of the cities, health facilities that can treat over 90% of major injuries in ‘most severe’ disaster scenario within 36 hours have been established. Putting in place a health system that can facilitate treating of over 90% of major injuries within a shorter period could help in reducing loss of life due to delays in accessing treatment. 60% of African cities have inadequate first responder assets such as firefighting vehicles, ambulances, police vehicles, helicopters, emergency food and backup generators to meet response needs even under the ‘most likely’ scenario.

Disaster response and post-event recovery

The assessment shows that weak progress has been made to ensure effective disaster response (Essential 9) in many cities in Africa. Challenges remain in establishing effective early warning systems, disaster event management plans, appropriate staffing to ensure surge capacity and emergency operations centres. For instance, in 72% of the cities, less than half of the population is reachable by early warning system and 46% of the cities do not have disaster or emergency response plans. Most of the existing plans are not comprehensive enough to ensure effective response. Of particular concern is the fact that only 2% of the cities conduct annual drills validated by professionals to be realistic representations of ‘most severe’ and ‘most probable’ disaster scenarios.

This makes it difficult to identify weaknesses or gaps in response plans and strategies. In 72% of the cities, there are no emergency operations centres to facilitate a well-coordinated inter-agency participation in disaster response and over half of the cities lack surge capacity to support response. Furthermore, in 72% of the cities, needs for equipment and relief supplies are either not defined or the definition is essentially nominal or guesswork.

Only 4% of the cities have defined their needs for equipment and relief supplies and linked them to disaster scenarios (Figure 3.5). Weak definition of needs means that some populations are likely to be left without adequate supply of the food and non-food assistance that they would need to cope with a disaster.

Expediting recovery and building back better as envisioned in Essential 10 is hindered by a lack of post event recovery and reconstruction plans in 48% of the cities. In 40% of the cities, there are some plans or strategies in place, but they are not comprehensive or not understood by relevant stakeholders. Many cities miss vital opportunities to learn from past disaster events to inform their response and recovery strategies in the absence of systems for documenting lessons learned. For instance, in 40% of the cities, lessons learned are unplanned or ad hoc and rely on individuals rather than government institutions. In 44% of the cities, some lessons are captured and disseminated, but not in a systematic way.

Role of local governments in urban risk management

As urban populations and economic activities increase, local governments are expected to play an integral role in addressing the development challenges occasioned by natural and technological hazards. To begin with, local governments have a vital role in establishing and coordinating a multi-stakeholder platform to promote urban risk reduction or management. Designing and implementing a comprehensive suite of risk reduction actions requires significant resources, time, expertise and involvement of multiple actors. Active leadership by local governments, is therefore important to garner adequate political will and support of public, private, donor and civil society actors in urban risk management. Adequate political will is particularly important in situations where significant changes to the status quo have to be made to ensure disaster resilience for example by designing and introducing new and transformative risk reduction practices and policies, as well as allocating adequate budgets for risk reduction.

Local governments are also expected to work with local communities to identify their vulnerabilities and risks and integrate these in development priorities. As the first point of contact with urban communities during a disaster, local governments are best placed to raise urban populations’ awareness of disaster risks and hazards and identify their concerns. Involving citizens in decision-making processes can strengthen democratic governance, leading to development and implementation of DRR policies and actions that more accurately reflect the needs of urban populations.
Summary of findings

Urbanization can contribute positively to development, but it is accompanied by risks. In line with the growing trend of urbanization globally, disaster risk is increasingly becoming an urban phenomenon. In Africa, the negative features of urbanization are transforming the urban setting into an amplifier of hazards and a locus for the concentration of risks. Urbanization is causing significant ecological impacts, thereby exacerbating disaster risks in urban and peri-urban areas. Furthermore, poor urban planning, inadequate financial and technical capacity and limited access to quality data slow investment in effective DRR measures in African cities. The vulnerability to hazards and disasters in African cities is also driven by inadequate access to basic services and infrastructure, poverty, and reliance on a large and unregulated informal sector for goods, services and livelihoods.

The analysis of the progress of a selection of African cities in implementing the Ten Essentials of Making Cities Resilient shows that substantial progress has been made in key areas including developing DRR plans, promoting green and blue infrastructure and understanding DRR. However, significant gaps remain in strengthening financial and institutional capacity, involving communities in DRR and mapping the vulnerable populations. Additionally, disaster response and post-event recovery remains a challenge in part due to a lack of effective early warning systems, disaster event management plans, and inadequate staffing to ensure surge capacity. These challenges call for concerted effort and collaboration among all stakeholders involved in the functioning of cities/urban areas to invest in urban resilience to ensure sustainable urban development.

Policy implications

Local governments, city and urban authorities should:

- Improve urban planning to reduce the ecological impacts of urbanization and the vulnerability of urban dwellers to hazards. This calls for developing high quality hazard maps; establishing and implementing comprehensive building codes and land use and zoning regulations and enforcement that take into account the mapped hazards; and developing a framework for regular updating of zoning regulations and building codes.
- Work collaboratively with national government to formulate and implement legislation and measures to regulate informal sectors. This will prevent production of goods and services that expose urban dwellers to risks, ensure safe work environments and reduce the ecological impacts of informal sector economic activities.
- Upgrade informal settlements to reduce the vulnerability of their residents. This calls for provision of services and infrastructure aimed at reducing risks such as health services and potable water systems. Local governments should also provide alternative settlement or land for residents of informal settlements that are prone to disasters.
- Strengthen financial capacity by developing and implementing policies to improve own source revenue mobilization. This should be supported by technical support to local governments to establish effective revenue collection systems, including training on identifying and pursuing available external funding opportunities. Additionally, national and subnational governments should establish appropriate revenue sharing formula to ensure urban areas are funded adequately. A specific budget/ or funding stream should be ring-fenced for DRR.
- Strengthen institutional capacity for DRR through training to build internal expertise; collaborating with neighboring cities and national governments to access external expertise and experiences; and allocating adequate budgets for hiring adequate staff.
- Invest in poverty reduction measures to improve resilience at household level. This calls for investment in livelihood diversification programmes, creation of job opportunities in various sectors and establishing effective social protection programmes.
- Strengthen disaster risk governance by defining clear mandates of various stakeholders, including civil society, traditional authorities, community organizations, non-governmental organizations and donors. This should be supported by a platform for coordinating the interventions of various stakeholders and sharing risk information. Additionally, a specific lead agency with adequate convening authority and resources should be established to facilitate coordination of DRR activities.
- Establish an effective data system for DRR. The system should facilitate regular collection and analysis of data that is disaggregated and comprehensive in coverage. This should include mapping the socially vulnerable, conducting needs assessments to define the required equipment and relief supplies, developing quality hazard maps and recording the impacts of hazards/disasters.
- Strengthen disaster response and post event recovery by increasing the proportion of the population that is reachable with early warning information, conduct regular drills that are validated by professionals to identify gaps in preparedness, and establish emergency operations centres that promote inter-agency participation in response.
- Establish a framework for identifying and documenting lessons learnt and using this to inform future DRR policies and practice.
Gendering disaster risk reduction
CHAPTER 4: Gendering disaster risk reduction

Overview

It is widely recognized that disasters are not gender neutral. This chapter highlights the need for gender mainstreaming into disaster risk reduction (DRR) by taking stock of various practices in sub-Saharan Africa. When disasters occur, the impacts interact with existing structures and systems, including negative gender norms, making women and girls even more vulnerable. Often, the level of inequality among men and women largely determines resilience to disaster risks. According to the FAO, after the food price crisis of 2007–08, female-headed households were 1.6 times more likely than male-headed households to be food insecure. By contrast, when men and women enjoy equal rights, opportunities and entitlements in civil and political life, there is increased and better resilience to shocks. FAO also notes that addressing these inequalities has positive outcomes on DRR. When women and men receive training on DRR, they share leadership roles, and their differential knowledge on the impacts of natural hazards is integrated into DRR, thereby enhancing community resilience.147

Gender mainstreaming in DRR at the level of regional economic communities

Global and regional frameworks have recognized the role of gender in managing disaster risks and building resilience of communities. The Sendai Framework for instance makes provision for the integration of gender equality, calling specifically for all related policy and practices to reflect gender provisions. The framework states that governments should engage with all relevant stakeholders including women, children, youth and persons with disabilities in the design and implementation of policies, plans and standards. The Africa Programme of Action for Implementation of Sendai Framework DRR seeks to strengthen mechanisms, frameworks and capacities at national and subnational/local levels for mainstreaming, implementing and coordinating gender-responsive DRR strategies and programmes.

Women play a key role in building broader community resilience due to their knowledge of disaster coping mechanisms. Often, however, they tend to be excluded from decision-making processes in DRR programmes and actions because of their traditionally defined roles. Without deliberate effort to consider gender roles, approaches to DRM tend to be insensitive to gender differences, and are therefore neither effective nor equitable. Overall, the subsidiary roles of women in society remain a key hindrance to development and socio-economic transformation. The continent cannot meet its ambitious goals under Agenda 2063 while it limits a dynamic segment of its society – Africa’s women.

In order to deal with the inequality caused by exclusion of women from DRM initiatives, four of Africa’s Regional Economic Commissions/Communities (RECs) are prioritizing gender mainstreaming in their DRM activities by developing Gender Strategies and Action Plans (GSAPs).148 The four RECs are: the Economic Commission of West African States (ECOWAS), the Economic Commission of Central African States (ECCAS), the Southern African Development Community (SADC) and the Intergovernmental Authority on Development (IGAD). The GSAPs, which take a different form depending on each REC, are being developed through extensive consultation with stakeholders at regional level, and within member states. They are expected to be realistically ambitious, based on the current extent of gender mainstreaming.

Textbox 4.1: Gender and disaster: Fast facts: Gender bias, disasters and disaster risks

UNDP, 2016 - Women and children are 14 times more likely than men to die during a disaster.

There is a direct relationship between women’s risk of being killed during disasters and their socio-economic status (defined as access to information, economic resources and ability to exercise personal freedom of choice).

In refugee camps, women and girls are exposed to higher risks than men, including through conflict over scarce resources. Compounding this, social strains in such situations aggravate stress levels in the family, which may result in increased violence against women and girls.

UN WOMEN - Empirical evidence based on a sample of 141 countries over the period 1981–2002 shows that disasters killed more women than men and narrowed the gender gap in life expectancy.149 This can be explained by the fact that women and girls tend to be among the most vulnerable to disasters, due to socially constructed roles and norms that lead to the gendered division of labour, lower levels of literacy and education, reduced mobility, and ultimately higher levels of poverty and vulnerability.

Bradshaw and Fordham, 2013

Access to health care is limited during and after a crisis, increasing mortality and malnutrition rates, particularly for mothers and infants; 60% of preventable maternal deaths take place in settings of conflict, displacement and natural disasters.

Girls are often the first to be pulled out of school as parents find ways to alleviate economic burdens, depriving them of the fundamental right to education and the realization of their full potential in life. Girls are 2.5 times more likely to be out of school in conflict-affected countries than their counterparts in conflict-free countries.

Distance to water sources increases significantly during drought, with women and girls walking 10–15 km in search of water. Women take up additional roles as heads of households in cases of migration or death of a husband. Women are responsible for care of sick or older people.

Sources: UNDP, 2016146; Neumayer and Plümper, 2007147; Bradshaw and Fordham, 2013148; UN WOMEN149.

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The Federal Republic of Nigeria has an estimated population of 197 million people, with 53.5% of the population living below the poverty line of US$1.90 per day between 2003 and 2009. The country is extremely vulnerable to droughts, floods, landslides, gully erosion and windstorms. Nigeria’s National Emergency Management Agency (NEMA) was established in order to deal with DRR, among other objectives. It has put in place policy and program instruments on DRR such as the National Disaster Response Plan (NDRP), the National Disaster Management Framework (NDMF) and the National Action Plan for Emergency Preparedness and Response/Disaster Risk Reduction. Furthermore, all the states in Nigeria are mandated to establish State Emergency Management Agencies. Even with such an extensive legal and institutional framework for DRR, the framework does not acknowledge gender dimensions of DRR, and the limited involvement of the people in ownership of DRR processes has been identified as a gap.154 Mozambique is prone to disasters related to floods, tropical storms and earthquakes, largely due to its terrain, which is dominated by ten main river systems that cross the country and drain into the Indian Ocean. Some 60% of the people in Mozambique live along the coastline, making them vulnerable to hurricanes. A national disaster management policy has been in place since1999, with an accompanying disaster management law (15/2014) and a master plan for prevention and mitigation of natural disasters (2017–2030). However, a key gap in this framework is inclusion, gender equality and empowerment of women. Community engagement is very weak and is characterized by lack of information.155 From the examples of Nigeria and Mozambique, mainstreaming of gender in DRR activities has remained sub-optimal for various reasons. First, stakeholders involved in DRR have inadequate technical capacity in understanding gender issues. The lack of coordination results in weak accountability mechanisms, and inadequate resources to fully mainstream gender within institutions and programming for DRM and other sectors. To improve this situation, it will be necessary to develop a gender strategy that outlines how to include gender in existing operations/plans, with an action plan to give a set of defined, time-bound and measurable activities to ensure widespread application. Furthermore, there is a need to address proactively the voice of women with low economic status who are more prone to disaster at all levels of governance. The success or failure of any initiative is determined by the availability of data for monitoring and evaluation. However, despite commitments under the Sendai Framework, it is still not the norm to collect sex-disaggregated data (ideally within sex-, age- and disability-disaggregated data) for DRR purposes. Without this, it is impossible to expect that interventions will equitably benefit girls and women, as well as boys and men; nor is it possible to monitor and learn from progress. Nonetheless, countries have noted that they are aligning their data-collection tools to the Sendai Framework indicators and disaggregation needs, including by sex and age.156 Hence, with the advancement of the Sendai Framework Monitor (SFM) reporting process, there is an opportunity for increasing the availability of data related to gender and disasters. There are isolated examples of gender-responsive DRM, but we need an integrated gender-responsive framework for all DRM and which is adequately resource. A gender-responsive DRM should:

1. Ensure meaningful representation of women on all committees and councils within the disaster management system at national and local levels. 
2. Undertake a gendered analysis of disaster risk management, to highlight the differential vulnerabilities of women, men, girls and boys, based on their levels of exposure and ability to adapt to impacts.
3. Establish common priorities for gender-responsive DRM, which include:
   a. Sex-disaggregated data, critical for strategic planning, operational planning, activity implementation and results monitoring.
   b. Involvement of women in decision-making/governance.

Legal protection during disasters: evidence from Zimbabwe158

The International Federation of Red Cross and Red Crescent Societies (IFRC) / Red cross of Zimbabwe conducted a study to contribute to a joint action on prevention and response towards sexual and gender-based violence (SGBV) in disasters. The study looks at both gender equality and SGBV in times of disaster. Although informants interviewed for the study indicated an increase in SGBV incidence and complaints during disasters, there are no data available to quantify the extent of this. In slow-onset disasters, such as community impoverishment triggered by a two-year drought, it was also difficult to make a distinction between SGBV issues related to the disaster (loss of family income and livelihoods, insufficient food) and those related to broader cultural attitudes (tolerance of some types of SGBV).

The report finds that, although there is a legal framework for SGBV support, during normal times and during disasters, implementation is a challenge. This is due to lack of resources, insufficient legal aid for SGBV survivors, and community attitudes of tolerance towards SGBV within families that create social barriers to accessing support services and the justice system.

b. Strengthening disaster risk governance in order to effectively manage disaster risk should include women (e.g., the global, regional and national plans of action implementing the Sendai Framework DRR must incorporate women and youth)

c. Investment in DRR for resilience, such as through safety net programmes or infrastructures, should respond to the needs of women and youth

d. Enhanced disaster preparedness for effective response and recovery should incorporate views of both men and women.

The additional strain placed on the SGBV legal framework during disasters magnifies the existing challenges, and there is no specific mechanism in place to ensure that the framework is disaster-resilient. To improve gender-sensitive responses within DDR, the report calls for:

- Meaningful representation of women on all committees and councils within the disaster management system at national and local levels
- Gendered analysis of DRR, to highlight the differential vulnerabilities of women, men, girls and boys, based on their levels of exposure and ability to adapt to impacts
- Mainstreaming of gender in DRR strategies
- Refining indicators to monitor progress on inclusion of women and girls, and measures aiming at taking gender into consideration.
Mainstreaming gender in DRR: subnational evidence from Zambia and Zimbabwe

Chineka et al (2019) compare two districts, in Zambia and Zimbabwe, to show the dual role of gender mainstreaming as both a tool and a sustainability initiative in DRR. Mumbwa district in Zambia, with more than 200,000 residents, has been experiencing declining intervals between droughts, from the traditional ten years. The impacts include reduced agricultural production, water shortages, loss of livestock, malnutrition and poverty. In 2005, Heifer International introduced the ‘Pass on the Gift Programme’, with the main objective of helping the community adapt to drought shocks, by building both economic and environmental resilience. The approach was to develop community self-reliance by increasing crop yields, improving nutrition and promoting agro-ecological farming. A heifer would be passed to a family under the ownership of a woman; any calf produced would then be passed to the next person on the list. Even though the programme targeted women, it also integrated men and youth. Members were able to start up their own cooperatives and even spread the initiative to other communities. Success of this project was attributed to the fact that disaster management was tackled from the grassroots level, with participation of all community members.

Chivi District in Zimbabwe, with a population close to 170,000 people, has a majority of women (54.5%). The district experiences drought-induced disaster at an interval of 3–5 years. The drought impacts include dwindling water resources, lack of food and deepening poverty. The Ministry of Lands and Agricultural Resources supported by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) introduced the Conservation Farming Programme in 2004 to reduce drought shocks through sustainable farming. The main objective was to reduce the effects of drought by enhancing agricultural productivity through digging planting basins, mulching and crop rotation. Farmers participated on voluntary basis, allocating 0.1 hectares of their land for conservation farming. To maximize use of water and manure, farmers would plant crops only in prepared pits. The programme empowered farmers with sustainable farming practices such as mulching and integrated pest management. The project faced several challenges, with participating farmers shunning those who preferred relief food. Because the project was labour intensive, farmers were not willing to expand their land for this project. While gender integration is an important success factor in any DRR initiative undertaken, ensuring sustainability of such initiatives is crucial for sustainable development. In Chivi District, for instance, 29% of participating farmers withdrew after the donors pulled out of the project.

Summary of findings

This chapter has reviewed gendering DRR by considering examples from Nigeria, Mozambique, Zambia and Zimbabwe. While there are frameworks and strategies in place for DRR at regional and national levels, women are often not included in DRR processes; however, the Mumbwa district in Zambia did success- fully mainstream gender in DRR. The widespread lack of inclusion of women and girls in DRR, however, is reflected in the lack of a monitoring framework and of indicators for measuring success.

Policy implications

The success of DRR depends on inclusivity – and in particular on effective gender mainstreaming. Good practices to mainstream gender and enhance the success of DRR include the following.

Ensuring the guiding principles of DRR policies and plans are gender sensitive.

- Include men, women, and marginalized groups in the decision-making process and execution of plans.
- Develop detailed action plans to reduce the gender gap between men and women through empowerment activities and priorities for men and women in responding to disasters.
- Achieve equality between men and women in order to build their resilience.

Focusing on the content of a gender-responsive DRR policy or plan.

- All risks and vulnerabilities related to natural hazards have a social dimension that takes cognizance of the differences in men’s and women’s livelihoods.
- The consultation mechanism for stakeholders should ensure that women are included. These women should also constitute the planning and steering committees for the stakeholder’s forum.
- Resources (human and financial) should be allocated for hiring gender experts who can collect, analyze and interpret sex-disaggregated data.
- Capacity-building of DRR staff and policymakers will be needed, on issues of gender equality.

Enhancing gender sensitivities of disaster risk profiles.

- Conduct gendered vulnerability assessments.
- Document the roles played by men and women in the productive sector, as well as in natural resource management.
- Undertake assessment of the social and gender dimensions of risks addressed in the DRR plan or policy. This can relate to: the impact of specific hazards on men and women; decision-making power, asset ownership and ability to respond to disasters; information access for both men and women; and the implications of coping with hazards or disasters.

Integrating gender-related work in DRR implementation plans.

- Define roles and responsibilities that ensure gender issues are integrated in DRR activities.
- Develop monitoring and evaluation indicators that are gender sensitive, and that will ensure the tracking of impact of initiatives on livelihoods of various socio-economic groups.
- Include separate budget lines for gender-related activities, for example awareness raising of gender dimensions to DRR planning.
- Identify gender-responsive communication methods to reach men and women.
- Conduct case studies to document benefits from the proposed activities and identify good practice for future up-scaling.

Making strategic actions gender sensitive, by ensuring the different needs of men and women are addressed.

- Include women in access information on early warning and active participation in local DRM committees.
- Institutionalize the DRR planning and implementation process, ensuring stakeholder presentations especially for women and other marginalized groups.
- Develop agricultural practices in close consultation with local communities, in order to integrate local knowledge.
- Ensure the development of gender-responsive measures for effective outreach, to guarantee access to prepar- edness initiatives.
Science and technology and DRR
CHAPTER 5: Science and technology for DRR

Introduction

Recognizing that successful disaster risk reduction (DRR) depends on science, technology and innovation (STI), the Sendai Framework for DRR includes science and technology as a core element. Science refers to knowledge generated through study or practice. In the context of DRR, scientific capacities must be understood in a broad sense to enable a multidisciplinary approach. Accordingly, science is considered here in the broadest sense, to encompass the natural, environmental, social, economic, health and engineering sciences.160 Additionally, ‘technical’ is construed to encompass all relevant matters relating to technology and engineering.

The process of DRR is necessarily reliant on scientific and technical knowledge. It would be impossible, for instance, to invest in flood- or earthquake-resistant buildings without a clear understanding of proven methods, materials and construction designs that can withstand such hazards. Similarly, investing in effective resilience-building measures would be impossible without adequate understanding of the social, economic, cultural and demographic contexts of the affected communities. Accordingly, DRR has to be supported by scientific knowledge and evidence-based techniques. STI can be applied at all stages of the disaster risk management cycle including prevention/mitigation, preparedness, response and rehabilitation/reconstruction to ensure adequate protection of assets, lives and livelihoods.

A resilient Africa needs robust STI for DRR. This requires integration of science into both policy and practice for disaster risk management. To help achieve this, this chapter discusses the role of science, technology and innovation in DRR in Africa. It then discusses progress, opportunities and challenges in the application of STI for DRR.

The role of science and technology in DRR

Understanding disaster risks

DRR policies and practices should be informed by scientific evidence to ensure implementation of appropriate interventions. Science and technology contribute to development of tools, techniques and knowledge that support understanding of the root causes and drivers of disaster risks, generating disaster risk data, and mapping and assessing disaster risk. For instance, in many African countries, new technologies such as open-source mobile data collection platforms (e.g., Ona and Open Data Kit) are being used to facilitate rapid collection of quality data to inform disaster risk management decisions. Additionally, several countries, such as Mozambique, Mali, Morroco, Kenya and Ethiopia, have developed national disaster loss databases using the DesInventar.161

Investing in scientific research can create understanding of the social, cultural, economic and political factors that drive vulnerability, poverty, people’s perceptions and reactions to disaster risks and the human roles in accumulation and exposure to risks.162 Furthermore, science is important for enhancing understanding of the applicability of existing DRR techniques in various contexts, and of the expected implementation processes, costs and reduction in risks.163

Science and technology also play a key role in analysis of failures and successes beyond immediate DRR project completion, including an examination of the factors that cause success or failure. This provides a sound foundation for learning and documentation of all practices to guide future programming.164 Through science and technology, emerging risks and challenges can be evaluated to guide DRR programming in urban and rural settings.

Supporting disaster risk governance

Technical skills are important for adopting collabora- tive and multi-stakeholder approaches to manage disaster risks that transcend national borders.165 STI also support disaster risk governance by enhancing access to information for developing risk-reducing policies and informing decisions. Accordingly, science and technology should be recognized as universal public goods that help in laying the foundation for DRR and sustainable development. Even though decision-makers may be familiar with the existing strategies for particular disaster risk management, choosing the right strategy from several potential candidates can be a challenge in itself. This may lead to the risk of decision-makers reverting to solutions they are most familiar with, even though a better one may exist. Accordingly, one of the key roles of science and technology is to reduce the risks associated with taking heuristic measures in addressing disaster risks by providing clear information to guide decision-making.166

Facilitating investment in DRR

The rapid growth in information and communication technology in Africa is providing a cost-effective means of providing risk-reducing services such as health care through innovative approaches such as telemedicine. Telemedicine – the use of information and communication technologies to deliver health care remotely167 – is being used to enhance access to health services and medical information in rural areas. Telemedicine has been rolled out in a number of countries in Africa, including South Africa, Kenya, Mali, and Egypt. One of the major telemedicine and tele-education projects in the continent is the Pan African e-Network (PAeN), which is a joint initiative by the African Union and the government of India. PAeN facilitates delivery of tele-education and telemedicine services by Indian education and health institutions to the African Union member states.168 Nonetheless, these services are facing several challenges, including inadequate infrastructure, data privacy and protection concerns, and inadequate regulatory frameworks.

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STI also supports risk reduction by facilitating: systematic risk assessment, management of hazards such as floods, land use control, provision of early warning information, and delivery of public education to equip citizens with knowledge and skills needed for resilience. Advancement in mathematics and computer science is facilitating weather modelling and forecasting of hazards such as floods and drought to provide early warning information for early action. In Ethiopia, the national early warning system uses computer software that transforms agro-meteorological data to crop or rangeland estimates – the Livelihoods, Early Assessment and Protection index (LEAP). LEAP is used as an early warning, early response mechanism that triggers contingency funding for food or cash assistance when severe droughts or floods are anticipated. Additionally, Kenya’s Predictive Livestock Early Warning System facilitates prediction and early identification of geographical areas facing acute and chronic food and forage insecurity, to form early action.

Economic empowerment is critical for DRR as it allows vulnerable populations to access the resources needed to manage risks and build resilience. STI supports economic diversification and development of livelihood opportunities that allow communities to adapt to the adverse impacts of hazards such as droughts and floods. In Africa, STI is contributing to development of sustainable livelihoods and economic empowerment in several ways. These include: development of drought-resistant seed varieties; innovations in the financial sector such as index-based agricultural insurance to cover hazards such as droughts; mobile money-transfer services such as M-Pesa in Kenya that are enhancing financial inclusion; and online retail services that are improving access to markets.

Science and technology also facilitate implementation of national and regional DRR strategies. To ensure success, scientists need to support all aspects of DRR implementation, including ensuring that appropriate metrics, monitoring, evaluation, infrastructure and data are in place. The decision of the African Union to create the Africa Science and Technology Advisory Group (AF-STAG) to provide scientific and technology advice is a step in the right direction, as science is important in collecting, analyzing and making inference from data for making appropriate decisions.

Supporting disaster preparedness and response

Monitoring risks requires an effective communication system to provide early warning and to coordinate response during emergencies. In conflict-affected areas such as Somalia, parts of South Sudan and the Democratic Republic of Congo, accessing affected communities to collect data that can support humanitarian response is a significant challenge. Advances in digital technologies, including mobile telephony, is supporting development of innovative communication tools to support analysis of vulnerabilities and needs during emergency and to coordinate response. For instance, the World Food Programme’s mobile Vulnerability Analysis Mapping technology, which has been used in more than ten countries in Africa, relies on mobile-phone technology to monitor food-security trends in real time, thereby allowing responders to access current data to support humanitarian action and provide early warning. Other technologies being used in Africa include interactive voice response, live calling and bulk text messaging to collect data and or to provide information in humanitarian settings.

Technology and innovation also support development of solutions to deliver relief supplies during emergencies, especially in hard-to-reach locations. In Rwanda for instance, the government has partnered with a drone company, Zipline, to use drones to deliver blood supplies to remote health facilities, including during emergencies.

Big data and analytics also support decision-making related to managing disaster risks, including response during emergencies. For instance, in 2015, the World Health Organization and the Uganda Ministry of Health partnered with Pulse Lab Kampala, which provided data mapping and visualization that supported decisions related to allocation of medicine, medical personnel and health centres to respond to a typhoid outbreak.

Progress, opportunities and challenges

Progress

Using STI to manage climate-related disaster risks is one area in which important progress is being made in Africa. In particular, African countries in collaboration with the World Meteorological Organization (WMO) are making important progress in establishing early warning systems that provide vital information on risks associated with weather/climate variabilities. At the continental level, the WMO Information System (WIS) allows National Meteorological and Hydrological Services (NMHSs) to share observed meteorological data every three hours. WIS facilitates effective data discovery, access, and retrieval of all weather- and climate-related information produced at various national centres, for decision-making purposes.

Additionally, each regional economic commission in Africa has established an intergovernmental regional centre to address hydroclimate issues in collaboration with NMHSs. The centres include the IGAD Climate Prediction and Application Centre (ICPAC) in East Africa, Agrometeorology, Hydrology, Meteorology (AGRHYMET) in West Africa, the Southern African Development Community Climate Service Centre (SADC-CSC), Climate Prediction and Application Centre (CPAC) for Central Africa, and the Northern Africa Regional Climate Centre (NARCC). These centres produce and disseminate, on a regular basis, meteorological, environmental and hydrometeorological information to inform regional DRR decisions, policies and practice. In addition, seven Regional Climate Outlook Forums (RCOFs) have been established to provide consensus-based early warning seasonal climate information to facilitate reduction of climate-related risks.

An important aspect of RCOFs is that they bring together various actors including climate scientists, policymakers and representatives of the user information community at national and regional levels. Accordingly, RCOFs serve as platforms for sharing data, tools/methodologies, dialogues leading to consensus on regional climate outlook, and identification of climate impacts. The information produced by RCOFs facilitates development of evidence-based risk management strategies acceptable to various actors.

There is also important progress in using digital communication platforms, including web-based portals and social media, as innovative communication tools for sourcing and sharing information to support various stages of disaster risk management cycle in Africa. As disasters unfold, people often rely on social media platforms such as Facebook and Twitter to obtain and/or share information. Additionally, responders are increasingly leveraging advancements in ICT to source and share information with citizens. For instance, the U-Report platform of the United Nations Children’s Fund (UNICEF) has been used in several countries in Africa including Uganda, Côte d’Ivoire, Mozambique and Liberia to share information through text messages and social media platforms with vulnerable communities. U-Report has been used to support response to cholera in Sierra Leone, and to Ebola in Liberia by mobilizing the youth and disseminating information needed to prevent the spread of infections. In Uganda, the Ministry of Health is using an SMS- and web-based data collection platform (mTrac) to record routine health surveillance data submitted by health workers via SMS.

Progress in translating science into policy has been made through initiatives such as the Air Pollution Information Network for Africa (APINA). Formed in 1997, APINA brings together African policymakers, scientists, civil society actors, representatives of industry, and others interested in reducing or managing the risks associated with pollution. APINA promotes transition from science to policy by providing a platform where findings or outcomes of scientific research are translated into information relevant for developing national and regional policies.

The United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) supports disaster management in Africa. The UN-SPIDER programme facilitates access to space information by connecting disaster management, risk management and space communities, as well as facilitating capacity-building and institutional strengthening to support the use of space information. For instance, in 2018, UN-SPIDER provided training to representatives of government agencies and universities in Ghana on recommended
opportunities for managing floods and droughts. The training was geared towards creating capacity to use radar satellite imagery to map the extent of floods and generate maps to understand the comparative impacts on droughts on vegetation. In Nigeria, UNSPIDER supported the National Space Research and Development Agency (NASRDA) by providing early warning and mapping support for floods in 2018. This involved generating maps for flooded areas, tailored for monitoring flood conditions. A member of staff from NASRDA was trained on generating and using the maps to support decision-making related to drought and flood management.

Important progress is also being made in using STI to monitor disaster risks and support response during disasters. For instance, in 2019, drones were used to monitor disaster risks and support response during the action against future weather-related disasters. The use of live images taken by the drones at close range facilitated much faster response than in previous years. In Dar-es-Salaam, Tanzania, the Ramani Huria programme, supported by the Global Facility on DRR (GFDRR), is an open-source mapping project. It employs several technologies including drones, enabling local communities to map flood risks, share data and take early action against future weather-related disasters.

Advancements in mobile money services are being leveraged to provide timely cash transfers to disaster-affected populations in many African countries. For instance, in 2016, the United Nations High Commissioner for Refugees (UNHCR) delivered cash transfers to refugees in Rwanda through mobile money. Additionally, Save the Children and UNHCR have provided cash transfers to refugees in Niamay, Niger. If implemented effectively, cash transfers through mobile money can deliver several benefits to responders during emergencies, such as traceability, efficiency, timeliness and cost-effectiveness. For beneficiaries, mobile money can promote resilience and empowerment by facilitating access to several financial services such as savings, credit, utility payment and remittances. For instance, in Rwanda refugees are using mobile money not only to receive cash assistance from humanitarian agencies but also for international remittances – to receive or send money from or to relatives. The training was geared towards creating capacity to use radar satellite imagery to map the extent of floods and generate maps to understand the comparative impacts on droughts on vegetation. In Nigeria, UNSPIDER supported the National Space Research and Development Agency (NASRDA) by providing early warning and mapping support for floods in 2018. This involved generating maps for flooded areas, tailored for monitoring flood conditions. A member of staff from NASRDA was trained on generating and using the maps to support decision-making related to drought and flood management.

Opportunities Science and technology are accelerants of development that provide important opportunities to African countries to develop new insights and methods to reduce disaster risk. Application of science and technology to improve data quality and analysis is an opportunity to improve development and implementation of DRR measures. For instance, advancement in virtual reality technology and improvement in affordability is facilitating implementation of forecast-based financing for early action for anticipated disasters. In Togo and Uganda, for instance, the Red Cross Red Crescent Centre has implemented a pilot programme that leverages virtual reality technology to support forecast-based financing for disaster preparedness. The programme includes an innovative self-learning algorithm that triggers funding for early action just days before flooding occurs, to support communities in flood-prone areas.

Promoting cooperation and coordination among existing science and technology organizations is an opportunity to create synergies for addressing disaster risks through a multidisciplinary approach necessary for managing systemic risks. Collaboration with academic institutions can enable decision-makers to access expertise to ensure implementation of DRR strategies based on scientific and technical knowledge. For instance, the Partners Enhancing Resilience for People Exposed to Risks (Periperi U) is a platform that brings together 12 universities to reduce disaster risk in Africa. Periperi U conducts applied research and develops capacity for teaching, training, research and policy advocacy for DRR in Africa.

Citizen science is another area that offers opportunities for DRR and management in Africa. Citizen science refers to the “involvement of non-scientist citizens in the generation of new scientific knowledge”. This involves using a combination of approaches and technologies including the Internet, smartphones, social media, and low-cost sensor networks to generate comprehensive real-time information. Apart from generating information/data, citizen science provides opportunities for educating and empowering communities to participate in DRR. In Nairobi, Kenya, and Addis Ababa, Ethiopia, for instance, a team of researchers from Stockholm Environment Institute Africa, the African Population and Health Research Center, the University of Nairobi, the Horn of Africa Regional Centre and Network (Ethiopia) and Slum Dwellers International (Kenya) have used the citizen science approach to work with local communities to create knowledge to address air pollution. The approach facilitated data collection using sensors by trained community members who also shared information with other community members and policymakers to raise awareness on air pollution and take practical action to reduce exposure.

Creating synergies between science and traditional, local and indigenous knowledge also provides new opportunities for generating new approaches for DRR in Africa. Leveraging traditional and indigenous knowledge could support efforts to build local communities’ resilience to common natural hazards such as floods. In South Africa, for instance, the use of indigenous knowledge to address climate change and environmental challenges has been incentivized by the government through funding support for indigenous knowledge systems. Science and technology can support access to and use of traditional knowledge by, for instance, facilitating establishment of an online database of such knowledge.

There are also key policy initiatives at the regional level that can facilitate access to science and technology to support investment in DRR. These include the Science, Technology and Innovation Strategy for Africa 2024 (STISA) and the Continental Technical, Vocational and Educational Training (TVET) Strategy.

Finally, the creation of Af-STAG and the existence of various working groups in science and technology contribute to creating an ecosystem conducive to collaboration and sharing of scientific knowledge for DRR. For instance, Af-STAG can spearhead work on climate change in Africa at regional, national and local levels; documenting successful local resilience-building for possible replication; organizing annual regional and continental science and technology forums to share knowledge; and developing a communication strategy to disseminate knowledge through scientific publications targeting decision-makers, stakeholders and other users.

Challenges One of the biggest challenges facing many African countries is lack of investment in science, technology, engineering and mathematics. This is attributed to financial constraints, school curricula that do not adequately support advancement of science and technology and inadequate political will. Accordingly, many countries in Africa have limited ability to generate and use scientific information effectively for DRR. In Malawi, for instance, high cost has been identified as one of the key challenges constraining the use of GIS, GPS and satellite technologies to map floods. Translating technical and scientific knowledge into policy and action for DRR is also a significant challenge. Scientific knowledge is increasingly becoming available to African countries, but the evidence is not always incorporated in policies and used to design and implement DRR measures due to challenges such as inadequate technical capacity and resource constraints.

Application of science and technology for DRR is also constrained by a lack of or limited access to quality data for research, including baseline statistics on common hazards, exposure and vulnerability. This is exacerbated by limited technical and institutional capacity to collect and analyze quality data including making projections for future scenarios. Additionally, there are knowledge gaps in key areas such as understanding the cascading impacts of hazards, systemic risks, interactions between technological accidents and natural hazards, and the effectiveness of approaches such as citizen science in DRR. These knowledge gaps have negative implications for using science in DRR.

Application of science and technology is also hindered by institutional and policy challenges. These include competition for funding, poor coordination and overlapping mandates among government institutions. This is compounded by inadequate policy frameworks to support investment in science and technology for DRR.
Inadequate capacity to translate scientific and technical information into simple communications that can be understood by non-experts is also a barrier to uptake. Without adequate understanding, implementing scientific and evidence-based solutions becomes difficult. For instance, technical information such as El Niño forecasts may not be used if they cannot be used by decision-makers. This underscores the importance of working with intermediaries such as development practitioners, teachers and social workers to bridge the gap between scientists and practitioners/decision-makers with regard to understanding scientific and technical information.

Other challenges include:

- Despite progress, sharing climate early warning information is constrained by a number of challenges. These include malpractices such as sharing data without consent, national legislation that restricts access to weather and climate data, and fees charged by some NMHSs to access data.

- In relation to use of citizen-generated data/knowledge for DRR, there are challenges around data quality. These are mainly due to the high cost of accessing underlying technologies such as sensors and the Internet for collecting data/information, as well as limited skills among citizens. Addressing these challenges could facilitate up-scaling of citizen science for DRR in Africa.

- While digital communications platforms have been found to be useful, the possibility of misinformation through social media may exacerbate disaster risks. Inadequate investment in Internet-related infrastructure undermines opportunities to take full advantage of digital platforms.

**Summary of findings**

Investing in science and technology is central to effective DRR in Africa. Science and technology are important for understanding the complex interactions between human and physical systems, as well as the cascading impacts of various hazards. Additionally, science and technology provide opportunities for developing solutions to local social and economic challenges that exacerbate vulnerability to disaster risks. Nonetheless, there are significant challenges that have to be addressed to facilitate effective application of science and technology. This include institutional barriers, financial constraints and difficulties in translating scientific and technical information into policy actions. Stakeholders involved in DRR, should, therefore, start working collaboratively to address these barriers to leverage and realize the full potential of science and technology.

**Policy implications**

- Strengthen science advisory mechanisms for DRR by promoting synthesis of scientific evidence and making it available to policymakers in a timely and easily accessible manner. This should be supported by capacity-building, including training and strengthening science and technology partnerships and networks to ensure decision-makers are able to use technology and scientific knowledge.

- Knowledge should be promoted by African countries as a key feature of DRR, with key actions underpinned by scientific evidence and information. This requires greater focus on evaluating the current status of scientific and technical knowledge to identify what is known, what is uncertain or unknown, and what needs to be known at local, national and regional levels to enhance DRR.

- Foster strong partnership for Member States, stakeholders and partners to strengthen data acquisition and data sharing to promote evidence based DRR practices in line with target F of the Sendai framework

- Strengthen the evidence base by demonstrating the added value of a science-based approach to DRR. This will promote wider uptake and investment in science, innovation and technology by the public and private sectors to manage disaster risks.

- Ensure adequate financial support for science and technology for DRR. Developing scientific and technical solutions for local disaster risks requires adequate financial support for research and innovation. This calls for adequate budgetary allocations at the national level and collaboration at the regional level to pool resources for investment in science and technology.

- African countries should identify the priority areas for their DRR and promote problem-solving and multidisciplinary approaches to research to ensure science is integrated in all aspects of DRR. This will help in accessing evidence that can support development of country-specific solutions aligned to local realities for effective DRR.

- Bridge the existing knowledge gaps to improve access to the evidence needed to inform DRR. Thematic areas that should be prioritized for scientific research for DRR are:
  - understanding hazards, exposure and vulnerability to disaster risks, risk assessment and monitoring, early warning and multi-hazard monitoring
  - data collection, analysis and synthesis, and knowledge management
  - application/use of science, technology and innovation tools, methods and standards for implementing and reporting on the Sendai Framework Programme of Action in Africa.
Investment in DRR

Direct DRR investment: 74.8%

Indirect DRR investment: 25.2%
CHAPTER 6:

Investment in DRR

Introduction

Cost-benefit analyses have established that investment in DRR, particularly that which builds resilience, has positive returns in developing countries and is cost-effective. However, these analyses are sparse in sub-Saharan Africa, and domestic investment across the continent in direct DRR measures remains limited.

This chapter looks at DRR investments in Africa. It first presents trends in damages and losses from disasters in sub-Saharan Africa. It then assesses external and internal resource allocations for DRR. Lastly, it provides evidence on the value of investing in DRR using three case studies to evaluate specific DRR interventions, and it describes some financing mechanisms in place in sub-Saharan Africa.

Economics of disaster

The costs of disaster

As well as having devastating effects on a country’s population, as shown in Chapter 1, disasters as a result of natural hazards have had significant economic impacts upon sub-Saharan African countries. While there remain challenges in accurately measuring the full extent of this impact, existing data, such as from EM-DAT, provide a basic understanding of the trends in the damage costs experienced throughout sub-Saharan Africa.

For five of the ten years between 2005 and 2014, South Africa had the highest total direct costs as a result of natural hazards. This was consistently the result of riverine floods, and included US$430 million following a 2008 land fire. Indeed, during this decade, flooding frequently incurred the greatest direct costs upon countries in the region. Of the 20 most significant countries since 2015, those incurred by Mozambique, South Africa, and Ethiopia have incurred the highest cumulative direct costs of natural hazards, at US$2.2 billion following the 2017 drought in South Africa.

Damages due to floods have become less frequent since the last assessment report – Disaster Risk Reduction in Africa: Status Report 2015. Only two riverine floods and one flash flood have caused damages costing over US$30 million. Droughts, storms, and cyclones now account for the majority of the costliest events in the region.

Droughts have cost the region a total of US$2.95 billion since the start of 2015, including US$1.4 billion as a result of the 2015 drought in Ethiopia, and US$1.2 billion following the 2017 drought in South Africa. The largest single direct cost across the analysed countries since 2000 occurred in Mozambique, where the 2019 Cyclone Idai resulted in damages totalling US$2 billion.

The economic scale of these impacts is significant. For example, since 2015, Mozambique, South Africa, and Ethiopia have incurred the highest cumulative direct costs of natural hazards, at US$2.25 billion, US$2.15 billion, and US$1.40 billion, respectively (Figure 6.1).

The implication of these high costs of disaster losses is that investments to reduce them would need to generate equivalent economic benefits. Equally, such high costs provide a strong economic impetus to invest in preventative measures, which therefore provide countries with an opportunity to avoid such losses. The cost-effectiveness of DRR measures are discussed below in this section.

While it remains vital to track the damage costs incurred by countries across Africa, the damages suffered by countries like South Africa and Nigeria must be considered in the context of their relative wealth. Indeed, EM-DAT’s data record direct market losses – namely “the amount of damage to property, crops, and livestock” – thereby skewing results towards countries with a high concentration of infrastructure of economic value. When analysing damage costs as a percentage of GDP, those incurred by Mozambique remain the most significant since 2015, although the true impact of natural hazards on certain poorer nations becomes evident. For instance, the US$390 million of damage costs suffered by Malawi due to riverine flooding are less significant than those suffered by South Africa, Ethiopia, and Tanzania, but can still be considered more damaging to Malawi as the costs represent a greater proportion of GDP.

Figure 6.1: Countries receiving the greatest total damage, 2015–2019

Notes: Costs represent direct market losses only. In the absence of 2019 GDP data, 2018 data were used for both 2018 and 2019. Figures are given in current prices.
Cost-effectiveness of DRR in Africa

In an increasingly populous and urbanized region, the effects of disasters on Africa’s development goals are set to become only more significant, and the need for investment in DRR is going to become even more important. Proving the economic benefit of DRR is paramount to acquiring this investment. Indeed, decision-making is often intrinsically linked with financial and economic concerns. Huguenbush and Neumann (2016) found that from 117 case studies, “102 report average cost-benefit ratios above the economic equilibrium”, while drought DRR measures in particular show “high economic efficiency”.\(^{206}\)

This is reiterated by Venton (2018) in an African context. An evaluation of Kenya, Ethiopia, and Somalia found that every US$1 invested in proactive resilience programming against droughts resulted in net benefits of US$2.3–3.1.\(^{207}\) This echoes a 2013 Oxfam study on droughts in the Horn of Africa, which concluded that “early response is far more cost-effective than late humanitarian response” and that “building resilience could represent the best value for money”.\(^{208}\) The report quoted a saving of between US$1.6 billion and US$3.1 billion in Ethiopia, as a result of commercial destocking and early transport of aid supplies. Similarly, positive results have been identified at the community level, where the IFRC found particularly high benefit-cost ratios of small-scale DRR projects in Sudan’s Red Sea State, such as “developing a communal garden for dependent produce, increasing household income”.\(^{209}\)

In 2019, UNDRR conducted three case studies in sub-Saharan African countries. The goal of those studies was to quantify and understand the potential economic benefit of specific DRR interventions (Textbox 6.1). In Angola, a probabilistic cost-benefit analysis was undertaken to understand the potential benefits of drought-resistant crops; in Tanzania, the analysis looked at the benefits of multi-purpose dams; and in Zambia, the benefits of improved crops were investigated on insurance risk premiums.

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**Textbox 6.1** DRR investments

To understand the potential risk reduction benefit of DRR investments in Angola, Zambia and Tanzania, studies were conducted under the project, ‘Building Disaster Resilience to Natural Hazards in Sub-Saharan African Regions, Countries and Communities’ to simulate the variabilities in crop harvest under current and future drought risk.

Sources for textbox 6.1:
- IIASA and UNDRR (2020). Multiple benefits of DRR investment: Reducing risk and building resilience in Sub-Saharan Africa. The case for investing in reducing disaster risk (Forthcoming)

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**Figure 6.2: Average annual losses as a result of floods under current and future climatic conditions**

This figure shows the annual average losses as percentage of GDP under current and future climate conditions based on 16 country risk profiles developed by UNDRR and CIMA. The country risk profiles, given current risk and uncertainties for floods and droughts in a changing climate, make projections for the period 2050–2100.

Source: CIMA 2019, based on 16 country risk profiles
ANGOLA

Drought is a frequently occurring hazard in Angola, routinely exposing households to food-security risk. Drought is estimated to affect approximately, on average, 7 million people (approximately 24% of the total population) annually, with an estimated economic exposure equivalent to about 20% of the country’s GDP (CIMA and UNDDR, 2018). With anticipated climate change and socio-economic development, economic exposure is estimated to rise to as much as 65% of GDP by 2050, causing considerable threats to local livelihoods.

To curtail this rising risk of drought in the country, Angola has been implementing a number of measures to enhance resilience of farmers in the form of, for example, provision of agricultural and livestock support packages for at-risk communities. Research and development of locally adapted seed varieties have been ongoing as part of initiatives such as the Drought-Tolerant Maize for Africa (DTMA) project under the partnership of international and local research institutions. Recent years have seen market introduction of such seeds for the first time in the country (CIMMYT, 2014).

Results of preliminary analysis show that annual average loss of maize for example will reduce from the original level of US$12.7 million to US$1.1 million, with the use of improved crop varieties. Probabilistic cost and benefit analysis further reveals that the cost difference between improved and conventional seed variety may outweigh the drought risk reduction and yield enhancement benefit by the benefit-cost ratio of 2.52, under the assumed discount rate of 5%. Indirect benefit analysis also shows that total macroeconomic benefit of drought-resistant crop usage in terms of GDP could be approximately US$66 billion in 2050 (IIASA, 2019). A further analysis is ongoing to validate these initial findings with local experts and policy stakeholders.

TANZANIA

Flood is a recurrent hazard in the United Republic of Tanzania, estimated to affect, on average, 150,000 people (approximately 0.26% of the total population) annually, causing direct economic losses of about US$44 million (equivalent to 0.10 % of the country’s total capital stock value) (CIMA and UNISDR, 2018). Multi-purpose dams are typically used for hydropower generation and water storage but, when managed properly, bring the benefits of improved flood regulation downstream.

To understand how the presence of dams affect flood occurrence downstream, Tanzania’s newly developed disaster risk profile information was combined with a multi-model assessment from the Inter-Sectoral Impact Model Intercomparison Project (https://www.isimip.org) in the recent project, Building Disaster Resilience to Natural Hazards in Sub-Saharan African Regions, Countries and Communities. The Ensmbol model analysis of water discharges with and without dams was used to estimate how risk of floods can be mitigated (Figure 6.5). The results indicated that the three dams combined, on average, reduce AAL of floods by approximately 30% in the adjacent regions (Table 6.1).

Direct benefit of multi-purpose dams, in terms of reduction in AALs, together with revenues from generated power, can be compared to the construction and maintenance costs of multi-purpose dams to understand the economic efficiency of such investment. Assuming that other negative and positive externalities (such as environmental impact) do not exist, and when dams with similar DRR effectiveness are expanded across Tanzania, the benefit-cost ratio of multi-purpose dam investments is estimated to be approximately 1.38, under the discount rate of 5%. In addition, direct benefit of multi-purpose dams can further be combined with a dynamic macroeconomic model to calculate indirect benefit, that is total macroeconomic benefits that such investment may bring over time. Indirect benefit analysis shows that the expected Gross Domestic Products under the multi-purpose dam construction scenario could be approximately 0.6 % higher relative to the no-DRR policy scenario in 30 years (IIASA, 2019). A further analysis is ongoing to validate these initial findings with local experts and policy stakeholders.

Figure 6.3: Probable maximum losses before and after drought-resistant crop use

Figure 6.4: Standardized Precipitation–Evapotranspiration Index under present (left) and future climate (right).

Figure 6.5: Existing hydropower plants analysed in United Republic of Tanzania

Table 6.1 Estimates of AALs and PMLs for selected regions with and without multi-purpose dams (in million $)

<table>
<thead>
<tr>
<th>RP</th>
<th>Morogoro</th>
<th>Pwani</th>
<th>Manyara</th>
<th>Tanga</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAL</td>
<td>31</td>
<td>20</td>
<td>35</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>6</td>
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<td>100</td>
<td>35</td>
<td>19</td>
<td>20</td>
<td>50</td>
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Source: Estimated based on CIMA/UNISDR (2018), ISIMIP (Warszawski et al. 2014)
ZAMBIA

Drought affects, on average, 1.73 million people (or approximately 11% of the total population) annually in Zambia, causing considerable damage to local livelihoods. Economic loss (in terms of Gross Domestic Product potentially affected) on average is estimated to be US$2 billion (equivalent to about 10% of the country’s GDP) and drought risk is expected to increase significantly in the face of climate change (CIMA and UNISDR, 2018). To manage the recurring issues of drought risk in the country, Zambia became a signatory to a regional disaster pooling facility, the African Risk Facility, in 2016 (ARC n.d.) and has promoted several additional activities for improving resilience of local farmers.

In order to manage both frequent and rarely occurring droughts, a country may promote a mixture of risk management policy options including risk reduction and transferring measures. A combination of drought-resistant crop promotion and sovereign insurance protection, for example, can be used to cover for small and large drought losses that a country may face. Insurance risk premiums are typically calculated based on the existing level of risk and a loading factor. An introduction of drought-resistant crops can, in theory, lower the prevalent drought risk. This reduces the cost of premiums needed to buy risk transfer instruments such as sovereign drought risk insurance.

Direct risk estimates show that AAL of maize for example will reduce from the original level of US$8.5 million to US$0.5 million in the case of a shorter-cycle variety, and US$0.07 million in the case of a drought-resistant variety. This reduction in drought risk is an equivalent to approximately US$9.3 million (shorter-cycle) and US$9.8 million (drought-tolerant) saving in premium of drought insurance covering risks for a 5–50 year return period (Figure 6.6). Indirect benefit analysis further highlights overlap between climate change and DRR budget allocations.

UNDRR carried out analyses of public investment for DRR in 16 African countries during 2018 and 2019. The reports highlight the level of public budget for direct and indirect DRR programs/activities. The countries included in the review are: Angola, Botswana, Cameroon, Côte d’Ivoire, Equatorial Guinea, Eswatini (the Kingdom of), Gabon, Gambia (The), Ghana, Guinea-Bissau, Kenya, Namibia, Rwanda, São Tomé and Príncipe, and the United Republic of Tanzania and Zambia. Specific budget lines were marked as DRR investments.

Guided by the OECD Development Assistance Committee (OECD-DAC) DRR marker, and aided by the Sendai Framework priorities, the analyses cover 576 ministries, departments and agencies. The risk-sensitive budget review (RSBR) identifies a total of 273 allocations earmarked directly for DRR activities, or as direct DRR investment and budget allocations to projects related to DRR indirectly.

Domestic financing

Countries invest in DRR both directly and indirectly. This section draws evidence from the recent work by UNDRR on risk-sensitive budget review of 16 African countries’ planned budget documents. The section highlights the common emerging trends in domestic resource allocation towards direct and indirect DRR investment, and budget allocations by disaster risk management (DRM) cycles. The section also highlights the equivalence between climate change and DRR budget allocations.

On average, investments in DRR represent 4% of national budgets, with indirect DRR investments accounting for 3% and direct DRR investments at 1% (Figure 6.8).

Direct and indirect DRR budget allocations

On average, planned investments in DRR programmes are three times larger for activities that contribute indirectly to DRR objectives than government projects designed directly to meet DRR objectives (Figure 6.9).

DRR activities in national budgets

On average, investments in DRR represent 4% of national budgets, with indirect DRR investments accounting for 3% and direct DRR investments at 1% (Figure 6.8).

Direct and indirect DRR budget allocations

On average, planned investments in DRR programmes are three times larger for activities that contribute indirectly to DRR objectives than government projects designed directly to meet DRR objectives (Figure 6.9).

Figure 6.8: DRR investment in national budgets

<table>
<thead>
<tr>
<th>Direct DRR investment</th>
<th>Indirect DRR investment</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>3%</td>
</tr>
</tbody>
</table>

Average marked DRR

Source: Development Initiatives based on 16 country RSBR reports developed by UNDRR.

Note: The budget reviews cover 3 to 5 financial years depending on the country (except for Cameroon, which covers only 1 financial year).
The average annual shares of direct DRR investments in national budgets vary significantly by country (Figure 6.10). The average percentage share of targeted DRR investment in national budget ranges between 0.1% and 3.7%.

Public DRR budget by DRM cycle and risk category

The assessed African countries focus their investment on pre-disaster rather than post-disaster management. Analyses of total DRR investments by DRM cycle across the 16 African countries reveal that investments to DRR programmes on average are skewed towards prevention and mitigation (57.9%) and preparedness programmes (29.5%) (Figure 6.11). However, the limited budget on crisis management activities is complemented by official development assistance (ODA) (Figure 6.12). According to the OECD data (2017), external sources, directed as humanitarian assistance, subsidize post-disaster crisis management more than pre-disaster activities.

Source: Development Initiatives based on 16 country RSBR reports developed by UNDRR.
Note: The budget reviews cover 3 to 5 financial years depending on the country (except for Cameroon, which covers only 1 financial year).
Overlapping climate change actions and direct DRR investments

Climate change exacerbates climate-related disaster risks. The intrinsic link between climate change adaptation (CCA) and DRR is evident in the overlap between CCA and direct DRR budget activities. Almost half of the countries analysed had budget allocations for DRR with explicitly stated climate change objectives. These programmes qualify mainly as ‘climate change’ objectives, and 49 were found to have CCA programmes. A total of 213 budget items were marked as meeting direct DRR and frameworks (see also Chapter 9).

The mechanisms adopt different stipulations and institutional arrangements for eligibility, access, transitional, use and governance of the funds they provide. Nonetheless, the mechanisms provide financing for three broad categories of activities: (a) direct DRR/DRM activities, (b) reducing risk in development sectors to support DRR and resilience, and (c) addressing underlying and modifying systemic factors of risk. Financing mechanisms that support direct DRR/DRM cover: broad disaster risk management, risk pooling and transfer (including Alternative Risk Transfer), humanitarian assistance for response, recovery financing, and adaptive social protection. Mechanisms for development financing (including project-based financing) for sectors that support DRR and resilience include the United Nations Sustainable Development Cooperation Framework (UN SDCF). The main mechanisms targeting the underlying and modifying systemic factors of risk are climate funds to address climate change. Domestic financing, international aid (multilateral funding) and philanthropic financing mechanisms are applied to all three categories of end-uses to varying extents. In particular, despite the preponderance of domestic financing of DRR in Africa shown in the risk-sensitive budget review (RSBR), other evidence indicates that most African countries are still heavily dependent on external assistance mechanisms for post-disaster response for relief, recovery and reconstruction. The specific and extensive examples of sub-Saharan African countries and programmes benefiting from these mechanisms provided in Table 6.2 show the wide extent to which recourse to these funding arrangements is prevalent in Africa in financing DRR.

To the extent that use of these mechanisms helps to strengthen public financial management through their governance stipulations, they can help address the impact of shocks on public finances and can be instrumental in reducing higher budget support for DRR from domestic sources. Increasing availability of funding from all sources also requires ensuring complementarity and integration of various financing mechanisms in the financing packages of DRR programmes.

### Table 6.2 Mapping of DRM financing mechanisms accessed by countries in Africa

<table>
<thead>
<tr>
<th>Category</th>
<th>Mechanism</th>
<th>Key features</th>
<th>Institutional source(s)</th>
<th>Examples of beneficiary/partner countries and programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic financing</td>
<td>Public budget • Contingency funds • Dedicated DRM fund</td>
<td>• Fiscal (taxes, fees) • Budget contingencies, reallocation • Reserves • Debt-financing (contingent loans, etc) • International aid</td>
<td>Governments (national, regional, local)</td>
<td>All African countries</td>
</tr>
<tr>
<td>International aid (multilateral funding)</td>
<td>Development assistance community programmes • Thematic programmes • Special programmes • Partnerships</td>
<td>GFDRR Strategy 2018–2021 • Promoting open access to risk information • Promoting resilient infrastructure • Scaling up the resilience of cities • Strengthening hydromet services and early warning systems • Deepening financial protection • Building resilience at community level • Deepening engagements in resilience to climate change • Enabling resilient recovery</td>
<td>GFDRR • World Bank</td>
<td>GFDR is operational in 35 African countries* • In FY18, supported more than 25 countries in Africa • Leveraging US$917 million in development finance across Africa</td>
</tr>
<tr>
<td>Project-based financing (banking financed)</td>
<td>Lending mechanism of funding institutions</td>
<td>Financing of sector and integrated development projects with DRR focus or element(s) • Varied objectives, strategies, priorities, instruments, terms, conditions, delivery and governance arrangements</td>
<td>World Bank • ADB • EU Bilateral country programmes</td>
<td>All African countries</td>
</tr>
</tbody>
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*All African countries

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**Africa Regional Assessment Report on Disaster Risk Reduction 2020**

**United Nations Office for Disaster Risk Reduction**
### Africa Regional Assessment Report on Disaster Risk Reduction 2020

**United Nations Office for Disaster Risk Reduction**

#### Risk-pooling and transfer (including Alternative Risk Transfer (ART))

<table>
<thead>
<tr>
<th>Category</th>
<th>Mechanism</th>
<th>Key features</th>
<th>Institutional source(s)</th>
<th>Examples of beneficiary/partner countries and programmes</th>
</tr>
</thead>
</table>
| **Insurance** | Traditional (indemnity-based) insurance | Traditional: policies purchased with premiums based on assessed rates linked to agreed yield outcomes; indemnities paid upon filing of claims. Weather-index insurance: policies are based on an index; payouts are made at predetermined rates after the occurrence of objectively verifiable weather events. Insurance contract linked to weather conditions over a specific period. One-time premium payment is calculated based on the specifications of the desired derivative. A pre-defined payout is triggered automatically when defined weather conditions are met. Payout is automatic once the defined weather conditions occur; in contrast to traditional insurance, no claim needs to be filed. | • Private insurance firms | • MicroInsure launched Africa’s first weather-index-based insurance product (2004).
• Malawi index-based weather derivative (2008).
• Kenya and Ethiopia index-based livestock insurance (2010).
• Kenya crop and livestock insurance public-private partnership under development (2014).
• African Risk Capacity sells first policies for sovereign drought risk insurance (2014).
• Well established in South Africa.
• The first World Bank offer of financial risk management tool to a low-income country. |

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<th>Key features</th>
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</table>

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**Africa Regional Assessment Report on Disaster Risk Reduction 2020**

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#### Africa Disaster Risk Financing (ADRF) Initiative

- Launched in 2015
- The first programme in Africa to focus on the broad disaster risk finance (DRF) agenda
- Financed by the European Union (EU) and implemented by GFDRR as part of the Africa, Caribbean and Pacific (ACP) – EU Programme, Building Disaster Resilience in sub-Saharan Africa.
- The aim is to strengthen countries’ ability to manage economic and fiscal stresses when disasters strike.

#### Broad disaster risk finance

- Leverages different sources of financing and investment flows outside the UN system that support Governments in financing national priorities to achieve the SDGs.
- The CF is implemented through UN development system entity country development programmes.

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**Examples of beneficiary/partner countries and programmes**

- As at January 2019:
  - Development of financial protection policies (country-driven contingent financing options and strategies): 19 countries, including Cape Verde, Malawi, Mozambique, Madagascar, Lesotho and Benin.
  - With ADRF assistance, the World Bank approval of a catastrophe credit for Kenya in June 2018: US$250 million contingent line of credit, with adoption of a National Disaster Risk Financing Strategy — the first to be implemented in Africa.
  - Support for establishment of safety nets (Uganda, Kenya, Malawi, Niger, Sierra Leone).
  - Development of agriculture insurance schemes (Uganda, Kenya, Rwanda).
  - Government of Kenya, the Kenya Agricultural Insurance Pool and local stakeholders provide crop insurance coverage to almost 5,000 vulnerable smallholder farmers in Kitui East, rural and South sub-counties. Farmers are offered insurance coverage against a range of risks, including drought, for four drought tolerant crops – cowpeas, sorghum, millet and green grams – provided they meet the conditionalities of creating communal assets.
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</tr>
</thead>
</table>
| Climate financing funds  | Global Environmental Facility (GEF) | • Established 1992  
  • An international partnership of 183 countries, international institutions, civil society organizations and the private sector  
  • A financial mechanism for several environmental conventions  
  • Key strategic priorities (2020):  
    - addressing drivers of environmental degradation  
    - delivering integrated solutions  
    - enhancing resilience and adaptation  
    - ensuring complementarity and synergies in the global financing architecture  
    - choosing the right influencing models | UNFCC | As at 13 December 2019:  
  • almost all sub-Saharan African countries (39)  
  • 15 regional/global projects involving Africa  
  • total financing: US$138.85 million  
  • co-financing leveraged: US$2,149.81 million |
|          | Adaptation Fund          | • Eligible developing country parties to the Kyoto Protocol particularly vulnerable to adverse effects of climate change  
  • Has a cap of US$10 million funding per country  
  • Access to resources is through implementing entities  
  • A readiness programme supports national compliance with fiduciary, environmental and social standards | UNFCC | To date: 24 sub-Saharan African countries |
|          | Least Developed Countries Fund | • All LDC parties are eligible  
  • Assists LDCs to carry out the preparation and implementation of national adaptation programmes of action (NAPAs)  
  • Financing is provided on an ‘additional cost’ (of adaptation) basis | UNFCC | Since the start of GEF 7 to 2018,17 new LDCF projects have been approved (totaling US$145 million) in 20 countries, with 12 from Africa: Angola, Chad, Ethiopia, Guinea, Bioko, Mauritania, Mozambique, Rwanda, Sudan, The Gambia, Togo, Uganda, Zambia |
|          | Special Climate Change Fund | • All parties not included in Annex I to the convention are eligible  
  • Projects focus on the additional costs imposed by climate change on the development baseline  
  • Pre-selection criteria are applicable | UNFCC | As at December 2019: 33 countries in sub-Saharan Africa |
|          | Green Climate Fund       | • All developing country parties are eligible  
  • Prioritizes highly vulnerable LDCs eligible for MDB concessional funds, including SIDS  
  • Access to funding through accredited implementing entities/intermediaries  
  • Project Preparation Facility supports country readiness by financing capacity-building | UNFCC | Southern Africa Climate Finance Partnership (SACFP)  
  • started 2016: Botswana, Lesotho, Namibia, South Africa, Zambia, Zimbabwe |
|          | Africa Climate Change Fund (ACCF) | • Established in 2014  
  • Multi-donor trust fund managed by the Bank  
  • Launched two calls for proposals in 2014 and 2017  
  • Eligible areas for funding include:  
    - climate finance readiness and preparatory activities  
    - mainstreaming climate change and green growth into development  
    - preparation and financing of adaptation and mitigation projects  
    - approved eight national and two multi-national projects | African Development Bank | Support activities include:  
  • disaster preparedness  
  • EU Aid volunteers  
  • financial assistance  
  • humanitarian actions  
  • needs assessment  
  • disaster management systems  
  • resilience |
|          | NEPAD Climate Change Funds | • Established in 2014 by the NEPAD Agency, supported by the Government of Germany  
  • Aims to strengthen the resilience of African countries to climate change by building national, subregional and continental capacity  
  • All member states, RECs and institutions are eligible  
  • Supports projects and offers technical and financial assistance on knowledge and capacity development for climate change activities  
  • Target areas include: adaptation of agriculture to climate change, biodiversity, access and benefit sharing, development and implementation support to National Adaptation Plans (NAPs); and mainstreaming of climate change into the National Agricultural Investment Plans (NAIP) | NEPAD Development Agency | 18 projects in 18 African countries supported by regional, national or local institutions |
|          | Humanitarian   | ECHO (European Civil Protection and Humanitarian Operations) | European Union (funding also by the World Bank and IFAD) | Provision of emergency assistance and relief to natural disasters or armed conflict victims outside the European Union  
  • Support activities include:  
    - capacity-building  
    - disaster preparedness  
    - EU Aid volunteers  
    - financial assistance  
    - humanitarian actions  
    - needs assessment  
    - disaster management systems  
    - protection  
    - resilience | 43% of 2019 funding was to Africa  
  • 2019 Humanitarian Implementation Plan funding for Africa: Cameroon, Central African Republic, Chad, Ethiopia, Uganda, Kenya, Mozambique, Zimbabwe, Malawi, Burkina Faso, Mali, Mauritania, Niger, Nigeria |
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<tr>
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</thead>
<tbody>
<tr>
<td>Recovery financing</td>
<td>Pandemic Emergency Financing Facility</td>
<td>• Established 2017</td>
<td>World Bank</td>
<td>• Democratic Republic of Congo (DRC) response to Ebola outbreak&lt;sup&gt;16&lt;/sup&gt; • As of 9 May 2019, paid out US$61.4 million to DRC, including US$30 million for the 10th outbreak (2019) of which US$30 million was paid in August 2019</td>
</tr>
<tr>
<td></td>
<td>Recovery support mechanisms</td>
<td>• Cash transfers</td>
<td>Various</td>
<td>All African countries</td>
</tr>
<tr>
<td></td>
<td>Disaster-linked safety-net programmes</td>
<td>Risk financing for funding emergency scalability in a social safety net: HSNP in Kenya: • making regular cash transfers to over 100,000 households to address chronic food insecurity • cash payments through index-based emergency payment mechanism under drought conditions • considering risk transfer programme with African Risk Capacity’s insurance entity (ARC Ltd)</td>
<td>R4, WFP, DFXAM</td>
<td>• First disaster-linked contingent financing protection for Productive Safety Net Program (PSNP) in Ethiopia (2007); HARITA pilot (2009); HARITA expands to R4 Rural Resilience Initiative (2011) • Kenya Hunger Safety Net Programme (HSNPF) • The Rural Resilience Initiative (R4) reached over 87,000 farmers (about 450,000 people) in Ethiopia, Kenya, Malawi, Senegal, Zambia and Zimbabwe through a combination of four risk management strategies: improved resource management through asset creation (risk reduction); insurance (risk transfer); livelihoods diversification and microcredit (prudent risk-taking); and savings (risk reserves). Through its African Risk Capacity (ARC) Replica initiative, WFP has provided a safety net for over one million people in five countries (Mali, Mauritania, Burkina Faso, the Gambia and Zimbabwe) in the event of a possible catastrophic drought. Between 2018-19, WFP mobilized over US$43 million, from several multilateral and bilateral sources for insurance-related activities.</td>
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</table>

Adaptive social protection

<table>
<thead>
<tr>
<th>Category</th>
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<th>Key features</th>
<th>Institutional source(s)</th>
<th>Examples of beneficiary/partner countries and programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Philanthropic financing</td>
<td>• Own delivery mechanisms (for cash, goods, services) • CSR spending by businesses • Remittances</td>
<td>Various: • charities • foundations • NGOs • CSOs • private companies • diaspora</td>
<td>All African countries</td>
</tr>
</tbody>
</table>

Summary of findings and policy implications

- Economic losses are increasing in Africa.
- There is clear overlap between climate change action/environment budget and DRR budget. This is evidence that there is need for policy coherence.
- With the current and impending risk of disasters in sub-Saharan Africa, countries need to consider not only increasing budgetary allocations to direct DRR programmes but also institutionalizing DRR across various institutions within government. This will improve visibility and prioritization of DRR in governments. The modest investment in DRR programmes needs to be upscaled in subsequent financial years to mitigate both pre- and post-effects of disaster.
- Budget documents need to be disaggregated to the project level to help with future analysis of DRR in countries. Additionally, explicitly documenting DRR in the budgets will be important, including classifying the programmes and projects for DRR.
DRR at the community level
CHAPTER 7: DRR at the community level

Introduction

Community-based disaster risk management (CBDRM) is the process in which communities at risk are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks to reduce their vulnerabilities and enhance their capacities. Many actors at community level have critical knowledge, experience and capacities on building resilience, and have developed innovative approaches to reducing the everyday risks they face. However, these community-based approaches are rarely scaled out nor systematically embedded within national policies and practices. They should be included in DRR risk profile and assessment, planning, response and monitoring.

Communities often have a common understanding of hazards and risks, and a common sense of shared responsibility, since they will be most affected by any risks or disasters. They provide the best forum for commonly agreed community-specific DRR measures relevant to their needs. To illustrate the various roles of communities in DRR, this chapter features case studies of community-led resilience by community-based organizations engaged actively in reducing vulnerabilities. The case studies are drawn from practices at country and regional levels.

Inclusion of vulnerable communities as active agents of change in the decision-making process of DRR and implementation is a critical component for effective and equitable resilience-building. Also, inclusion of local communities in DRR initiatives may help to save lives and preserve livelihoods, thereby reducing both poverty and inequality. More specifically, young people play a key role in undertaking environmentally conscientious behaviour that leads to sustainability for future generations and should be included in decision-making on DRR policy. Lastly, DRR interventions that are inclusive, in terms of culture, age, ethnicity, gender and disability, contribute to challenging discriminatory norms, which are drivers of vulnerabilities.

Roles of community in DRR in Africa

Community-based organizations are involved in risk management either through building knowledge or in practical actions to reduce disaster risks. In line with Sendai Priority 1 (understanding disaster risk), some organizations through their respective DRR projects have been active in mainstreaming DRR knowledge in curricula and integrating indigenous knowledge. Others have involved communities to reduce disaster risks such as through proper waste management, in line with Sendai Priority 4 (enhancing disaster preparedness for effective response).

Understanding disaster risk (Sendai Priority 1)

Case Study:

Scaling up risk management knowledge in Kenya

Kenya’s disaster risk profile has become increasingly complex. Perennial floods occur in Budalangi and Kano plains in Western Kenya on an almost annual basis. Although the Government of Kenya (GoK) has introduced some initiatives to reduce the floods over the years, this has not been very successful. One reason for the lack of success in flood-risk reduction is the top-down approach implemented by GoK and other stakeholders, without any involvement of the affected communities. Involvement of the community in risk reduction efforts enables the inclusion of indigenous knowledge.

Training local leaders and community health workers on simple community-led interventions to reduce disaster risks ensures that the information trickles down to the community members directly. When communities take responsibility and control, they are better able to reduce risks and cope with the impact of disasters.

- The Moi University Risk Reduction (MURR) project developed a short-course curriculum on CBDRR, with the main aim of building capacity on risk management for community health workers and local leaders to cascade to members of the community.
- A series of CBDRR curriculum development meetings was held in early 2017. Stakeholders were involved in giving input to the curriculum that was then sent for review. Before implementing the curriculum, a needs assessment in Bungalo Sub-County was conducted, and accompanied by research on indigenous knowledge on risks.
- A rigorous community-entry process was carried out with all gatekeepers for DRR in Busia County. The data collected from this research was used to enrich aspects of the CBDRR curriculum. The research also indicated the actual need for the course.
- Local people had very useful indigenous knowledge but still believed that they had no role to play, and that only the government can reduce flood risk. The local saying is serikali saidia, meaning ‘Government help us’. This mindset was confirmed by the sub-county deputy commissioner, who reiterated that local people persistently waited for help from the government.
- Local media (Bulala FM) restated the need to educate community members on how they can reduce the impact of floods.
- Training was held for community health workers and village elders from the three main locations experiencing perennial floods: Bulwani Island, Magombe West and Mabinju.
- The curriculum was organized in five modules: key concepts in DRR; community-based risk, needs and damage assessment; planning in community DRR; community implementation of DRR; and monitoring and evaluation.
Outcomes

- Through the participatory learning process, community risk assessment was undertaken with community members.
- The trained participants were immediately included in the DRR committees at the location and sub-location levels through the deputy sub-county commissioner.
- Village committees were created, including village elders, community health workers and other community members.
- In partnership with local media, risk management knowledge was communicated in the local language, Luhya.
- Follow-up of the community health workers shows that they have shared DRR knowledge with the other members of the community.

Lessons learnt

- Communities have important indigenous knowledge regarding risk, which can be tapped to prevent, manage and reduce risks.
- Communities are endowed with indigenous early warning systems that can ensure safety and minimal loss during disasters.
- Most risks are generated by communities, who should therefore also be involved in prevention of the same risks.
- Partnering with the community will allow more community participation and increased responsibility for local problems.
- DRR initiatives targeting the community should be an intentional and important component of the broader DRR strategy.

Case Study:

Sharing information, including indigenous knowledge

Mainstreaming indigenous knowledge
Since 2015, the Global Non-State Actors, Local Communities and Indigenous Peoples Disaster Risk Reduction (GNSALCIP-DRR) Network has engaged with different stakeholders and established a database of over 100 local community groups composed of farmers, artisans, hunters, fishers, traditional doctors, pastoralists, traditional artists, women and youth groups across West and Central Africa. The network has collected indigenous knowledge on particular aspects and practices that can be used to build resilience.

Strengthening local communities’ knowledge on DRR governance
In an effort to enhance local communities’ ability to reduce disaster risk and build resilience to disasters, the GNSALCIP-DRR Network held over 33 different town hall meetings in Angwan Kudu in Kaduna State, Nigeria, including rural community stakeholders, leaders and women. The aim was to improve understanding of: different risks, hazards and vulnerabilities; the differentiated impacts of disasters on livelihoods and environment; and how to reduce risk and coordinate disaster response.

Community-based DRR education mainstreaming
In order to achieve the core objective of mainstreaming DRR education and knowledge sharing for local communities, several education tools were developed by the GNSALCIP-DRR Network. These included illustrations, comics and vectors customized to communicate DRR to children, women and youth in the local community. With these educational tools, it was possible to effectively build capacity within schools, community groups and clubs on the culture of resilience and support for DRR.

Translation of the Sendai Framework into local languages
One of the key objectives of the GNSALCIP-DRR Network is to communicate and simplify DRR knowledge, helping to bridge the gap between policy and implementation at community level. The network has translated the Sendai Framework and the Africa Program of Action into four local languages in West and Central Africa. The target is to translate the Sendai Framework into all local languages in Africa, to enable people in all communities to understand DRR and the related policy frameworks.
Enhancing disaster preparedness for effective response (Sendai Priority 4)

Case Study: Making communities more resilient through CBDRR in Nigeria

The GNSALCIP-DRR Network initiated an all-society-approach DRR programme in the slum community of Angwan Kudu in Kaduna State, Nigeria in 2014. Before 2015, the community was severely affected by accumulated solid waste and pungent stagnant water. This led to areas harbouring mosquitoes, which increased malaria in the region, resulting in increased illness and deaths in some cases. The Network engaged all households in comprehensive and inclusive hygiene and sanitation actions to prevent improper waste disposal, with consequent disease. This involved training for women, youth and community leaders on waste sorting and appropriate disposal.

The programme had several impacts:

- reduced disease prevalence, particularly of malaria, and consequent reduction in deaths due to malaria, typhoid, skin diseases and cholera
- a cleaner environment, with reduced smells and solid waste
- reduced flooding in 2018 and zero floods in 2019, due to reduced dumping of waste in gutters and waterways
- more awareness and understanding of disaster risk, vulnerabilities and hazards
- an increased community culture of resilience.

Ecosystem-based DRR (One Billion Trees for Africa)

Between 2010 and 2019, the GNSALCIP-DRR Network restored 77 hectares of degraded forestland in Tonengai community in Mbengwi, West Cameroon, which was previously bare, dry and deforested. There was engagement with local community stakeholders, whose livelihoods depended on this land and ecosystem services, to restore the land and make it productive. Local communities and indigenous peoples planted 1,800,000 trees covering 77 hectares of land, reviving the ecosystem. Consequently, this action:

- created new economic opportunities and environmental services that significantly improved the livelihoods of the indigenous peoples of Tonengai community
- reduced the risk of landslide incidents, drylands and drought
- provided rural employment for 12 young people, including 5 women, who emigrated from urban areas and are currently employed in production and processing of non-timber forests products.

Challenges of community-led involvement in DRR: evidence from 17 African countries

This section focuses on the challenges of involving communities in resilience initiatives. The section is informed by evidence from 17 African countries documented by the Global Network of Civil Society Organizations for Disaster Reduction (GNDR).

GNDR runs a project, Views from the Frontline (VFL), which is intended to provide a global independent review of DRR at the local level. The project is built on the belief that policies, plans and activities that aim to build the resilience of communities should be informed by the priorities of those most at risk. It seeks to strengthen the inclusion and collaboration of at-risk people, civil society and governments in the design and implementation of policies and practices to reduce risks and strengthen resilience.

VFL 2019, which was implemented in 17 countries, notes that the level of vulnerability of communities is increasing, due to lack of coherence between the needs of community and the policies implemented by decision-makers without the involvement of the main ‘beneficiaries’. VFL included a study using four surveys: random household, community consultation, civil society organizations (CSOs); and local government. A total of 16,728 community consultations, 2,537 CSO consultations and 2,624 local government consultations was conducted across 17 countries in Africa. Of the total number of community members consulted, about 31% were women, 18% were children and youth, 14% were elderly, and 11% were people affected by disability. Approximately 57% of all respondents were from rural areas, while the remaining 43% or respondents were from urban areas.

The survey results show that the main threats to communities were largely hydrometeorological threats (floods and droughts), conflicts/insecurity, bush fires and epidemics. Imminent threats (i.e. threats to the future generation) included erosion, climate change and cyclones. The consequences of these were found to be high for both environment and society. The concrete actions taken included: shelter construction; improved waste management; and protection of people and the environment against severe consequences. Actors raised some barriers that hinder their abilities to take action, including poverty, lack of good infrastructure, poor natural resources management, gender inequality and high migration levels.

The survey found that the level of collaboration between CSOs and communities including the most vulnerable was occasional, involving mainly assessment of threats, planning, implementation, knowledge sharing and capacity strengthening to participate in resilience processes. The study also found very weak engagement of CSOs on community issues within the national platforms for DRR. The results on interaction with local government were worse: in the areas of assessment of threats, planning and implementation, at least 16,000 respondents reported no engagement between CSOs and communities.

On monitoring of progress towards resilience, communities felt that they had been excluded, and expressed their right to share their thoughts and experiences during such processes. They were reduced to being only beneficiaries, as they were far from being involved in the implementation of actions to reduce risks. There were no structures for assessing threats, and no DRR strategies to address the threats. Nor were there any legal mechanisms for engaging communities in risk resilience, and the local government did not have any budgetary allocation for such initiatives. Consequently, communities had neither resources nor information for reducing risks or threats. Communities pointed to the following factors as hindering inclusion between communities and government: time, lack of information and poverty. According to respondents, the ecosystem contributed to a certain extent to protecting communities against hazards (more than 60%).
Roles of African youth in DRR

Young people form one of the main groups of community actors in DRR. Africa is estimated to have a population of some 1.27 billion people, with 75% below the age of 35. As a result of climate change and other risk drivers, the continent suffers from increasing frequency and magnitude of disasters, which adversely affects the youth. In response to this challenge, there are global frameworks such as the Sendai Framework for Disaster Risk Reduction 2015–2030 and regional frameworks such as the Africa Programme of Action (PoA) for Disaster Risk Reduction (DRR). Both of these frameworks recognize children and youth as major stakeholders in DRR.

Studies have shown the importance of early engagement of youth in planning and preparedness efforts for disasters, in light of natural and human-inflicted disasters. This suggests that the current educational approach is inadequate, and that additional education in emergency and disaster management is necessary to maximize the resilience and innovative strength of youth as an important resource for future emergency preparedness.

The Africa Youth Advisory Board (AYAB) is established under the African Union Commission (AUC), whose mandate is to institutionalize meaningful youth engagement with the AUC and other relevant stakeholders such as the Region of Africa office of the United Nations Office for Disaster Risk Reduction (RoA UNDRR) on DRR on the continent. AYAB DRR is an inclusive, open and transparent platform for African youth to be engaged in continental/regional DRR policy design, implementation, follow up and review of the PoA and the Sendai Framework towards sustainable development. As a board, it serves as a platform to bring together young people and relevant stakeholders as equal stakeholders in DRR. The AUC Department of Rural Economy and Agriculture through its DRR unit works closely with the AU Youth Division to support the functioning of the AYAB DRR.

AYAB DRR derives its mandate from its 54 member states who believe in the ability of young people to be agents of change. This is an opportunity for stakeholders to buy into this belief, while also protecting developmental gains. For effective and active youth engagement, AYAB DRR in collaboration with relevant stakeholders has the following aims.

1. To create and nurture a network between African youth, youth-led and youth-focused organizations, and decision-makers, in order to reinforce AUC’s mission of meaningful engagement of young people in sensitizing communities on DRR.
2. To create and facilitate capacity-building and empowering platforms for African youth to enhance and upscale their ‘agents of change’ abilities in DRR.
3. To work with national DRR focal points, Regional Economic Communities (RECs), AUC and its partners such as RoA UNDRR and other stakeholders to promote synergies and coherence in youth-led DRR activities on the continent.
4. To ensure integration and streamline the contribution of African youth actions to DRR activities at the national, regional and global levels.
5. To coordinate with the AUC, RECs and the AUC Youth Division to ensure that the objectives of the PoA are met, as well as being involved in implementation, monitoring and review of the PoA through youth engagement in DRR.

AYAB DRR members are also part of the Periperi U network. Periperi U is a consortium of 12 African universities that engage in DRR and the improvement of resilience. Members of AYAB DRR collaborate with stakeholders such as the UNDRR, Development Initiatives (DI), and Space in Africa, among other stakeholders, to contribute youth perspectives to DRR and sustainable development publications.

AYAB DRR also collaborates with the DRR consultant responsible for the PoA review report, heads of RECs and the national Sendai Framework focal points in regional workshops on data collection for the development of the Africa Biennial Report. These are important meetings that see young people meaningfully contributing to the review process of PoA strategies for the continent. Further, AYAB DRR is meaningfully engaged in the Africa Working Group (AWG) on DRR meetings by making commitments and collaborating with stakeholders to achieve DRR. The AWG DRR plays an important role in providing technical support to the African Union Commission, RECs, member states and partners for the coordination and implementation of the Africa Regional Strategy for Disaster Risk Reduction and its Programme of Action.
Examples of DRR youth initiatives

Uganda
AYAB DRR supported its East African representative to establish a local community-based organization (CBO) on DRR in Butaleja, Kibuku District, Uganda. Action for Integrated Development Initiatives – International contributed to addressing DRR through youth engagements, tree-planting and sensitization programs. The CBO sensitizes universities on the roles of youths in the Sendai Framework and its implementation.

AYAB DRR has supported its representative in Uganda to form a student’s club called ‘Youth – Go Green Uganda’ at Mbarara University of Science and Technology under the climate change project. This club discusses DRR mechanisms and holds proposal-writing training sessions to secure funding for their projects and build the capacity of students in DRR. Occasionally, the club organizes tree-planting activities around River Rwiizi and the Butaleja district in Uganda, which faces the threat of flooding. In total, 4,765 trees were planted with the involvement of local community leaders and participants in conferences.

Some AYAB DRR representatives have been engaged in national DRR platform meetings. This has given them the chance to work with stakeholders/policymakers to include youth perspectives in addressing issues of DRR. The AYAB DRR representative for Uganda has been engaging with the Office of the Prime Minister in Uganda.

Economic Community of Central African States
The AYAB DRR representative for the Economic Community of Central African States (ECCAS) has partnered with the Network for the Promotion of Environmental Education. The AYAB DRR representative in Bangui, Central African Republic organized a networking event with youth leaders from different organizations. The objectives were to provide an avenue to learn and exchange experiences on how to work together towards DRR and ultimately sustainable development.

Training and capacity-building
AYAB members organized a webinar on ‘Reducing Disaster Damage to Educational Infrastructure’ International Day for Disaster Risk Reduction. It was the first webinar organized by AYAB DRR. The webinar gave an overview on AYAB DRR and the Sendai Framework and concluded with approaches that could be implemented to reduce damage to educational infrastructure. Thus, the webinar served as a training and an opportunity for capacity-building.

Ghana
AYAB DRR collaborated with the Green Africa Youth Organisation and the Ghana National Disaster Management Organisation to organize a quiz competition to commemorate 2019’s International Day for Disaster Risk Reduction. The competition incentivized students to increase their DRR knowledge by giving cash and textbooks to contestants. The hope is that this will empower young people to become active facilitators and stakeholders in implementation of the Sendai Framework for Disaster Risk Reduction and the Programme of Action (PoA).

Challenges of youth-led involvement in DRR: AYAB DRR
AYAB DRR is a young board that is still in the process of strengthening its fundamental operational structures. Thus, the board has not gained enough visibility to form many strategic partnerships.

AYAB DRR has not had enough engagement with stakeholders at the subnational, national, regional and continental levels on DRR strategies. This means that some of the DRR strategies at different scales lack young people’s perspectives or allow only tokenistic participation of young people in the DRR process. Excluding young people in such processes weakens the strategies and erodes the sense of ownership in the DRR process. However, this is an opportunity for public and private stakeholders in DRR to proactively facilitate young people’s engagement with not only the AYAB DRR but also DRR overall, since young people are professionals too and can meaningfully contribute to the DRR process.

AYAB DRR can be found on social media platforms. While social media has the advantage of low operating costs, it depends on the number of followers and likes. At the moment, the numbers engaged on AYAB DRR social media platforms are increasing, but slowly. AYAB DRR aims to facilitate both online and physical capacity-building platforms on DRR. However, these opportunities have been limited so far. There are opportunities to engage with AYAB DRR to organize regular quarterly webinars and physical trainings in DRR. These require both financial and non-financial resources, which are inadequate at the moment.

Policy implications
Africa and the world cannot afford to leave young people behind, as they will inherit the decisions of today. It is clear from the initiatives of AYAB DRR that it is possible to effectively engage young people on DRR in capacity-building and education. Moreover, the youth form a key group within community actors on DRR. The individual and collective actions of young people affect the manner in which future generations will prevent, manage or mitigate risks. Young people also form the medium for passing on generational knowledge on disaster and risk mitigation to the future generations.

While the case studies in this chapter show good initiatives being undertaken at community level, and more so by the youth, community engagement suffers from weak collaboration with and between CSOs and governments. The weak engagement is attributed to lack of capacity in terms of time, information and financial resources. In order to engage effectively, respective governments must establish legal mechanisms for engaging communities in DRR policymaking. These mechanisms must be backed by budgetary allocations. Legal and financial backing is also required to facilitate the inclusion of CSOs, which have vast experience in engaging with local communities and marginalized groups.

Young people should be recognized in DRR, as should their roles in reducing vulnerabilities through education, capacity-building and innovative solutions using ICT. This recognition must be included in all DRR programming at both national and community levels.

Summary of findings
In conclusion, community involvement in DRR is important because communities understand the hazards and risks and have a common sense of shared responsibility in DRR. The inclusion of communities in the identification, analysis, treatment and monitoring and evaluation of disaster risks has ensured effective and equitable resilience-building, which has consequently reduced vulnerabilities, poverty and inequality.
8 Target E of the Sendai Framework
CHAPTER 8:
Target E of the Sendai Framework

In 2015 Member States adopted the Sendai Framework for Disaster Risk Reduction 2015-2030 which aims at ‘The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.’ To achieve this goal, seven global targets, 38 indicators and four priorities of actions were agreed on by countries. Target E, which aims to substantially increase the number of countries with national and local disaster risk reduction (DRR) strategies by 2020, is the first target to be achieved.

Target E in sub-Saharan Africa

To monitor progress against the Sendai Framework, UNDRR launched the Sendai Framework Monitor (SFM) in March 2018. The SFM is an online accountability tool to support countries in monitoring, assessing, and evaluating progress and challenges in the implementation of DRR at global, national, sub-national and local levels. The Sendai Framework monitoring is an annual official process which is led by the government of each country. The tool encourages a multi-stakeholder approach to monitoring by allowing the government to include multiple users from various ministries, agencies, civil society, academia, UN system, and other stakeholders to input data in the system or simply to observe the process. In addition, the online tool promotes accountability as data validated by the authorities are publicly available on the website. Finally, the monitoring of the Sendai Framework contributes to reporting against DRR:245

The monitoring of the Sendai Framework is both quantitative and qualitative. Countries input data but also self-assess their policies and mechanisms in place for DRR. Monitoring progress of Target E relies on two indicators which were agreed upon by Member States through the Open-ended intergovernmental expert working group on indicators and terminology relating to DRR:

- 11.5 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework Monitor
- 11.B Percentage of local governments that adopt and implement local DRR strategies in line with national strategies.

Indicator E1: Reporting status in the Sendai Framework Monitor

Indicator E1 relies on a self-assessment that considers a set of 10 key elements which capture and reflect the key principles and the four priorities of the Sendai Framework (see Textbox 8.1). Practically, Member States assess their DRR strategy by rating each of the 10 key elements on a scale from 0 to 1 (with 0 being no achievement or existence, and 1.0 comprehensive achievement).

Figure 8.1: Links between the Sendai indicators and the SDGs

Textbox 8.1: The ten Key elements of Indicator E1

1. Have different timescales, with targets, indicators and time frames
2. Have aims at preventing creation of new risk
3. Have aims at reducing existing risk
4. Have aims at strengthening economic, social, health and environmental resilience
5. Priority 1: Understand Disaster Risk
6. Priority 2: Strengthening disaster risk governance
7. Priority 3: Investing in DRR for resilience
8. Priority 4: Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction
9. Promote policy coherence relevant to DRR
10. Have mechanism to follow-up, periodically assess and publicly report on progress

Source: UNDRR
As of November 2019, more than half of countries in sub-Saharan Africa have started reporting in the system and 17 countries have reported against Target E for at least one year. On average countries self-assessed at a grade of 0.58 out of 1, making it clear that there is still room for improvement in terms of aligning their strategies with the Sendai Framework. However, progress is already underway: most countries that have reported for two consecutive years record improvements with average scores increasing from 0.43 in 2015 to 0.55 in 2018. Additional improvements are also expected shortly: more than ten countries in the region, countries often mention in their strategy the element 9: Promote policy coherence relevant to DRR – notably the 2030 Agenda, Paris Agreement, New Urban Agenda, and poverty reduction policies – is also identified as a weak element in DRR strategies which requires further efforts and actions.

Second, countries that do not have a DRR strategy or framework, do not report in the system and tend to analyse the overall DRR policy landscape in their country in order to give an impression of progress in the implementation of the Sendai Framework. For instance, some countries have contingency plans in place and would therefore report that they are addressing Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction. Some countries would also assess a Disaster Risk Management Act which defines the DRR governance mechanism in-country, as contributing to the Priority 2: Strengthening disaster risk governance. In this case, countries tend to score indicator E1 very low (between 0.25 and 0.35) recognizing that they do not have a DRR strategy in place, while acknowledging that DRR can be addressed in different ways.

In this context it is useful to note that DRR strategies are considered as a set of policy documents on relevant policy areas, from particular sectoral perspectives, or about targeted specific hazards. Multiple policies and strategies can address the expected outcome, goals and targets of the Sendai Framework. DRR strategies can set the tone for priority areas but it is very probable that other policies such as land-use planning, education or decentralization (among many others) will include important actions dealing with risk reduction. In fact, mainstreaming of DRR into sectorial policies has been one of the key efforts of the DRR community in the last decades.

The reporting of Target E on the Sendai Framework Monitor is an iterative process that offers the opportunity for a dialogue at the national level on existing policies contributing to the implementation of the Sendai Framework. The ‘policy landscape’ approach applied by some countries in sub-Saharan Africa to report on Target E offers a particular perspective on the global discussion about the relationship between stand-alone DRR strategies and a broader set of policies addressing risk reduction. The process of reporting on Target E on the SFM is therefore fertile ground to enhance policy analysis in the region.

Reaching Target E: DRR strategy development process

It is noteworthy that the process of designing a DRR strategy is as important as the output. The process facilitates dialogue among different stakeholders – civil society, development partners, academia and the scientific community – and is instrumental to sensitize key actors for the implementation of the Sendai Framework. The process for the formulation of DRR strategies is normally led by the national institution in charge of disaster management and consultations involving different sectors are conducted. The process is frequently supported by specialized agencies of the United Nations (e.g. UNDP, FAO) and the Red Cross Movement, among others. In some cases, documents produced by external consultants in a non-participatory manner are not recognized as validated DRR strategies. In these situations, some SFM coordinators opt not to report on Target E, preferring to wait for the output to be adjusted following a larger involvement of stakeholders. In other cases where the process has ensured a full ownership of the final output, an “expired strategy” is referred to as the guidance for implementation of DRR actions even beyond its timeframe.

The step from the finalized document to the validation and adoption of the strategy is a lengthy process. In general terms, countries in sub-Saharan Africa usually develop and validate the document at the technical level whilst the adoption occurs at a higher political level. Some countries have reported that it took them up to two years for the strategy to be adopted after its validation at the technical level. It remains challenging to obtain a comprehensive picture of the adoption process. Countries are encouraged to use the functionalities of SFM that facilitate the integration of descriptive information, such as comment boxes, in order to provide more detailed information of the process to design, validate and adopt the DRR strategy.

Measurement of the alignment with the Sendai Framework should consequently be interpreted in conjunction with other sources of information. In 2019, UNDRR Regional Office for Africa (ROA) conducted a survey with open-ended, multiple choice and dichotomous questions exploring linkages between DRR, climate change adaptation and sustainable development planning and coordination mechanisms. In addition, regional workshops on the progress of Target E and the official declarations of sub-Saharan Africa countries during the Regional Platform for Disaster Risk Reduction (2018) and Global Platform for Disaster Risk Reduction (2019) have provided useful information on the approach countries are pursuing to ensure progress on Target E.

Target E: Status of DRR strategies in sub-Saharan Africa

In sub-Saharan Africa countries have dedicated significant efforts to the design of DRR strategies aligned to the Sendai Framework and DRR mainstreaming in different policies. According to the desk review conducted by UNDRR ROA, 19 countries in the region have validated DRR strategies and seven countries are in progress of developing or validating their strategies. In general, a good level of alignment to the Sendai Framework is observed. As the SFM reporting process continues, a more comprehensive picture of the DRR policy landscape in the region will emerge.

The table below shows the current status of DRR strategies in sub-Saharan Africa based on the desk review of the documents conducted by UNDRR ROA and the status of the reporting in SFM.

Figure 8.2: Average grade of the 10 key elements of Indicator E1

Source: UNDRR
Ultimately, the alignment of DRR strategies to the Sendai Framework and the reporting in the SFM based on the 10 key elements is context-specific and is highly determined by the interpretation given by DRR stakeholders to these elements. UNDRR has facilitated dialogue with Member States to unpack the 10 key elements and promote a common understanding. Different fora such as DRR platforms, the African Working Group (AWG), trainings on Target E and Sendai Framework Monitor and tools such as the Words into Action guidelines for the development of national and local DRR strategies have been instrumental to facilitate this common understanding. These actions have supported the harmonization of the understanding of the 10 key elements to report on Target E, but it is simultaneously true that interpretation based on national realities is an integral part of the process and it contributes significantly to the richness and accuracy of the analysis.

**Good practices in sub-Saharan Africa: unpacking the 10 key elements of the Sendai Framework through national examples**

UNDRR has conducted qualitative analysis on DRR strategy documentation in sub-Saharan African countries. This analysis has led to the identification of good practices which can help unpack the ten key elements and ultimately contribute to a better understanding of them.

The case studies below provide description of how the key elements are addressed in some DRR strategies. These good practices do not contain an exhaustive analysis of the documents but highlight some components.

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<table>
<thead>
<tr>
<th>Desk review of stand-alone DRR strategies by UNDRR ROA</th>
<th>Reporting on target E (E1) in SFM</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Validated</td>
<td>In progress</td>
<td>No stand-alone DRR strategy</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>11</td>
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<tr>
<td>7</td>
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<td>17</td>
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</table>

Source: UNDRR

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Guinea’s national DRR strategy (entitled ‘Stratégie nationale de réduction des risques de catastrophe 2019 – 2022’) which was validated in 2019, lays the groundwork and sets a strong framework for implementation by addressing governance mechanisms, resource mobilization and capacity building for advocacy. In terms of structure (elements 1 and 10), the strategy includes an overall goal, which is to increase the resilience of populations, mitigate the impact of disasters and save human lives. The strategy sets out guiding principles as well as 6 qualitative targets aiming at (1) increasing capacities, coordination and national leadership; (2) advocating for increased decision-making on disaster prevention and strengthening disaster law; (3) increasing technical capacities and disaster risk governance; (4) increasing the population knowledge on hazards and disaster risk management, (5) increasing public investments for the prevention and the reduction of disaster risk; and (6) strengthening the capacity of humanitarian actors and agencies for better response.

To reach these targets, the strategy includes a Plan of Action for 2019–2020 which details priority actions, result expected, responsible institutions, budget estimates and more than 40 qualitative and quantitative indicators to measure progress. The last chapter of the strategy outlines the monitoring and evaluation framework and includes guidance for each government service and agency working on DRR regarding reporting periods and a set of common indicators which can be used by all actors to measure progress. It is noted that the national DRR platform will be responsible for centralizing the information and publishing progress reports on a yearly basis. Finally, the strategy aims at strengthening transparency and accountability through the production of information bulletins on progress and through the development of a DRR website to disseminate information to a wider public.

Zambia’s National Disaster Risk Management Framework (2017–2030), Operationalising the Sendai Framework, is a thirteen-year strategy which will be phased in five-year cycles. The framework comprehensively addresses key elements 2.3, and 4 of indicator E-1 its main goal being, ‘to prevent new and reduce existing disaster risk in the country through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.’ The document aims at preventing the creation of new risk and the reduction of existing risks, notably through the development of comprehensive risk analysis to inform policymaking and planning, urban policies (enforcing building codes and standards; creating a database for people living in risky slums and unplanned settlements; upgrading slums and unplanned settlements; and carrying out Community led initiatives to rehabilitate dwellings), as well as the enhancement of preparedness and ‘build back better’ measures.

The Framework also comprehensively addresses the need to strengthen economic, social, health and environmental resilience with activities aiming at reducing direct disaster economic loss in relation to GDP (target 3.3), ensuring access to safe and affordable houses (target 3.5), promoting sustainable livelihood diversification (target 3.2), scaling up social safety nets (target 1.2), reducing disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities (target 4.1) and strengthening resilience and adaptive capacity of communities and the environment to climate related hazards and disasters at all levels (target 3.6).
The DRR strategy of Cabo Verde aims at providing an effective framework for risk management, preventing disasters, reducing loss and damages and avoiding the creation of new risks by strengthening institutional mechanisms and capacities, including the integration of DRR into national and sectoral strategies, policies and plans. One of the strategic pillars of the strategy is to improve the understanding of risks and the strengthening of the knowledge and information about risks (Priority 1: Understanding risk) and a comprehensive description of actions are included to implement this priority. These actions include the development of a national framework to conduct risk assessments, assessing the needs of risk information of decision makers and public planners, production, updating and dissemination of risk information at territorial and sectoral levels, promoting data collection and sharing (including open data and open software), capacity building for the treatment and interpretation of geospatial information, development of information systems ensuring the interoperability of data, partnerships with research centres, and encouraging the development of a dialogue on disaster, loss databases, capacity building to conduct post-disaster needs assessments (PDNA) and valuation of economic losses, and the establishment of a national observatory for disasters.

In Ethiopia, the national DRR strategy states that disaster risk profiles will be developed at woreda (district) level, together with information on each hazard, vulnerability and capacity to cope and other related baseline information organized in a database that is periodically updated. This development is supported by comprehensive steps, from inventory and methodology analysis to risk profiling, detailing how to conduct risk assessments at national and sub-national level. Risk profiles should inform activities before, during and after any disaster period to minimize and prevent the impact of every hazard and associated disasters. Activities include the development of early warning systems and contingency plans. The strategy also calls for the establishment of a mechanism for organizing and coordinating institutions to mainstream DRR into all sectors and a multi-sectoral plan of action to guide practice and decision making of coherent disaster risk management cycle (Prevention/Mitigation, Preparedness, Response and Recovery/Reduction) as well as the operational planning and decision making of coherent disaster risk management cycle.

Eswatini’s Resilience Strategy and Action Plan Swaziland (SRASP) is well aligned to the Sendai Framework. The integration of strategy and action plan create a well-structured document that includes specific targets, detailed and multi-scale indicators and an integrated monitoring process. As a resilience strategy rather than a specific DRR document, policy coherence is a particular area of strength: recognition of the conceptual and operational overlap with areas such as poverty eradication, sustainable development, climate change adaptation and urbanization challenges is detailed and pervasive. This strength in coherence is complemented by DRR-specific strengths such as risk assessment, communication and capacity building that addresses the need to improve risk understanding. There is a broader concern with human and technical capacity throughout the document that includes an assessment of current weaknesses to offer a rounded account of current levels of technical, financial and administrative capacity.

Priority 2: Addressing risk governance, is a strength of Namibia’s approach. A detailed and multi-sector governance structure is outlined, with roles and responsibilities clearly identified stakeholders in academia and civil society systematically engaged and sub-national entities incorporated. This coordinating structure continues in the realm of implementation, with a clear multi-stakeholder evaluation process and a multi-sectoral plan of action to guide practical application of the strategy’s recommendations. The commitment to engaging actors and agendas from multiple sectors demonstrated in this governance structure is further supported by interlinked investment priorities. Namibia’s strategy highlights the mutually reinforcing strengths of coherence, harnessing governance, implementation and investment mechanisms together in the reduction of existing risk and the prevention of new risk.

Malawi has promoted a multi-stakeholder approach for risk governance through its technical committee for DRR and climate change adaptation, including both civil society and the private sector. Alignment with governance priorities is strong, with various multi-stakeholder entities at the national and regional level integrated within a national platform, and a focus on reaching out to local and regional level academia. Further, the strategy details specific coordinating institutions to mainstream DRR into all sectors at a variety of levels. This multisectoral governance structure is informed by the conceptual status of the document as a National Resilience Strategy (NRS), with a specific focus on food insecurity, rather than a strategy explicitly orientated towards DRR. Under the federalist concept of resilience, linkages between DRR and development, poverty and climate change goals are integrated throughout. Multiple sub-committees formed under the National Resilience Strategy Governance Committee, the body with overarching responsibility for monitoring and funding the NRS, have been established that engage governmental bodies and epistemic communities in multiple areas, such as that committed to ‘resilient agricultural growth’. So too is governance for risk reduction situated alongside preparedness and emergency response, engaging productively with Priority 4 of the Sendai Framework: Enhancing disaster preparedness for effective response. Ultimately, Malawi’s National Resilience Strategy exemplifies the fertility of ‘resilience’ as a concept for mobilizing multiple sectors and agents for integrated governance structures and policy coherence for DRR.

East Africa is a region at risk of multiple disasters including drought, floods and complex emergencies. The application of Geographic Information Technologies (GIT) is fundamental for reducing the effects of such disasters and increasing community resilience. Geospatial Information Technology (GIT) can be a very useful tool to support the whole disaster risk management cycle (Prevention/ Mitigation, Preparedness, Response and Recovery/Reconstruction) as well as the operational planning and decision making of coherent disaster risk management cycle.

The commitment to engaging actors and agendas from multiple sectors demonstrated in this governance structure is further supported by interlinked investment priorities. Namibia’s strategy highlights the mutually reinforcing strengths of coherence, harnessing governance, implementation and investment mechanisms together in the reduction of existing risk and the prevention of new risk.

70% of the disasters faced by Kenya are hydrometeorological, and annually affect approximately 3-4 million people by disrupting livelihoods and reversing gains in national development. The country’s long-term development plan, ‘Kenya Vision 2030’, formulated in response to the national and regional frameworks, is implemented through 5-year Medium Term Plans developed with cross-cutting multiagency support. This development plan recognizes climate change and DRR as sectors that need to be consistent in mainstreamed across sectoral policies and laws to enhance disaster preparedness and improve the capacity for adaptation to climatic change. Anchored in the Kenya Climate Change Act 2016, this Plan prioritizes reduction of climate-related disaster risks faced by communities and critical infrastructure through improved coordination in the performance of DRM activities and national and county levels. Promoting policy coherence of national and local frameworks of laws, regulations and public policies through defining the coordinated roles and responsibilities of public and private sector actors.

Governing arrangements are well-structured and detailed both vertical and horizontal integration within government, as well as engagement opportunities for academia, civil society institutions and the science and technology community. Preparedness (Priority 4) is also well integrated in this area, with a focus on early warning systems complemented by the integration of actors in prevention, preparedness and response. Particular areas of strength include the recognition that early warning systems must provide comprehensive and actionable information to their target populations, and a commitment to integrating DRR and climate change adaptation (CCA) principles into disaster response. Overall, then, capacitated governance structures, strong levels of inter-agenda coherence and operational activities such as awareness creation and improved early warning systems mean that Eswatini’s SRASP further underscores the utility of resilience as a thematic structure for DRR documents. The key lesson here is the pervasive presence of knowledge, governance and preparedness strategies that simultaneously pursue DRR-specific goals and integrate external stakeholders.

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The development of DRR strategies that encompass the recommendations of the Sendai Framework is not a simple task. As previously stated, interpretation of the 10 key elements is open for each of the different stakeholders involved in the process based on the national context. Diversity of opinions and approaches is inherent to the participatory nature of the process of designing a DRR strategy.

Important questions are raised during the process such as: can stand-alone strategies effectively address goals aiming at reducing existing risk and preventing the creation of new risk? In several of the strategies studied, these goals are stated as strategic objectives at the beginning of the document, but few operational actions are developed later on to address them in a comprehensive manner.

The timeframe of all the strategies analysed is clearly defined and targets are set in most of the cases, but the absence of indicator frameworks in most of the strategies is notable. Mechanisms to follow-up, periodically assess and publicly report on progress are also mostly absent or will be developed at a later stage. The absence of monitoring frameworks means that it can be difficult to track implementation. The 10 key elements to assess Target E considering the Sendai Framework offer guidance to assess the content of DRR strategies but do not offer practical tools to assess their implementation. Applying methodologies to follow up and assess the level of implementation of DRR strategies should become a priority for the post-2020 deadline of Target E.

Priority 1: Understanding disaster risk is addressed in all the strategies. However, more commitment to a systematic science-policy dialogue would also contribute to addressing this priority. Likewise, disaster risk governance (Priority 2) is systematically addressed, but the roles and responsibilities of different stakeholders are in some cases poorly defined. Even if gender is frequently mentioned as an important aspect to be taken into account, it is generally overlooked in the objectives and actions.

Priority 3: Investing in DRR for resilience is one of the most underrepresented key elements. Most Member States expressed not having a dedicated DRR budget and lack domestic resources to implement the DRR strategies. Therefore, when Priority 3 is addressed in DRR strategies, it is mostly through objectives and activities aiming at mobilizing resources to fund the strategy, rather than guiding the allocation of resources to targeted sectors to increase resilience. This lack of budgetary provision is clearly linked to the fact that actions addressing priority 3 are, in general, poorly considered.

Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better" in recovery, rehabilitation and reconstruction is systematically addressed in all the strategies. This element seems to be too broad to be detailed comprehensively in standalone DRR strategies. Countries complement the actions dealing with this priority with preparedness and contingency plans and recovery frameworks.

The promotion of policy coherence with global agreements is frequently mentioned in the background of the strategies but is often lacking in the objectives, strategic pillars or actions. Climate change is broadly recognized as a risk driver which increases the frequency and the intensity of hazards, but scarce reference is made in general to common risk assessments, coordination mechanisms or joint monitoring systems. Some countries have opted to ensure policy coherence through the development of broader “resilience strategies”. Lessons learned from the implementation of these resilience strategies will provide insights to enhance coherence among the different development agendas in the near future. In addition, even if DRR is broadly recognized as central for sustainable development, there is scant reference in DRR strategies in sub-Saharan Africa to how coordination and linkages with SDGs is ensured.

The Government of Cabo Verde adopted in 2018 the Post-disaster Recovery Framework (Priority 4) to improve the country’s capacity to manage post-disaster recovery efficiently and appropriately by establishing the necessary institutional, political and financial arrangements before disaster occurs and building capacities to plan and manage recovery.

The Government of Mozambique, through its Council of Ministers, adopted in 2017 the “Plano Director para a redução do risco de desastres 2017-2030” aligned to the Agenda 2025. Mozambique’s development vision and the Sendai Framework. In line with the 10 key elements, Mozambique has developed an indicator framework for DRR (Quadro de Indicadores de Gestão de Riscos de Calamidades) which has been adopted by the Council of Ministers in 2017 and has a time-frame of 2017-2019. This indicator framework offers orientations to develop guidelines for the integration of DRR and climate change adaptation into national, sectorial and local development plans. Indicators frameworks for the implementation of the strategy will systematically be aligned to all the five-year government programmes until 2030.

Zambia established a monitoring team within the Disaster Management and Mitigation Unit to develop and validate a results-based framework for DRR and coordinate with other sectors the use of the Sendai Framework Monitor as a tool to support follow up of DRR efforts in the country.
9 Policy coherence between DRR, climate change adaptation and sustainable development
CHAPTER 9: Policy coherence between DRR, climate change adaptation and sustainable development

Introduction

In 2015, Members of the United Nations adopted the Sendai Framework for Disaster Risk Reduction, the Paris Agreement for Climate Change and the 2030 Agenda for Sustainable Development, which together provide a road map for a more sustainable and resilient world. The implementation of each agenda has led to the creation of a diverse range of institutional arrangements, planning documents, funding mechanisms and monitoring and evaluation frameworks. Therefore, Member States have requested guidance to overcome siloed approaches and avoid the duplication of efforts in implementing disaster risk reduction (DRR), climate change adaptation (CCA) and sustainable development.

The Sendai Framework notes that DRR is essential for sustainable development as disasters can derail development plans and reverse hard-earned development gains. In addition, the Sendai Framework recognizes climate change as a driver of disaster risk. All three agendas share common objectives with regard to reducing vulnerability, enhancing resilience and advocating for coherence between DRR, CCA and sustainable development.

The overall objectives of coherence are to leverage synergies and mutually beneficial opportunities across policies to support risk-informed development and to circumvent or minimize potential adverse outcomes of policies on development. Crucially, this is to be achieved by enhancing governments’ leadership capacities to converge cross-cutting policy objectives and identify trade-offs while ensuring vertical alignment with broader global objectives.

UNDRR systematically promotes the alignment of national and local DRR strategies to the Sendai Framework. Drawing upon the Sendai Framework, UNDRR identified ten key elements that should be covered by DRR strategies (see Chapter 8 on Target E in sub-Saharan Africa). Key element 9 is to ‘promote policy coherence relevant to DRR such as sustainable development, poverty eradication, and climate change, notably with the SDGs and the Paris Agreement’. A deeper understanding of the similarities and differences among CCA, DRR and development objectives, processes and stakeholders is needed to support the discussions on how to reinforce mechanisms for policy coherence.

Similarities and differences between DRR and CCA and linkages with SDGs

Conceptual framework for CCA and DRR: a convergence of approaches?

Understandings of the concept of disaster have evolved over time. While the disaster risk community has its origins in the response to sudden events, the concept of risk reduction has evolved to understand disasters as historical processes, where vulnerability plays a key role. It has become recognized that a disaster is not solely a single event but should rather be considered a process which “becomes unavoidable in a context of historically produced vulnerability”.

In the earlier stages of disaster scholarship, the dominant orientation was a hazard-centred approach which considered disaster as an external agent that disrupts the social order and produces change. This view minimizes the socio-economic factors that structure vulnerability to disaster. In other words, this paradigm tends to “disregard that disasters may result from, rather than impinge on development” and that disasters are internal, not external, to the development process. The discrepancy between the natural and social view in disaster research encouraged the emergence of a new paradigm which was vulnerability-centred. This approach challenged existing mindsets by proposing that the main object of study should be the communities at risk and the factors that affect their level of vulnerability. Thereby, this paradigm confronted the traditional view of disaster and set out new challenges at the level of policymaking. Disasters could not be addressed anymore as an “inevitable catastrophe” and therefore responsibilities in reducing vulnerability could not be ignored.

The paradigm shift from hazard to vulnerability-oriented views on disasters was reflected by global documents on DRR – notably in the Hyogo Framework for Action (2005-2015) and the Sendai Framework for Disaster Risk Reduction (2015-2030), both of which emphasize the need to enhance the resilience of societies. The differentiation between intensive and extensive risk also provides elements to analyse vulnerability as a long-term process. Extensive risk manifests as large number of recurrent, small-scale, low severity disasters. Frequent, small scale disasters can erode the development base of a society and thus, increase vulnerability.

The conceptual emphasis on vulnerability is mirrored in the Global Assessment Reports (GARs). UNDRR’s biennial flagship document for assessing the latest development in DRR thinking and practice. Since the inaugural report in 2009 there has been a concern with ‘risk drivers’, such as poor urban planning and poverty, that affect the vulnerability profile of a population. In a move that would become more pronounced as the GAR literature developed, different types of risk are also cast as forming an interlocked system, with the multiple crises of 2008 catalyzing reflection over the extent to which systemic risk now poses a very serious threat to global security and sustainability. The insight that risk is endogenous to complex systems and cuts across different dimensions of social life with elements of surprise and non-linearity, has taken on a progressively more important role in GAR publications, culminating in the most recent iteration of the GAR in 2019. Such an approach takes vulnerability, conceived of as ‘cumulative and cascading’, as the most important focus for DRR, privileging patterns of inequality that occur within the development process over the incidence of natural hazards.

In the context of this approach, it has become widely accepted that vulnerability is entrenched and exacerbated by climate change, as the magnitude and frequency of extreme events increases and changes in average climatic conditions and levels of climate variability occur.
In parallel to the conceptual evolution in the DRR community, concern over the role of vulnerability has been increasing in the last decades within the negotiations on how to address climate change and its impacts.

As the United Nations Framework Convention on Climate Change (UNFCCC) was signed in 1992, it initially focused mostly on mitigation. There was trust that mitigation efforts would succeed in reducing the impact of climate change and that societies would gradually adapt by themselves. Adaptation was considered to divert efforts from mitigation and the effects of climate change were perceived as a long-term scenario with high levels of uncertainty, which rendered difficult the identification of adaptation options.

The 2001 Marrakesh Accords represented a landmark for adaptation within UNFCCC. Since then, several structures (such as the Adaptation Fund and the Least Developed Countries Expert Group – LEG) and frameworks (e.g. National Adaptation Programmes of Action – NAPA) were set up in order to increase adaptation efforts. In 2007, the Bali Action Plan considered risk reduction strategies as a mean to address climate change impacts in developing countries.

In 2010, adaptation was given the same level of priority as mitigation as per the Cancun Adaptation Framework (CAF). An Adaptation Committee was established, and financial mechanisms were established to support least developed countries to design and implement the National Adaptation Plans (NAP) and other adaptation actions. This convergence of concerns continued, with the IPCC special report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation published in 2014 stressing the importance of DRR to adaptation efforts and recognizing that the scope of disaster extends beyond extreme events in statistical terms as disasters are conditioned by the levels of exposure and vulnerability.

The IPCC Fifth Assessment Report (AR5) went further, aligning understandings of risk between the two communities. In AR5 vulnerability and hazard are both integrated as a component of risk, whilst the notion of exposure refers to human and economic exposure to harmful impacts rather than climate parameters (as in previous incarnations of the IPCC Assessment Reports). This account of risk as the interface between hazard, vulnerability and exposure is widely recognized amongst DRR practitioners.

These twin shifts in conceptual emphasis – from hazard to vulnerability in DRR and from mitigation to adaptation in CCA – have catalyzed work on the practical linkages between DRR and climate change adaptation. Obvious differences between DRR and CCA persist, such as the DRR community’s continued concern with geophysical hazards, but areas of convergence are increasingly evident for adaptation to and reduction of the potential impacts of climate related hazards.

Post-2015 agreements: frameworks for planning and implementation of CCA and DRR

The Sendai Framework aims at preventing the creation of new risks and reducing existing disaster risk through the implementation of integrated and inclusive measures that prevent and reduce hazard exposure and vulnerability to disaster. To this end, the Sendai Framework strongly promotes policy coherence through its guiding principles ‘the development, strengthening and implementation of relevant policies, plans, practices and mechanisms need to aim at coherence, as appropriate, across sustainable development and growth, food security, health and safety, climate change and variability, environmental management and disaster risk reduction’. In addition, under Priority 2 which aims to strengthen DRR governance, the Sendai Framework recognizes the need ‘to foster collaboration across global and regional mechanisms and institutions for the implementation and coherence of instruments and tools relevant to DRR, such as for climate change, biodiversity, sustainable development, poverty eradication, environment, agriculture, health, food and nutrition and others, as appropriate’.

The Sendai Framework Target E, regarding the development of national and local DRR strategies and plans by 2020, is the first step to creating the national and local conditions to manage risk (see Chapter 8).

The Climate Change Adaptation community has several tools for members states to plan and implement their commitments to climate change objectives. In 2015, the Paris Agreement required countries to submit National Determined Contributions (NDCs) by 2020, to provide an outline of their national ambitions for mitigation and planned adaptation actions. In addition, the Paris Agreement defined a global goal on adaptation (Article 7), namely, “enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the global temperature limit of less than 2°C”.

In terms of planning, this is translated through National Adaptation Plans (NAPs) which guide countries to assess their vulnerabilities, mainstream climate change risks and address adaptation through development planning. The objectives of NAPs are: (a) to reduce vulnerability to the impacts of climate change by building adaptive capacity and resilience; and (b) to facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programmes and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate.

As part of its follow-up and review mechanisms, the 2030 Agenda encourages member states to “conduct regular and inclusive reviews of progress at the national and sub-national levels, which are country-led and country-driven” (paragraph 79). The voluntary national reviews (VNRs) aim to facilitate the sharing of experiences, including successes, challenges and lessons learned, with a view to accelerating the implementation of the 2030 Agenda in coherence with the Paris Agreement, the Sendai Framework and the Addis Ababa Action Agenda.

DRR and CCA are therefore ingrained in sustainable development from a conceptual perspective and in a practical manner by the integration of related goals and targets. As long as DRR and climate change adaptation evolve towards a vulnerability-centred approach, there are increased areas of convergence and the discrete delimitation with sustainable development becomes more difficult. Coordination to ensure efficiency and effectiveness in planning outcomes is very much needed but siloed approaches are still a challenge.

Challenges and needs

UNFCCC published in 2017 a technical paper on opportunities and options for integrating climate change adaptation with the SDGs and the Sendai Framework. The technical paper highlights a series of challenges for policy coherence that are applicable for the African Region. In addition, the Global Assessment Report 2019 (GAR19), also details needs to be addressed when building policy coherence for DRR, climate change adaptation and sustainable development. Table 5.1 summarizes these key challenges and needs.
Africa Regional Assessment Report on Disaster Risk Reduction 2020

United Nations Office for Disaster Risk Reduction

Table 9.1: Key Challenges and needs facing policy coherence

<table>
<thead>
<tr>
<th>Themes</th>
<th>Challenges</th>
<th>Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordination mechanisms</td>
<td>Traditionally, actions related to DRR, CCA, and sustainable development are implemented by different Ministries. Cross-sectoral and inter-ministerial collaboration is essential for policy coherence to reduce risk and enhance resilience. However, it is not always apparent how sectors and ministries interact and coordinate and how multiple institutional frameworks are implemented in a coordinated manner. This is in part due to fragmented and/or weak legal frameworks.</td>
<td>Clarifying the administrative set-up for developing CCA, DRR and development planning and agreement on who leads and participates in which mandate. Integrating part of the administrative set-up if needed.</td>
</tr>
<tr>
<td>Availability of data and information</td>
<td>Understanding risk requires interdisciplinary expertise and data from different sources. The lack of data and information available to actors for risk knowledge and SDG reporting (including DRR and climate change) is an important challenge for risk-informed policymaking.</td>
<td>Establishing a common ground regarding rationale, objectives, methodologies, instruments and terminologies regarding risk-information and monitoring.</td>
</tr>
<tr>
<td>Different sources of funding and competition for resources</td>
<td>CCA, DRR and sustainable development programmes and projects have different sources of funding and are implemented by different institutional arrangements which can lead to difficulties in coordination and competition for resources. In addition, in terms of external sources of funding, CCA is being supported by funds established within the UNFCCC, such as the Green Climate Fund (GCF), whereas DRR is funded through individual commitments of development partners as well as national budget.</td>
<td>Identifying common actions and instruments in support of shared policy objectives to leverage existing funding opportunities.</td>
</tr>
<tr>
<td>Different monitoring and reporting processes</td>
<td>CCA, DRR and SDGs have different tools and instruments to report and monitor progress against commitments. Some linkages already exist between DRR and SDGs as well as CCA and SDGs, but they could be enhanced. For instance, the Sendai Framework has a set of 38 indicators to monitor progress, which also contribute to the monitoring progress of SDG 1, 10 and 13. Conversely, global targets and indicators for adaptation have not been developed and according to the report of the Adaptation Committee of the COP24, Parties are invited to strengthen linkages with the monitoring systems of the Sustainable Development Goals (SDGs) and the Sendai Framework.</td>
<td>Establishing joint or joined-up monitoring and progress reporting of CCA, DRR, and development planning.</td>
</tr>
</tbody>
</table>

Source: UNDRR based on UNFCCC (2017), UNDRR (2019) and peer learning exchanges with Member States and partners in Sub-Saharan Africa

Policy coherence in sub-Saharan Africa

The “Agenda 2053: The Africa We Want” aims at a prosperous Africa based on inclusive growth and sustainable development. One of the key goals is to achieve the goal of environmentally sustainable climate resilient economies and communities through climate resilience and disasters from natural hazards and preparedness. The Sendai Framework is mentioned as the specific agreement that inspires DRR policies in Africa.

One of the specific objectives of the programme of Action for the Implementation of the Sendai Framework in Africa (POA) is to strengthen coherence and integration between DRR, climate change adaptation and mitigation in order to contribute to the implementation and achievement of the goals and aspirations of the Agenda 2063, the SDGs, the Paris Agreement, the Addis Ababa Action Agenda, the New Urban Agenda and the outcomes of the World Humanitarian Summit, including through related instruments, frameworks, programmes and processes adopted by African Union Policy Organs, RECs and Member States.

To date, in sub-Saharan Africa, countries have dedicated significant efforts to the design of DRR strategies aligned to the Sendai Framework and the POA (see Chapter 8: Target E). Most countries have reported that they have started formulating National Adaptation Plans (NAP) and five countries have submitted a NAP document to UNFCCC. Furthermore, the number of countries in sub-Saharan Africa undertaking the process of submitting Voluntary National Reviews (VNRs) for the 2030 Agenda has increased since 2016. Only four countries submitted VNRs in 2016 compared to 14 in 2019.

To foster the debate on policy coherence between CCA-DRR and the SDGs, in 2019 UNDRR organized a peer learning exchange with representatives from the DRR, CCA and SDG communities from 12 countries in sub-Saharan Africa, UN agencies and other stakeholders (IFRC, WB, EU). During the workshop, policy coherence was defined as a means to enhance coordination, synergies and collaborations between DRR, CCA and SDGs stakeholders. There was consensus that coherence should not lead to the creation and establishment of new joint structures but rather should contribute to enhancing synergies between existing mechanisms such as DRM and Climate Change committees and platforms.

The peer learning exchange suggested that a coherent approach to policy design can contribute to (a) More effective policies and investments; (b) More efficient use of capacities and financial resources, advancing technical knowledge and expertise in assessing, understanding, and managing risks, and enhanced disaster preparedness and response planning; and (c) Ensuring development does not exacerbate existing and future levels of natural and man-made hazards including climate risk and that development gains are protected from the impact of disasters and climate change.

Partnerships between governments and development partners, capacity development programs, implementation of existing policy instruments, reporting and coordination mechanisms and frameworks for policy coherence among DRR, CCA and SDGs, were identified as opportunities for coherence. Furthermore, mainstreaming DRR, CCA and SDGs into National Development Plans (NDPs) was systematically highlighted as an opportunity for coherence.
Planning instruments for policy coherence

National Development Plans (NDPs) are one of the most important tools needed to facilitate policy coherence. All policies and strategies (including DRR and CCA) of each institution should be aligned to NDPs. Intersectoral data collection and integrated risk assessments should be reinforced by both DRR and CCA communities in order to inform development planning. This requires the strengthening of coordination mechanisms, the involvement of the scientific community and improving the use of risk assessments for decision making. For example, Angola’s national development plan 2018-2022 integrates policies and programs aimed at preventing new risk, reducing existing risk and building resilience. The Agenda 2063: The Africa we want, and the 2030 Agenda for Sustainable Development provide the strategic framework for the plan and the Sendai Framework 2015-2030 is mentioned as the specific agreement that inspires DRR policies. The structure of the plan includes main lines of action, policies and programs. As part of the policy of environmental sustainability, preventing risk and protection of populations in vulnerable areas is a priority. The policy of environmental sustainability also includes a programme on climate change and a programme on risk prevention and environmental protection.

There is a need to capitalize on current planning and reporting processes related to the design and implementation of national DRR strategies, NAP development, SDGs and VNR submission for enhancing policy coherence. In sub-Saharan Africa policy coherence currently scores lowest among the 10 elements in the Sendai Framework Monitor. It is important to further understand the reasons behind these low scores in countries’ self-assessment of their DRR strategies and the way forward to enhance policy coherence.

In addition to DRR strategies, the NAP process also provides an opportunity to enhance coherence between DRR and CCA. An analysis of the NAP submitted by sub-Saharan African countries demonstrate that some DRR measures are integrated during the development of the NAP (UNDRR analysis based on NAP documents published in NAP Central) but more work is still needed to align objectives, activities and indicators. One key element for coherence is that both processes, climate change adaptation and DRR, should aim at being mainstreamed into development planning.

One entry point to enhance policy coherence between planning instruments is in the allocation of budgets for DRR and CCA. Budgeting was identified as a critical tool to facilitate coherence, while the national development plan was considered as the main tool for mainstreaming DRR and CCA.

The experience of Uganda shows how different planning and monitoring processes can foster coherence. For instance, in 2016 Uganda adopted a National SDG Coordination Framework, which spells out clear mandates for planning, reporting, monitoring, resource mobilization, communication, advocacy and decision-making for implementation of the SDGs anchored within existing national coordination structures. This mechanism involves Parliament, PMO, National Planning Authorities, Ministry of Water and Environment, Ministry of Finance, Planning and Economic, Ministry of Agriculture and other relevant institutions. Uganda noted that in monitoring the SDGs, it can appreciate the benefits of coordinating the implementation of DRR and CCA. In parallel, the NDP is being reviewed, providing an opportunity to ensure that the new NDP (NDPIII) includes SDGs, DRR and CCA.

In addition, Uganda has produced tools and outputs which directly contribute to and can be leveraged for more coherence between DRR, CCA and SDGs (notably SDG13). This includes (1) Hazard mapping of the whole country to help development planning and mitigation of risks; (2) Disaster preparedness and management policy with a clear institutional framework up to the lowest level of government; and (3) Tools under the National Climate Change Resource Center such as interactive web-based National Climate Atlas to centralize spatial information and knowledge on climate change.

It is noteworthy to underline that all DRR strategies, NAPs and VNRs in sub-Saharan have been developed with support from several UN agencies (e.g. UNDP, FAO, UNICEF, WFP, IOM, UNRCO, UNFCCC). Therefore, UN agencies must work actively together to identify a common set of entry points to enhance policy coherence which can be applied in the process of developing DRR strategies and policies. The siloed approach must be overcome within the UN system through strategic partnerships (including through the UNSDCF). There is willingness from UN agencies to enhance these partnerships, notably from UNECA (proposed to include Sendai Framework Priorities in NDC methodology).

Policy coherence supported by coordination mechanisms

Coherence in the implementation of the three frameworks requires strong political leadership at national level. Countries need to ensure that coordination mechanisms and frameworks exist at the highest political level, with support from Ministries of Finance and Planning (ideally in the VP or PM Office). For countries which do not yet have a strong coordination mechanism, setting up a coordinating and implementation entity under the Ministry of Finance and Planning which could mainstream all policies using a sectorial approach, can be an entry point for policy coherence.

For example, Niger has established a Climate Change Technical Commission which includes government, civil society and private sector representatives. The Commission adopted a national climate change policy and strategy. In addition, the Commission is the Steering Committee for all climate change projects and is responsible for mainstreaming climate change into sectors and ministries. This Commission comprises institutions and authorities such as the National DRR Platform. The Secretariat of the climate change Commission sits under the Office of the Prime Minister which ensures strong leadership. Malawi is addressing coordination between DRR and CCA through the creation of a joint technical committee between DRM and CCA and is working on also bringing the Steering Committee together. At the local level, village development committees and civil protection committees are enabling mechanisms for implementation of DRR and CCA.

In addition, the discussion on policy coherence should be an inclusive process which involves actors from government and non-government institutions, and at all levels. In particular, stakeholders noted the need to include stakeholders working on gender and youth as women and youth are affected by disasters and climate change in multiple, often unique ways. There is a need to collect more disaggregated data on how disasters and climate change affect women and youth in order to design policies which are better tailored to the context and address the specific needs of these populations. The monitoring process of the Sendai Framework provides an opportunity to collect disaggregated data on women and youth as the Sendai Framework Monitor system includes the option of data disaggregation.

Monitoring for policy coherence

The Sendai Framework Monitor (SFM) allows governments to report and monitor national progress in implementing the Sendai Framework in line with the SDGs at the national level. For this process to be effective, it is instrumental that coordination mechanisms are enhanced and that the DRR community at the national level works closely with the statistics office, the scientific community and the SDG committees. Most countries have an intersectoral monitoring system for SDGs where DRR and CCA monitoring efforts should be integrated. Intersectoral data collection and integrated risk assessments should be reinforced by both DRR and CCA communities in order to inform development planning.
SDG implementation mechanisms have been identified as key to ensuring policy coherence. The development of the Voluntary National Reviews to assess progress in SDG implementation are therefore an opportunity for policy dialogue on coherence as they aim at reviewing progress in a participatory and inclusive manner. National Statistics offices play a key role in the production and centralization of risk data and information for the three frameworks. To achieve policy coherence there is a need for more disaggregated data to better tailor policies and ensure inclusivity.

Some countries in the region (e.g. Ghana, Eswatini, Benin, Botswana, Uganda) have included considerations for DRR and CCA in their submitted VNRs. In spite of this progress, DRR focal points in sub-Saharan Africa are often not aware of or involved in the VNR process. In addition, SDG stakeholders are not always aware that the DRR community has undertaken efforts to report on DRR-related targets and indicators (Targets 1.5, 11.5, 11.b, 13.1) in the SFM. As SFM data is shared with UNDESA to contribute to the annual SDGs reporting, the SFM process can provide DRR related data for the VNRs and could be a useful support to enhance coordination and dialogue among DRR, CCA and SDGs communities including through NSOs.

The case of Benin illustrates how the VNR process can support policy dialogue for coherence. Benin has started a process of localizing the SDGs since 2016. In this process they have created a General Directorate for Monitoring and Coordination of SDGs implementation (DGS-ODD), under which the Secretariat of the National SDG Steering Committee operates. This Committee, which includes all sectorial ministries, CSOs and universities, serves as the coordinating mechanism to foster coherence between DRR, CCA and SDGs. Benin has twice submitted VNRs. This has been an opportunity to bring together a wide range of actors including ministers, presidents of institutions or their representatives, MPs, representatives of the UN system, technical and financial partners, the National Association of Municipalities of Benin, employers’ associations, CSOs, trade union centres, religious denominations and, youth organizations. The data collection process highlighted that at district levels most local strategies include DRR and CCA aspects. The VNR process also highlighted discrepancies and gaps in terms of coherence, notably the lack of synergies between the sectorial approaches, between policies, and the lack of coherent legislative framework.

**Summary of findings**

There is consensus on the need of policy coherence between DRR, CCA and sustainable development in sub-Saharan Africa. This is also reflected by the specific objectives of thePoA in contribution to Agenda 2063: The Africa We Want. It is suggested that a coherent approach to policy design can contribute to more effective policies and investments and more efficient use of capacities and financial resources, advancing technical knowledge and expertise for risk-informed development.

Even if there are important areas of overlap and complementarities among DRR and CCA, both communities also deal with other processes requiring different activities. In this sense, rather than merging institutions working on DRR, CCA and SDGs, the approach for policy coherence in sub-Saharan Africa calls for more effective coordination and synergies among relevant stakeholders and actions. A participatory, intersectoral approach, guided by the implementation and follow up of the national development plan and the SDGs, can contribute to enhanced policy coherence.

The conduction of comprehensive risk assessments can optimize resources and provide coherent risk-information for coordinated planning process and alignment between DRR and CCA (e.g. NAP and Target E). Coordinated data collection systems and methodologies for risk assessments, aligned planning processes, coordination mechanisms, monitoring processes, collaboration on budget allocation and tracking and legal frameworks are some of the areas identified to foster policy coherence.

**Policy Implications**

A detailed examination of debates over policy coherence between DRR and CCA agendas imply the following recommendations for sub-Saharan Africa:

- Ensure a comprehensive risk management approach linking DRR and CCA communities to increase risk knowledge, promoting science to policy dialogue and participatory approaches for risk-informed decision making.
- Enhance inclusive coordination mechanisms between DRR, CCA and SDGs which ensures a participatory approach.
- Capitalize on current planning processes (NDP, NAP, DRR strategies) and practices taking the national development plan as the overall umbrella to mainstream DRR and CCA. This includes enhancing the policy coherence element in DRR strategies and ensuring coordination and alignment of DRR priorities into the NAP process.
- Develop or strengthen SDG monitoring frameworks to include develop coherent CCA indicators and integrate the SFM process used to report on the DRR-related indicators of the SDGs. This should include capacity building of National Statistics Offices.
- Draw upon the VNR process to identify lessons learned and gaps to enhance policy coherence among DRR, CCA and SDGs.

Ultimately, the landscape of coherence in sub-Saharan Africa is characterized both by challenges in awareness and capacity and by the burgeoning possibility for practical and sustainable change. The relationship between these two elements will be determined by the level of political urgency and technical capability in support of the coherence agenda.
COVID-19 in Africa: Impacts, Responses and Recommendations
CHAPTER 10: COVID-19 in Africa: Impacts, Responses and Recommendations

Introduction

The worldwide pandemic COVID-19, as declared by the World Health Organization (WHO), continues to immobilize global economies, threatening sustainable development across all its dimensions and upending people’s lives. SARS-CoV-2 (the virus that causes COVID-19) banqueted to just about all world regions, infecting masses and resulting in many lives’ losses. COVID-19 has disrupted billions of lives. Many continue to be affected by the virus health crisis; the pandemic also exposes severe and systemic inequalities as the world plummets in a deep global recession ever since WWII. This health risk has radically altered the way of living, working, and socializing. Urban areas are the epidemic’s epicenters, with over 95% of the confirmed COVID-19 cases. Africa faces the dire consequences of the crisis, necessitating timely responses, recovery, and rebuilding policies and strategies.

Approximately home to just over one billion people (14% of the world’s population), the Sub-Saharan African (SSA) region reported its first COVID-19 infection, in Nigeria, on 28 February 2020. Dr. Tedros, the Director-General of the World Health Organization, classified the COVID-19 outbreak as a global pandemic on 11 March 2020. By 1 April 2020, 43 of the 44 sub-Saharan Africa countries had reported confirmed cases of COVID-19, with Burkina Faso reporting the first death in the region on 18 March 2020; all SSA countries have since reported cases. Subsequently to these early cases, over 1 million patients and 20,000 deaths have been confirmed in the region as of September 2020. In Sub-Saharan Africa, member states at the national, sub-national, and local levels developed various measures to respond and contain the pandemic and address its implications on vulnerable groups and national economies. Their implementation involved developing technical partnerships, including the private and civil society. COVID-19 crisis offers prospects for grounded, innovative multilateralism for successful reorganization based on safeguarding citizens’ needs incorporated in all governance instruments and levels. The United Nations (UN) is working with donors to develop partnerships with local and national governments, Small Medium Enterprises (SME), the private sector and communities, to ensure that Sustainable Development Goals (SDGs) are on track, and no one is left behind while addressing the COVID-19. The UN Secretary-General, António Guterres, mindful of the significance of collaboration of actions, has challenged the international community to emphasize three essential focus areas: i) Addressing the health emergency; ii) Tackling pandemics social impact and economic response, and recovery; and iii) Recovering ‘better’ (UN-Habitat, 2020). The UN advocates for a large-scale, compre-

<table>
<thead>
<tr>
<th>Country</th>
<th>Case Numbers</th>
<th>Death Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benin</td>
<td>2,294</td>
<td>40</td>
</tr>
<tr>
<td>Burundi</td>
<td>474</td>
<td>1</td>
</tr>
<tr>
<td>Botswana</td>
<td>2,567</td>
<td>13</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>1,896</td>
<td>56</td>
</tr>
<tr>
<td>Cape Verde</td>
<td>5,281</td>
<td>52</td>
</tr>
<tr>
<td>Rep of Congo</td>
<td>5,002</td>
<td>89</td>
</tr>
<tr>
<td>Congo, Dem Rep</td>
<td>10,523</td>
<td>271</td>
</tr>
<tr>
<td>Cote d’Ivoire</td>
<td>19,327</td>
<td>129</td>
</tr>
<tr>
<td>Ghana</td>
<td>46,062</td>
<td>297</td>
</tr>
<tr>
<td>Guinea</td>
<td>10,344</td>
<td>65</td>
</tr>
<tr>
<td>Guinea-Bissau</td>
<td>2,303</td>
<td>39</td>
</tr>
<tr>
<td>Kenya</td>
<td>37,079</td>
<td>650</td>
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<tr>
<td>Lesotho</td>
<td>1,424</td>
<td>33</td>
</tr>
<tr>
<td>Namibia</td>
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<tr>
<td>Niger</td>
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<tr>
<td>Nigeria</td>
<td>57,437</td>
<td>1,100</td>
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<tr>
<td>Senegal</td>
<td>14,759</td>
<td>302</td>
</tr>
<tr>
<td>Seychelles</td>
<td>143</td>
<td>0</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>2,168</td>
<td>72</td>
</tr>
<tr>
<td>South Africa</td>
<td>661,936</td>
<td>15,992</td>
</tr>
<tr>
<td>Tanzania</td>
<td>509</td>
<td>21</td>
</tr>
<tr>
<td>Togo</td>
<td>1,669</td>
<td>41</td>
</tr>
<tr>
<td>Uganda</td>
<td>6,468</td>
<td>64</td>
</tr>
<tr>
<td>Zambia</td>
<td>14,389</td>
<td>331</td>
</tr>
</tbody>
</table>

Source: Africa CDC, African Union member states reporting COVID-19 cases, 22 September 2020
Impact and Implications of COVID-19 in Africa

Economic and Financial Impact

Over 50% of Africa’s GDP is accounted for by the continent’s cities. This extraordinary investment level presents a scarce opportunity for better recovery and offers a path for innovations that transform livelihoods into a healthier, safer, inclusive, and sustainable future.

In the Sub-Saharan Africa region, the response to the COVID-19 is unfolding with various Disaster Risk Reduction (DRR) approaches and initiatives to curb the spread of the pandemic and its interconnected socio-economic impacts. As a result of an often-resource constrained environment and intense past experiences with the Ebola crises, Sub-Saharan member states’ approaches have their specificities and expected trends. UNDRR will continue partnering with Sub-Saharan regional governments to safeguard past investments and resources from loss due to the COVID-19 crisis and ensure that any current and future infrastructure does not translate into new risks. UNDRR will continue working and strengthening member state people, communities, countries, and systems to understand risks, withstand them, bounce back from shocks, persist through stresses, and transform through crises creating sustainable human, social and economic development. The Sendai Framework lays out a consented global blueprint to address such risk. As we advance, it is vital for DRR measures to be incorporated into COVID-19 planning for recovery, focusing on managing systemic risk to build resilience. This chapter summarizes the status of the COVID-19 outbreak in Sub-Saharan Africa, discusses its impacts (including cascading effects), implications, response, and disaster risk reduction management in member States. Information used was gathered through desk research, desk analyses of national DRR strategies, contingency, and response plans, COVID-19 authorized websites like the African Centre for Disease Control, the World Bank, and other online publicly available resources. The chapter covers lessons learned, focusing on how countries used existing DRR tools - policies, strategies, and legislation - to contain the COVID-19, and discuss how the pandemic reveals the systemic nature of risks, as well as future interventions to prevent a rapid increase in the number of COVID-19 cases in the member states.

Table 10.2: Projected GDP growth for selected countries in Sub-Saharan Africa

<table>
<thead>
<tr>
<th>Country</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>0.2%</td>
<td>-5.8%</td>
<td>4.0%</td>
<td></td>
</tr>
<tr>
<td>Tanzania</td>
<td>6.3%</td>
<td>2.0%</td>
<td>5.0%</td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>5.6%</td>
<td>1.0%</td>
<td>6.1%</td>
<td></td>
</tr>
<tr>
<td>Ghana</td>
<td>6.1%</td>
<td>1.5%</td>
<td>5.9%</td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>2.2%</td>
<td>-3.4%</td>
<td>2.4%</td>
<td></td>
</tr>
<tr>
<td>Senegal</td>
<td>5.3%</td>
<td>3.0%</td>
<td>5.5%</td>
<td></td>
</tr>
<tr>
<td>DRC</td>
<td>4.4%</td>
<td>-2.2%</td>
<td>3.5%</td>
<td></td>
</tr>
</tbody>
</table>

Source: IMF, World Bank, African Union

COVID-19 is beyond just a global health disaster; it is a systemic human development crisis that reflects the human interaction with an ecosystem that is already distressing the economic and social dimensions of development in unprecedented ways. Income tax, a vital tax revenue source for many SSA countries, contributes over 40% of its total tax revenue: personal income tax and corporate income tax are larger for the more diversified economies like Kenya and South Africa. National airline carriers such as Kenya Airways and South African Airways are listed as large taxpayers. As of March 2020, Kenya Airways cancelled flights to China, which resulted in an approximately $8 million monthly loss because of suspending flights to China. Major tourist destinations, such as Côte d’Ivoire, Kenya, and South Africa, felt the travel restrictions-imposed economic implications. High growth economies such as Ghana, Côte d’Ivoire, Senegal, Kenya, and Tanzania are expected to see considerably slower GDP expansion in 2020 but still with growth rates as these countries are less or non-resource intensive and, as such, more resilient.
As the severity of COVID-19 emerged in February and March 2020, commodity prices plunged for more than 67% of African exports. The cost of petroleum oils, which account for about 40% of African exports and about 7.4% of Africa’s total GDP, crashed by more than 50% to their lowest levels since 2003. The crashing of oil prices has considerable fiscal and exchange rate implications for Africa’s many fuel-oriented economies. The biggest economy in Africa, Nigeria, is severely affected by the price and demand shock to oil. Large gold exporters, such as Ghana 20%, South Africa 17%, and Guinea 9%, will experience a small compensatory benefit from the gold price rise.

Small and medium-sized enterprises (SMEs), which account for about 80% of total employment, are especially vulnerable to the pandemic’s impact, given their limited capacity to financially absorb systemic shocks. Significantly affected are small businesses in trade, hospitality, tourism, and manufacturing, where 90% of companies expect at least a 10% decrease in their 2020 revenues compared to 2019. For example, about 85% of Uganda’s SMEs held cash coverage sufficient for three months of operations or less – a situation that is typical across the SSA region – with the lockdown impacts, recovery prospects for these enterprises shrink fast as they face decreases in their assets, workers, customers, and market shares.

Urbanization: A risk factor of COVID-19

Over 50% of Africa’s GDP is accounted for by the continent’s cities. Urban area economic contribution in terms of growth, jobs, and revenues is far higher in Africa than their national population share. Given their centrality in urban development, the economic shock resulting from the COVID-19 pandemic has a cascading impact on cities and their functions and vice-versa. As the leading financial hubs in most SSA countries, primary cities will experience pronounced economic impacts due to the lockdown and movement restriction. For example, Johannesburg and Lagos, the cities with the highest share of traded sectors and significant gateways for Foreign Direct Investment (FDI) into Africa, are expected to experience negative growth. Nairobi also has a high share of the traded sector and, as a secondary African access point for FDI, is also expected drop. The urban economic contraction will directly reduce municipal revenues, which, in turn, lead to less financial resources to deliver urban services.

Africa is urbanizing very rapidly. 44% of Africa’s total population lives in areas defined as urban in 2020, compared to only 19% in 1960: translating to a 10-fold increase, from 53 million urban residents in 1960 to 588 million in 2020, and is projected past the tipping point of 50% urban population around 2035: increase to 1.5 billion by 2050. COVID-19 has revealed that African urbanization characteristics have exacerbated cities’ vulnerability to the pandemic’s effects, stemming from systemic urban planning and management deficits. Millions of Sub-Saharan Africa populations live in low-income urban settlements. High density, limited access to sanitation or healthcare increases the risks associated with infectious diseases, including the spread of COVID-19. About 63% of people in Sub-Saharan African urban settlements do not have access to clean water to keep washing their hands or have access to hand sanitizers, a crucial weapon against the spread of the COVID-19. Informal settlements residents are at heightened risk of contracting the COVID19. Social and physical distancing and hand washing are essential precautions against spreading COVID-19 in urban settlements where physical space is constrained, rooms are often shared and poorly ventilated, while water and sanitation services are inadequate or absent.

Urban areas lack sufficient self-sufficiency to mobilize and use revenues to respond to better living conditions for everyone, especially with the added burden of the COVID-19 pandemic containment response. Moreover, local authorities and city managers usually lack the tools and capacities to effectively handle equitable delivery of quality services or intervene in various crises effectively. While they may have the mandate to lead immediate responses, this is typically not accompanied by adequate financial, technological, and human resources or institutional and regulatory frameworks. This creates severe challenges in the context of the current COVID-19 and any future infectious epidemics or external crisis.

Informal employment, poverty, and inequality

Approximately 71% of work in the SSA region is in the informal sector. Primarily people rely on casual work with daily earnings to cover necessary expenses; this creates significant threats to families, exposing them to food and health insecurity. More than 60% of men and 75% of women in the SSA region are in informal employment, hence experiencing post-COVID-19 employment vulnerability. Low-income families, who already spend an average of 36% of their income on healthcare and food-related expenditures, are falling below the poverty line. Millions of the SSA population is below the extreme poverty line of $1.90 per day due to the COVID-19 impact. Vulnerable families affected by COVID-19 face an increased probability of moving into transient poverty by 17.1%, a 4.2% probability of staying in poverty for a decade or longer. Increased poverty levels will also exacerbate existing income inequalities.

Urban areas with populations exceeding 500,000 inhabitants typically experience higher population densities. Higher built-up area densities and overcrowding pose increased COVID-19 exposure risks. Lagos, the largest city in the region, has population densities of more than 12,000 people per km2 but less built-up area per capita at only 54 m2; it accounted for about 42.5% of the total number of cases in Nigeria. Inadequate coverage and service delivery and unsafe road safety systems characterize mobility systems in the region. In the absence of high-capacity public transport options, mobility in urban areas depends on low- to medium-capacity informal services, especially minibuses and motorbikes; these urban public service vehicles are typically overcrowded, making social distancing during pandemics impossible. Some SSA governments have made efforts to improve mobility. For example, mass and energy-efficient transport such as the light rail in Addis Ababa and Bus Rapid Transport (BRT) in Dar Es Salaam.

Many informal settlements are characterized by inadequate sanitation, lack of clean water, absence of water storage tanks, unreliable electricity connections, limited fire safety equipment, inaccessible mobility, congestion, and overcrowding. Overcrowded places enhance the spread of transmissible diseases. Access to clean water and other hygiene facilities are especially critical to protecting populations during infectious disease outbreaks. Only about 44% of all SSA’s urban residents have access to essential sanitation services, 37% of residents have the necessary handwashing facilities in their homes, presenting critical COVID-19 and other infectious diseases prevention and spread risk.

Health Sector

The SSA region’s capacity to efficiently control the COVID-19 pandemic is fundamentally contingent on proactive health system approaches and resilience. Health resources like hospital beds, nursing personnel, ICU beds and ventilators, and medical doctors are inadequate. While the global threshold for health professionals is 23 per 10,000 inhabitants, 13 out of 44 countries have less than five health professionals per 10,000 of its population. The region imports...
about 94% of its pharmaceuticals stock, the outbreak of COVID-19 exposes the risk of accessing life-saving medical supplies. Urban dwellers, especially those living in informal settlements, continue to face challenges in accessing healthcare services and products, especially in the light of the COVID-19 related loss of income. Despite these many challenges, most SSA countries have managed to dodge the high mortality rates seen in other parts of the world. The region used useful lessons learned from the 2014-16 Ebola crisis. The lessons learned aided substantial developments, such as infrastructure and skills for laboratory testing, exchanges of capacities across member states, partnerships among specialized agencies, international organizations, the private sector, and public health awareness. For example, Guinea’s mining sector played an essential role in addressing the Ebola outbreak experience; the institutions created were mobilized to fight the current COVID-19 pandemic. In Sierra Leone, local health systems came up with effective responses, Community Care testing Centers for treating and isolating patients. Given the vulnerability of central healthcare systems and the lack of more comprehensive technical resolutions, comparable community-based responses continue to be utilized while noting the differences between the Ebola and COVID-19 pandemics.

Many governments also diverted financial resources to create additional medical care facilities, including repurposing hotels and other facilities for group confinements. Entrepreneurs in partnerships with governments also started local manufacturing of face masks and sanitization materials to reduce the supply gap. Personal Protective Equipment (PPE) manufacturers have risen in some Sub-Saharan countries in recent months, together with people manufacturing artisanal masks. For example, in Kenya, local production of PPE is on the rise, and 3D printing companies have also started production of COVID-19 equipment.

Information and Communication Technologies (ICT)

The technology, media, and telecommunications sector were projected to attract high-value investments in 2020, with many telecommunications businesses seeking to develop infrastructure, including the opportunities to open the region’s e-commerce sector. Many SSA countries actively employed digital technologies to respond to COVID-19, varying from pandemic tracker tools to audio messages to teach the public how to prevent the pandemic spread. Nationwide lockdowns triggered a rise in remote working, distance learning, and paperless payments in the region. The regions in partnerships with private sectors undertook policy initiatives to support digital payments over cash payments. For example, in Kenya, Safaricom reduced mobile payment fees, and Ghana launched a universal quick-reference code and proxy pay system to accelerate cashless payments. South Africa published amendments to its National Disaster Act to put a tracking system in place of public officials and sector experts, to guide the pandemic response to strengthen government coordination efforts in the fight against COVID-19. The Scorecard has since been augmented by evidence-based approaches to managing their disaster responses.

Member States COVID-19 Responses

The Sendai Framework supported member states national strategies and recognized COVID-19 risk as one of the critical hazards in the SSA region. The United Nations Office for Disaster Risk Reduction (UNDRR) is partnering with its member countries, mainly composed of public officials and sector experts, to guide the pandemic response to strengthen government coordination efforts in the fight against COVID-19. UNDRR has established a scorecard mechanism to support local governments in addressing city resilience. Over 200 cities and towns worldwide already use the Scorecard to develop evidence-based approaches to managing their disaster risk. The Scorecard has since been augmented by creating a Public Health Addendum that guides local governments on the broader biological hazards’ management and recovery, including COVID-19. The need for better data collection will allow city leaders to prepare for future episodes where once unthinkably metrics become routine, such as whether a park can accommodate neighbourhood residents if they must keep two meters apart. An Addendum to
the Scorecard was designed to help cities establish their public-health system resilience baseline and frame an action plan. Lessons learned from previous experiences with epidemics like Ebola; several Sub-Saharan African countries responded swiftly to the COVID-19 crisis by activating a state of emergency and related actions to control the virus’s spread. Most SSA countries are investing in their people and their livelihoods by providing social protection and safety nets programs; for example, cash transfers and essential goods distribution are developing all over the region. Ref: Table 10.4 and Table 10.5

Lessons Learnt:
Whereas identifying the significance of epidemics, National DRR strategies ought to have additional targeted objectives and operational actions to strengthen member states’ health resilience. The resilience of the Sub Saharan African region will be contingent on the strategies and policies member states will adopt; building on recent initiatives to accelerate economic growth to meet national development aspirations that are linked with the Sustainable Development Goals (SDGs) and the African Union’s Agenda 2063, in a financially and environmentally sustainable manner. Health actors and authorities must co-construct solutions to address COVID-19 with community leaders and organizations. Each community is unique, and attention must be contextualized to affected districts of each country, a ‘one size fits all’ approach to community engagement is likely to fail. This cooperation with communities calls for an urgent change in health emergency response. All member states, health authorities, and humanitarian actors are urgently called on to quickly move from a dominant biomedical design of public health emergency response to a public health design that balances biomedical paradigms with social sciences. The discouraging personal protective equipment shortages, ethanol for disinfectant, and other emergency supplies can be prevented from being inconsistent at the regional and national level, reinforced by the allocation of required resources. COVID-19 disaster exposed the systemic vulnerabilities in healthcare systems. Epidemic readiness in urban areas is more crucial than ever before, reducing disaster risk, especially in challenging conditions where disease outbreaks might coincide with overcrowding and other bio-hazard exposure. The COVID-19 pandemic caught countries globally by surprise regardless of several warnings and new epidemic events; for example, the Ebola outbreak had some countries better prepared. There was a lack of hazards and disaster preparedness at all levels. COVID-19 compelled urban and cities to confront the reality that unplanned urbanization establishes unsafe conditions like residents’ lack of access to water, healthcare, and sanitation facilities while living in congested cities where physical distancing is challenging. There is an urgent requirement for cities and towns to develop a deep understanding of future pandemic risks, just as they would for other more visible hazards like extreme weather events.

COVID-19 exposed the high risk for vulnerable populations in rural and urban areas, especially girls, that further widen inequalities in education access. Decades of efforts to universalize education are compromised if obstacles preventing students from going back to school are not addressed. Several countries introduced remote learning, including radio, television, and online programs, when schools closed. But these solutions are not accessible to all students. Today, almost 90% of students across the continent still do not have computers, and 82% have no Internet access. This situation highlights the shortcomings and inequalities of the education systems, hence the importance of deploying technologies and innovations and curriculum adapted to the rapidly changing workplace and learning challenges.

Another lesson from the COVID-19 pandemic is that a do-it-alone national approach ineffective strategy to combat a crisis. Some countries’ health systems might not be able to cope alone; the solution is to support a collective global response; this requires empowering existing organizations and offering the necessary tools to lead and coordinate national governments’ interventions globally. A positive lesson from the pandemic is that innovations occurred in the Sub-Saharan region; however, resources to fund and scale innovations are not evenly spread; to enhance the region’s capacity to manage better future pandemics must be addressed. Collaboration must also be deepened in research and development, training, and scaling innovative ideas.

### Table 10.4: National measures put in place by SSA Governments.

<table>
<thead>
<tr>
<th>Measures</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Border closures and suspension of international flights</td>
<td>Botswana, Burkina Faso, Burundi, Cape Verde, Congo, DRC, Guinea, Guinea-Bissau, Ghana, Guinea, Kenya, Nigeria, Senegal, Seychelles, Sierra Leone, South Africa, Togo, Uganda, Zimbabwe</td>
</tr>
<tr>
<td>Schools closures</td>
<td>Ghana, Guinea, Kenya, Nigeria, Seychelles, Rwanda, Togo, Uganda, Zambia</td>
</tr>
<tr>
<td>State of emergency declared</td>
<td>DRC, Guinea, Guinea-Bissau, Kenya, Senegal, Sierra Leone, South Africa</td>
</tr>
<tr>
<td>Lockdowns (total lockdown or lockdown of high-risk areas/regions)</td>
<td>Full Lockdowns: Botswana, Cape Verde (Boa Vista under quarantine), Congo, Sierra Leone, Uganda, Malawi, Rwanda Partial lockdowns: Benin (for 15 cities), DRC (Kinshasa), Gabon (Libreville), Ghana (larger Accra), Namibia (Erongo and Khomas regions), Nigeria (Lagos &amp; Abuja)</td>
</tr>
<tr>
<td>Restriction of cross-region/ internal movements</td>
<td>Guinea, Kenya, Namibia, Nigeria, Senegal, Sierra Leone, South Africa</td>
</tr>
<tr>
<td>Close of all or some non-essential businesses</td>
<td>Cape Verde, Guinea, Guinea-Bissau, Kenya, Sierra Leone, Burkina Faso, Gambia, Zimbabwe</td>
</tr>
</tbody>
</table>

Source: IMF growth projections and UNCDF computations based on national statistics

### Table 10.5: Local and city governments’ measures in the fight against Covid-19

<table>
<thead>
<tr>
<th>Cities</th>
<th>Measure</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg (South Africa)</td>
<td>Information and communication technologies</td>
<td>Assistance in finding and monitoring people who have been potentially exposed</td>
</tr>
<tr>
<td>Harare (Zimbabwe)</td>
<td>Water</td>
<td>Increased production of water from 173 megalitres to 240 megalitres per day since April 20, 2020</td>
</tr>
<tr>
<td>Machakos (Kenya)</td>
<td></td>
<td>Access to clean water for everyone</td>
</tr>
<tr>
<td>Dori (Burkina Faso)</td>
<td>Homeless and Migrants</td>
<td>Set up a communal solidarity fund (to support people who are no longer active following containment measures).</td>
</tr>
<tr>
<td>Dakar (Senegal)</td>
<td></td>
<td>Food aid in the 19 municipalities of the city</td>
</tr>
<tr>
<td>Machakos (Kenya)</td>
<td></td>
<td>Exemption from paying water bills between May and December 2020.</td>
</tr>
</tbody>
</table>

Source: UCLGA (2020) database on COVID-19 response at local governments level
Conclusions

The Coronavirus disease (COVID-19) has become the worst human and economic crisis of our lifetime. COVID-19 pandemic has helped expose the systemic nature of risk and systems’ exposure to all hazards. Its extraordinary cascading effects have impacted all sectors and levels of Sub-Saharan economies and societies. It is triggering severe disruption to the Sustainable Development Goals (SDGs) achievement. The pandemic disaster demonstrates that risk is more systemic than ever in a connected, globalized world. No country, community, or sector is immune. What was initially portrayed as a health disaster rapidly developed into a socio-economic disaster with a longstanding impact, stressing the urgency for a whole-of-society whole-of-government approach towards risk-informed recovery.

The Sendai Framework for Disaster Risk Reduction and the Global Assessment Report 2019 (GAR) revealed the actuality that a populated, interconnected, and globalizing humanity leads to a changed nature and scale of risk, to such a degree that it exceeds established risk management institutions and approaches. The Sub-Saharan region is experiencing the effects of systemic risk as witnessed by the interaction and intensification of the varied impacts of the COVID-19 pandemic, directly influencing all the region’s systems. Sub-Saharan governments in the region face limited capacity challenges to counter and are now utilizing the instruments they have available to secure public safety. The new connections between the environment, economy, technology, and biological risks are developing unanticipated aspects. The absence of specific readiness measures to confront the pandemic led to improvisation and real-time testing of policies and standards.

COVID-19 pandemic and the climate crisis demonstrate the systemic nature of risk and the building cascading effects; the pandemic continues to trigger unprecedented social and economic disaster globally. Years of developmental progress are unraveling, poverty, and inequality, particularly gender inequality, deepening vulnerability and exposure to other hazards, including the intensifying climate crisis. Though these hazards and risks touch all countries, the poorest and most exposed vulnerable people, communities, and governments most impacted. The Sendai Framework Monitor reveals that Least Developed Countries (LDC) record over 40% of the deaths and missing persons and 48% of people whose livelihoods are disrupted or destroyed due to disasters. Moreover, LDCs also undergo about 17% of reported economic loss due to disasters and 14% destruction of critical infrastructure though they account for only 1% of the countries’ GDP.

The Sendai Framework stresses the need to strengthen government coordination for risk management, including biological hazards. As detailed in the Sendai Framework, current disaster risk management mechanisms and strategies provide tangible response measures to respond to pandemics like COVID-19 efficiently. Further, the Bangkok Principles position strengthening of biological hazard risk reduction. They appeal for an inter-operable, multisectoral approach of promoting systematic cooperation, integration, and, ultimately, coherence between disaster and health risk management. The Principles encourage building on the commonality between risk assessment, surveillance and early warning systems, resilient infrastructure, and coordinated incident management, strengthening coherence due to the inter-connected and transboundary nature of COVID-19 risk.

Recommendations

In mid-March 2020, as the pandemic’s magnitude became evident, UNDRR responded through a COVID-19 engagement strategy, contributing to the United Nations effort to respond to the pandemic: by tackling the health emergency; addressing the social impact and economic response, and supporting recovery. Disaster risk and crisis often provide transformation opportunities; COVID-19 pandemic opportunities and lessons learned should be seized. The global reaction to COVID-19 is already providing critical lessons that can shape future disaster risk reduction policies and actions worldwide. The Bangkok Principles and The Sendai Framework delivers a blueprint for reducing COVID-19 risk and building resilience. UNDRR’s focus has been to promote evidence, knowledge, and learning on the COVID-19 pandemic for more effective disaster risk reduction policy and practice and ensure a better and more resilient recovery for those most affected.

Strengthening local governments and community capacities

COVID-19 has highlighted local governments’ critical role as front-line responders for prevention, containment, recovery, and rebuilding because of their leading role in service delivery, infrastructure investments, and mobilization to address immediate health risks and putting in place life-saving measures. These include monitoring and tracing contacts, establishing additional health, quarantine, and isolation facilities, and delivering supplies and food to vulnerable communities and households. They have also played a key role in supporting local enterprises and businesses through service fee and tax relief. Local government capacity to deliver essential services and infrastructure is critically strained. Local government revenue reduction can risk critical infrastructure investments, leading to public services cuts, undermining broader sustainable development efforts. The necessary planning and investing efforts needed to prepare for COVID-19 cascading effects on public health are severely impacted. This is especially challenging for underserved neighborhoods, a population highly dependent on public services. There is also a significant risk that the pandemic will compromise – for years to come – local governments’ ability to deliver basic services and invest in social infrastructure and essential infrastructure upgrades.

As COVID-19 has demonstrated, this trend, coupled with current inequalities at the local and community levels, has seen the generation of new risks and a steady rise in disaster-related losses, with profound economic, social, and health impact. To explore community-based disaster risk reduction approaches in the context of COVID-19 in Africa, UNDRR and the Global Network of Civil Society Organizations for Disaster Reduction (GNDR) organized a dialogue between experts and partners. UNDRR,

1. Issued recommendations to highlight efficient community-based disaster risk reduction approaches and their applicability to the COVID-19 pandemic.
2. It was established the importance of locally-led risk assessment methodologies for preparedness and response in extreme crises.
3. Provided examples of how community-based disaster risk reduction reinforces resilience.

Supporting Cities and Urban areas resilience

Local strategies for disaster risk reduction are an essential part of better recovery and building resilience to future disease outbreaks. They must include pandemic risk reduction and preparedness as a priority. Unplanned urbanization creates conditions where many of their residents lack adequate water and sanitation while living in crowded places where physical and social distancing is challenging. The COVID-19 crisis has also exposed many citizens who do not have affordable access to health care and systemic vulnerabilities in healthcare systems that cannot handle surging caseloads. It is urgent that cities and towns understand their risks related to future pandemics, just as they would for other hazards like extreme weather events.
Ensuring Socio-economic Resilience

The COVID-19 pandemic triggered a social and economic disruption globally and negatively impacted businesses. SMEs, the strongest drivers of economic development, innovation, and employment, are especially hard hit. Global and regional supply chains were harshly disrupted, hindering many suppliers’ ability to transfer commodities to sellers, even where demand has remained strong. Coupled with COVID-19 lockdowns and reduced foot traffic, this has caused many businesses to close. Other small businesses struggle to maintain operations while ensuring their workers’ safety. Supporting SMEs in maintaining functions and achieving resilience is key to recovery and has been one of UNDRR’s vital priorities throughout the pandemic. A series of webinars and related policy briefs looked at how the crisis has impacted businesses from different sectors and how they are adapting their business practices to withstand the economic consequences of COVID-19. These dialogues supplemented a series of tools for SMEs to emerge more resilient from recovery and policy briefs for business owners and policymakers. In the short term, where applicable, reduce or waive fees on critical services delivery such as water, energy, public transport, sanitation, and public toilet access. Provide short-term financial bailouts and exemptions for SMEs to limit declines in productivity and employment.

Provide social protection for those in informal urban employment while pursuing labour-intensive and public work programs for job creation in the medium term.

Social protection is urgently needed to focus on the most vulnerable and marginalized urban groups, including indigenous peoples, women, and children. The expansion of social protection to the informal sector and unpaid care workers — many of whom are women — is urgent. Ensuring that socio-economic recovery efforts trigger a long-overdue transformation for these groups is of utmost importance. Social protection should be a necessary investment in people instead of a burden, and thus, mainstreaming it in domestic resource frameworks is advisable.

Strengthening Preparedness and Recovering Better

While much of the focus is on COVID-19 disaster management response, it is essential to begin a more resilient recovery early. Diverse recovery needs are covering beyond the health sector that demands multisectoral participation. To support critical partners, including policymakers, development organizations, non-governmental organizations, and corporate and private philanthropy, UNDRR worked with the International Recovery Platform (IRP) to develop two essential resources to support COVID-19 recovery.

i) A COVID-19 Recovery Policy Brief and checklist highlight challenges and present recommendations to guide decision-makers through the unique circumstances presented by COVID-19. To support governments and stakeholders to plan for recovery, they outline eight guiding principles and nine key recovery actions. Crucial recovery activities include assessing the broader socio-economic impacts of the crisis and management needs, providing guidance on societal recovery, planning for a comprehensive economic recovery, promoting livelihoods and psycho-social recovery, and the expanded use of e-governance and emerging technologies.

ii) In collaboration with UNDRR, IRP also published a toolkit designed to apply an existing compilation of twenty-one IRP disaster recovery tools and guidelines to support countries and communities to build back better.

The COVID-19 epidemic has exposed the lack of sustainability and pre-existing inequalities of current economic and social systems. Still, it has also created an opportunity to rethink such strategies and, in this way, generate a paradigm shift towards sustainable development. The COVID-19 recovery process can be a transformational catalyst for many countries, offering the opportunity to improve their overall long-term resilience. The policy brief, Opportunities for Resilient Recovery, developed in collaboration with IRP, presents member states with guidance on how to take advantage of current opportunities to build greener and more resilient economies. It includes lessons from past disaster recovery efforts and an introduction to the World Bank’s new recovery checklist to help policymakers select projects that can address immediate employment needs, contribute to restoring degraded ecosystems, and reduce climate and disaster risks.

Strengthening Member States Capacity to Prepare, Respond and Recover

Through a series of webinar discussions, UNDRR engaged member state’s communities most at risk and affected by COVID-19 and produced specific vital findings and policy recommendations informing efforts to overcome the pandemic’s socio-economic impact, particularly as it relates to some of the world’s most vulnerable populations. UNDRR collaborated with the African Union Commission (AUC) to organize the first virtual meeting of the Africa Working Group on DRR to strengthen member states’ capacity in the region to prepare, respond, and recover. A meeting was attended by over 80 participants from AUC, Regional Economic Communities (RECs), member States, and other member organizations.

Members resolved to strengthen support to Member States’ capacity to COVID-19 and other hazards management through enhanced preparedness and early warning systems to improve risk governance and systemic risk management. The group committed to integrating disaster risk reduction into all measures to address COVID-19 and improve risk governance.

UNDRR, WHO, the AUC, and the African Peer Review Mechanism (APRM), as an outcome of a high-level virtual workshop on Building State Resilience, agreed to cooperatively start capacity building for governments in the region to strengthen disaster risk reduction for resilience and enhance capacity for preparedness, response, and recovery. They also committed to proactively support member States to implement international frameworks relating to shocks, disasters, and infectious diseases, including the Sendai Framework, the Africa Regional Strategy for Disaster Risk Reduction (ARSDRR), and the International Health Regulations (IHR).
Conclusions
Conclusions

The broad conclusions of the findings of the report cover: the landscape and dynamics of risk; integrating DRR in development strategies and mechanisms; investing in DRR; and achieving coherence between disaster, climate, and sustainable development frameworks.

Building knowledge for DRR requires understanding risk. The analysis of this report has shown that the number of disasters and the number of people affected by all disasters exhibited a declining trend over 2008-2018 but their effects and impacts are rising, despite globally declining relative economic losses from disasters, economic damages appear rising in Africa, making it the region with the highest ratio of total loss to GDP during 2005-2017. This rising in Africa, making it the region with the highest levels of losses is high in Africa, relative to the level of development, because beyond the frequency and severity of hazards, the impacts of disasters are determined by social, political, economic, environmental and climatic factors, that in turn, intensify Africa’s vulnerability and exposure to hazards. The inter-relationships between disasters and development are conditioned by a wide range of disruptive influences in Africa: chain reactions of natural hazards, technological hazards, poverty, food system risks and trans-boundary economic shocks, population and urbanization factors, climate change and the interaction between natural hazards and conflict. Due partly to their cascading effects, drought and flood often result in complex emergencies and are the major causes of disaster-driven mortality, livelihood insecurity, displacements and other cross-border impacts in Africa. Transboundary threats result in systemic risks in Africa: recent episodes of instability in the global food system, such as the 2008 global food price shocks, demonstrated how systemic risk cascades can have critical effects on people and economies in the region. Recent cases of multi-state food crises, arising partly from multiple food-basket failure, demonstrate the concatenating effects of these shocks in Africa that make them systemic. Further, given long-term trends such as increasing connectedness of economies and regions and rising vulnerability and exposure from underlying development patterns, many systemic risks will likely remain high or increase. Because of the significant role of vulnerability in the development and effect of systemic risk factors, reducing systemic risk also requires reducing poverty and adapting to climate change as key factors conditioning vulnerability in sub-Saharan Africa.

Poverty is both a contributing factor and outcome of disasters. Poverty and inequality increase vulnerability to disaster risks in Africa and worsen their impacts. The analysis suggests that the high level of absolute poverty, low education and high inequality in Africa contribute to the high vulnerability and low risk reduction and adaptation capacity on the continent. In turn, disasters contribute to poverty through generic risk impacts, including the high human toll and economic losses from hazards. Therefore, breaking the vicious cycle of vulnerability and poverty requires mainstreaming disaster reduction in development practice for poverty reduction and vice versa.

The analysis and evidence from the report suggest the need for DRR actors to work more closely with the development community and the scientific community to develop and implement knowledge-based DRR. Building and sustaining knowledge for DRR requires understanding risk. The analysis of this report has shown that the number of disasters and the number of people affected by all disasters exhibited a declining trend over 2008-2018 but their effects and impacts are rising, despite globally declining relative economic losses from disasters, economic damages appear rising in Africa, making it the region with the highest ratio of total loss to GDP during 2005-2017. This trend underscores the urgent need to increase efforts to prevent future hazard risk while reducing existing risk to ensure resilient development in Africa.

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Building knowledge for DRR requires understanding risk. The analysis of this report has shown that the number of disasters and the number of people affected by all disasters exhibited a declining trend over 2008-2018 but their effects and impacts are rising, despite globally declining relative economic losses from disasters, economic damages appear rising in Africa, making it the region with the highest ratio of total loss to GDP during 2005-2017. This trend underscores the urgent need to increase efforts to prevent future hazard risk while reducing existing risk to ensure resilient development in Africa. Because of its high level of vulnerability, the impact of disaster is higher in Africa than in other regions. Levels of losses are high in Africa, relative to the level of development, because beyond the frequency and severity of hazards, the impacts of disasters are determined by social, political, economic, environmental and climatic factors, that in turn, intensify Africa’s vulnerability and exposure to hazards. The inter-relationships between disasters and development are conditioned by a wide range of disruptive influences in Africa: chain reactions of natural hazards, technological hazards, poverty, food system risks and trans-boundary economic shocks, population and urbanization factors, climate change and the interaction between natural hazards and conflict. Due partly to their cascading effects, drought and flood often result in complex emergencies and are the major causes of disaster-driven mortality, livelihood insecurity, displacements and other cross-border impacts in Africa. Transboundary threats result in systemic risks in Africa: recent episodes of instability in the global food system, such as the 2008 global food price shocks, demonstrated how systemic risk cascades can have critical effects on people and economies in the region. Recent cases of multi-state food crises, arising partly from multiple food-basket failure, demonstrate the concatenating effects of these shocks in Africa that make them systemic. Further, given long-term trends such as increasing connectedness of economies and regions and rising vulnerability and exposure from underlying development patterns, many systemic risks will likely remain high or increase. Because of the significant role of vulnerability in the development and effect of systemic risk factors, reducing systemic risk also requires reducing poverty and adapting to climate change as key factors conditioning vulnerability in sub-Saharan Africa.

Poverty is both a contributing factor and outcome of disasters. Poverty and inequality increase vulnerability to disaster risks in Africa and worsen their impacts. The analysis suggests that the high level of absolute poverty, low education and high inequality in Africa contribute to the high vulnerability and low risk reduction and adaptation capacity on the continent. In turn, disasters contribute to poverty through generic risk impacts, including the high human toll and economic losses from hazards. Therefore, breaking the vicious cycle of vulnerability and poverty requires mainstreaming disaster reduction in development practice for poverty reduction and vice versa.

Poverty conditions attitudes and response to climate change, a major factor of systemic risk in Africa. In line with global trends, climate change is exacerbating disaster risk in Africa, increasing the frequency and intensity of hazards and extreme events, modifying average climatic conditions and climate variability and generating new systemic risks. Expected rising temperatures and rainfall volatility would increase the frequency and severity of droughts and floods, thereby increasing the potential for complex emergencies on the continent, particularly given the high share of rain-dependent agriculture in African economies. Thus, it can be inferred that, climate change, in which setting slow-onset timescales can be decades, will likely exacerbate systemic risks by increasing the frequency and severity of events that trigger climate impact and may also increase fragility and conflict. In the absence of effective adaptive response measures, climate change will increase vulnerability of communities to the natural hazards they normally experience, potentially affecting development and well-being severely.

Success in addressing this nexus of climate change and disaster risk depends on promoting risk-informed sustainable development and a coherent approach from both climate change adaptation and DRR actors to reducing vulnerability. This requires explicit integration of climate change into national DRR strategies and programmes and vice-versa in a policy environment that actively promotes integrated DRR and CCA approaches and the opportunities they offer for sustainable development and resilience.

An overarching conclusion of the analysis on risk is that all disasters, including rapid onset, are underlain by slow accretion of multiple risk factors over a period of time as exposure and vulnerability transform threats and hazards to disasters. Furthermore, rapid onset hazard disasters and slow-onset systemic processes and events often interact, increasing the risk of loss and damage. Therefore, DRR policy that aims at building resilience and recovery from systemic risks needs to adopt a holistic, flexible and integrated approach to DRM that minimizes the distinction between, but does not also conflate, fast-onset hazard disasters and slow-onset systemic factors and events by emphasizing both short-term and long-term DRM planning. Opportunities exist to take advantage of the slow evolution of systemic risks to prioritize generation and effective dissemination of risk knowledge and information to allow timely planning and effective implementation of appropriate responses that incorporate enhancements learned from previous experiences through knowledge-based DRR.

African states have recognized the importance of science and technology for generating and applying information and knowledge to DRR and have undertaken efforts to operationalize that role in several ways. Science and technology is contributing to understanding disaster risks in many ways in Africa, such as through application of new digital communication technologies, including web-based portals, open source mobile data collection platforms, and social media to facilitate rapid collection of quality data as well as through the development of national disaster loss databases using the DesInventar. Science and technology is facilitating investment in DRR, such as being applied in undertaking systematic risk assessments, including facilitating weather modelling and early warning for early action. This has enhanced the management of climate-related disaster risks.

Key challenges to developing science-based DRR relate to increasing its application to understanding the nature, effects and management of hazard and systemic risk, strengthening the weak links between science and policy, and increasing investment in science, technology and engineering for DRR. However, opportunities exist to strengthen the science base of DRR. These include promoting cooperation and coordination among existing science and technology organizations, including universities and research institutions, and leveraging knowledge hubs, particularly national and regional Platforms for DRR, for DRR science for the implementation of the Sendai Framework. There are also key policy initiatives at the regional level such as the STISA 2024 and the Continental TVET Strategy and the creation of AF-STAG with its various working groups that facilitate access to science and technology to support investment in DRR.
Meeting these information challenges requires, but is also dependent on, integrating DRR in development policies and plans. Countries are addressing risks through various means of integrating DRR in their policies and programmes, based on their own interpretation of the 10 key elements of Target E within their national context. Although countries in sub-Saharan Africa have made progress in developing DRR strategies that are aligned with the Sendai Framework and are mainstreamed in development programmes, some challenges persist. In particular, addressing the twin strategic objectives of reducing existing risk and preventing the creation of new risk depends on countries developing operational actions, with specified targets and indicator frameworks, including mechanisms to follow-up, periodically assess and publicly report on progress.

Addressing this requires methodologies to follow up and assess the level of implementation of DRR strategies. Advancing DRR integration also requires systematic science-policy dialogue to enhance understanding disaster risk and definition of roles and responsibilities of different stakeholders, particularly gender aspects, to strengthen governance of DRM. Most countries lack dedicated DRR budgets and domestic resources to implement their DRR strategies. To increase investment for resilience, it is necessary to develop and apply guidelines for allocation of mobilized resources to targeted sectors to increase resilience. Policy coherence within global agreements needs to be strengthened, particularly by developing common mechanisms for assessing risk and for coordinating and monitoring climate change adaptation (CCA) and DRR actions. Also, given the broad recognition of the centrality of DRR for sustainable development, DRR strategies need to explicitly specify mechanisms to coordinate and link DRR with national SDGs coordination and implementation mechanisms and processes.

A key governance challenge to effective integration of DRR from the analysis of Target E performance is ensuring inclusive disaster risk management. Integrating DRR is a governance issue that requires recognition of rights and responsibilities of diverse groups, strengthening local participation of populations at risk at the community level in all areas, promoting systemic engagement of multiple stakeholders and multi-sector change, and fostering synergy between multiple levels of government. Therefore, increasing integration of DRR in development effectively requires inclusive community focus and actions.

Across Africa, communities are active in DRR. Case studies from local organizations show that there is a plethora of initiatives at the grassroots level in Africa that enhance the capacity of communities to pursue resilience through community-based risk reduction. For example, the experience of the involvement of the communities in Budalangi and Kano plains in Western Kenya and Angwan Kudu in Nigeria in risk reduction efforts has demonstrated the importance of participation as an important resource that facilitates application of indigenous knowledge, early warning and group organization capabilities to community risk reduction. The key message is that community inclusion in disaster risk assessment, warning, treatment and monitoring contributes to reducing vulnerabilities. This is because actively involving community stakeholders creates greater awareness about DRR and maximizes local understanding, sense of ownership and commitment to its implementation. Further, making local knowledge and culture an integral part of DRR awareness, empowerment, planning and implementation can be effective in helping people recognize the true nature of their risk situation which can foster positive changes in their attitude and behaviour regarding disaster risks.

However, community voices and input in DRR are not optimized, given the generally weak engagement with CSOs in DRR planning and programming. Opportunities exist, however, to strengthen their involvement. For example, the demonstrated, yet untapped, capacity of the youth, a key group of community stakeholders in DRR, for engagement in DRR capacity building and education provides opportunity to prepare them effectively for their current and future role in DRR. This task will also help expand and strengthen CSO engagement with communities and with DRR institutions so that disaster reduction actions can cover all communities and involve all public, private and civil society institutions and stakeholders working towards the same objective of risk-informed resilience.

Communities are increasingly urban in sub-Saharan Africa. Urbanization contributes positively to development but it is accompanied by risk. In line with the growing trend of urbanization globally, people and assets in urban areas are increasingly exposed to hazards and threats as the negative aspects of urbanization modify and magnify hazard patterns and effects thereby converting urban areas into a setting for the concentration of systemic risks. As risk is becoming an urban phenomenon in the region with its peculiar characteristics, so the focus on urban risk is necessary and timely.

The analysis presented in this report suggests that urban resilience is a critical element of sustainable development and is achieved by addressing the complex and interrelated functional, organizational, physical and spatial dimensions and systems of urban areas. For effective local-level DRR in urban areas, it is necessary to address population growth issues contributing to high population concentration and overcrowding in large informal settlements that are characterized by environmental degradation, unsafe construction, weak economic systems and vulnerable livelihood strategies. African cities have advanced in implementing the Ten Essentials of Making Cities Resilient, particularly in key areas such as understanding DRR and developing DRR plans, but further progress requires strengthening of their financial and institutional capacity, including for mapping the vulnerable populations and involving communities in DRR.

Reducing risk at the community level requires inclusive DRR. Countries in Africa recognize the importance of adopting a multi-modal approach to integrating gender in their DRR policies and programmes through a range of entry points. Some actions detailed in this report include incorporating gender aspects as an explicit objective in policy, institutional and programme frameworks, considering women’s needs in vulnerability assessments, involving them in consultative groups in policy development, and including them in beneficiary groups for receiving post-disaster assistance. In spite of this progress, important efforts are still needed to systematically mainstream gender in DRR policies and strategies. At the regional level, the RECs are prioritizing gender mainstreaming in their DRM and CCA activities by developing Gender Strategies and Action Plans (GSAPs). These experiences suggest that DRR efforts need to be gender-aware, that gender-based vulnerabilities exist in Africa and that women are also key agents of positive change in DRR and management efforts. It also implies that mainstreaming gender in DRR should increase the equity, effectiveness and sustainability of disaster management efforts. Nonetheless, comparative analysis of the effectiveness of these approaches is required to provide useful and necessary guidelines on strengthening gender inclusion in DRR at country and regional levels in Africa.

A key challenge to taking into account the needs, interests and contributions of all members of society, especially women and other vulnerable groups, in all stages of the DRR process is the low availability of sex-disaggregated data. This limits understanding of the differentiated aspects of disaster risk and hinders effective integration of gender considerations into planning, monitoring and evaluation processes.

Investment in DRR in Africa makes economic sense, as it shows positive returns, but this is not widely known due to the weak evidence base. Given the paucity of evidence on the positive returns and cost-effectiveness of investing to reduce the increasing economic losses Africa faces from disasters, increased analytical efforts to generate this information should help propel accelerated DRR investment.

Evidence from the risk-sensitive budget review (RSBR) showed that, on average, total domestic financing is not more than 4% of annual national budgets. This calls for increasing both public and private domestic financing for DRR and implies that developing appropriate incentive frameworks that induce private investments and reduce vulnerability of populations most at risk (such as through social protection and insurance) could increase both DRR financing flows and their effectiveness.

Furthermore, considering that most of domestic financing is for indirect investments in DRR, the efficiency of allocating the moderate domestic resources invested in DRR in various programmes and sectors needs to improve. Analytical efforts to develop guidelines for this will increase the footprint and impacts of domestic DRR financing.
A significant finding is that domestic investment focuses on pre-disaster prevention and mitigation more than post-disaster assistance, for which reliance on external financing remains significant through numerous financing mechanisms. This suggests that inducing higher external financing that allows support for post-DRR actions during recovery should significantly enhance overall investment in DRR. Also, opportunities provided for synergy and coherence by the overlap of DRM funding with CRM investment in countries should further catalyse the achievement of this objective.

Another key finding is that increasing access to, and enhancing gains from financing mechanisms are promoted when there is coherence among the programmes and implementation arrangements of the relevant global and regional frameworks. Because of interlinkages between financing of DRR, CCA and the SDGs, improving policy coherence between them will help increase the availability, efficiency of allocation and risk reduction effectiveness of investment for resilience in Africa.

The Sendai Framework, the Paris Agreement and the SDGs pursue sustainable and equitable economic, social, and environmental outcomes in order to reduce risks associated with all hazards and unsafe conditions. Strong linkages across the agreements help identify and reduce risks and promote sustainable development. Consequently, sub-Saharan African countries are pursuing coherence and integration between DRR, climate change adaptation and mitigation, ecosystem management, conflict and fragility, and other development imperatives in the context of these frameworks and arrangements through various multi-stakeholder level planning, implementation, coordination, governance, financing and monitoring systems at country and continental levels. The coherence and consensus on the need for policy coherence in Africa and underscore the point that beyond the Sendai Framework, achieving the SDGs and effective climate change adaptation are required for risk reduction.

The country experiences analysed in this report have shown that ensuring coherence among policies, strategies, programmes and monitoring frameworks of the relevant global and regional frameworks requires: (a) finding entry points for DRM that support DRR and also promote synergy between DRR and development; and (b) strengthening the alignment of national DRR policies and strategies, planning, implementation, governance and monitoring arrangements to the frameworks and arrangements.

The Programme of Action for the implementation of the Sendai Framework in Africa has a target on mainstreaming of climate change into DRR, which development and; (b) strengthening the alignment of national DRR policies and strategies, planning, implementation, governance and monitoring arrangements to the frameworks and arrangements.

The fundamental implication is the need for a change in approach to DRR – a pivot to adopting a systems approach to DRR for resilience that involves integrating DRR, humanitarian action, sustainable development, environmental management and conflict reduction. This systems approach emphasizes risk-informed integrated development for risk reduction, resilience and sustainable development.

Given the levels and effects of systemic risk and their inter-relationships with hazard-induced disasters and sustainable development, there is a strong case for a systems approach to risk reduction. Disaster risks and development impacts are linked through systemic factors of exposure and vulnerability. Therefore, efforts aimed at building resilience should move away from interventions targeted at addressing single hazards to actions that consider all possible vulnerabilities that may exist in social, economic and environmental systems. There is increasing understanding of systemic and complex risks, but countries still do not adequately take them into consideration in their policies, and the focus of risk reduction often continues to consider single hazards and threats at a time. This conventional approach inadequately acknowledges the inter-linked nature of hazards and threats and the phenomenon of systemic risks. The existence of systemic risks provides systemic opportunities for reducing the negative influences of disruptive factors while enhancing the catalytic effects of positive factors.

This orientation is grounded in sound DRR strategy and is in line with global trends. Both the Sendai Framework and revised the United Nations Plan of Action on DRR for Resilience have a risk-informed and integrated approach to sustainable development at their core. Additionally, the 2030 Agenda for Sustainable Development, the Paris Agreement for Climate Change, the Agenda for Humanity in 2016 and other global frameworks reflect a paradigm shift towards recognition of the systemic nature of the global developmental and humanitarian risks and threats we face.

### Setting the stage for action – implications for recommendations

These conclusions have implications for the approach, direction, strategy and thematic areas of focus of desirable DRM in sub-Saharan Africa. The recommendations are framed by these considerations.

### Applying cross-cutting themes and principles

Undertaking the agenda of this Report requires adoption of some fundamental principles, in line with principles and philosophy of the Sendai Framework for Disaster Risk Reduction. The re-orientation to a systems approach which considers disaster risk and its dynamic interactions with social, ecological, economic and political systems in disaster risk management is a key principle. Other imperatives also shape the proposed future direction. Coherence through integrated risk-informed and sustainable development pathways is central to ensure synergistic achievement of the goals and outcomes of the 2030 Agenda for Sustainable Development, the Paris Agreement and the New Urban Agenda. Consistent with the theme of the 2019 High Level Political Forum on Sustainable Development, empowering people and ensuring inclusiveness and equality will be critical to an informed approach to sustainable development.

The feasibility and effectiveness of the inclusive approach depends on the risk behaviour of people. There is no such thing as a natural disaster. All disasters are conditioned by human action or inaction. Hence, the perception of, and attitude to risk as well as to risk management measures and provisions are key factors in the success of disaster risk management. Effective risk-informed decision making depends on recognizing and accepting relevant roles of the individual and the state in disaster risk management, while encouraging both citizens and government structures to adopt a culture of prevention and to protect themselves and resources, particularly during disasters. However, it is important to forge a balance between well-enforced regulation and incentives to self-regulation in inducing compliance. In all these, effective generation and sharing of information is essential to making people sufficiently informed of risk and their roles in managing risk.
The analysis and the conclusions of this report find that sub-Saharan African countries are increasingly aware of disaster risk, are undertaking efforts to address them and have made progress in reducing risk, partly due to advances in knowledge, skills, capacities and cooperation. However, both the nature of risk and the risk landscape are evolving in Africa and globally, increasing pressure on risk management to stay abreast of these changes. In the face of this challenges the greatest constraints to achieving DRR objectives are inadequate financial and technical capacities. Adequate investments in DRR are therefore essential. To be effective, such investments must also: target a cohesive agenda, address local problems, be inclusive, and have scientific basis.

This final chapter of the Report recommends a three-pronged approach to determining policy and programmatic actions required for lasting practical DRM solutions to hazard and systemic risk: (a) building knowledge; (b) considering the most vulnerable; and (3) increasing investment in DRR.

1.1 Knowledge and information for hazard and comprehensive risk reduction and management

Understanding risks, including through disaster risk assessment, is the first step in risk reduction and an essential input for planning and policies for disaster risk management. To comprehensively characterize disaster risk, assessment should include hazard factors, vulnerabilities, level of familiarity, risk perception and capacities for risk management. To achieve this and ensure risk-informed decision-making, conventional risk assessment needs to consider the effects of multiple, inter-linked and concurrent threats and their trade-offs by moving beyond the current practice of assessing single risks, often associated with large events, to covering the complete and complex landscape of risks. Training and capacity development in risk management, especially developing and utilizing risk assessment tools and methods should cover both single and multi-hazard situations and embrace the method of cumulative risk assessment which allows assessment of risks from multiple hazards and recognizes and addresses the interaction among several or different risk threats, such as simultaneous or cascading effects. This necessary shift from modelling the impact of hazards from a single event to comprehensive risk assessment will ensure that risk tolerances and decision criteria applied in risk evaluation and risk management better reflect the complexity and interconnectedness of the current risk landscape.

Risk-informed policies and practices must be underpinned by appropriate data and statistics. Given challenges faced by the landscape of disaster risk information management in Africa, particularly the gaps in data availability, accuracy, relevance, timeliness, interoperability, sharing, analysis, dissemination and accessibility, it is essential that efforts continue at national, regional and continental levels to develop information management skills and capabilities for effective management of disaster risk information.

There are new advances in data and information management, yet innovations in data collection and management are not advanced or widely adopted in Africa. Research, analytics and data management capacities have to be developed to enable Africa leverage the emerging opportunities provided by big data to enhance DRR. To this end, partnerships with appropriate institutions would help develop the required new skills to strengthen data collection and monitoring and evaluation systems to provide the evidence base for risk decision-making.

Effective generation and sharing of risk information promotes participation, consultation and empowerment of institutions and communities for DRR. Data management, risk assessment and other information processes for knowledge-based risk decision-making fulfill their role in building people’s understanding of risk, together with people’s support for and acceptance of measures and their commitment to act when stakeholder communication and consultation is effective. This is because risk reduction occurs within specific contexts of stakeholders who often have varying perception, knowledge and attitude to risk. Therefore, risk information management systems need to enhance the receptivity and compliance with risk information by ensuring that messages are understandable, consistent and targeted at known recipient stakeholders.

1.2 From science to policy – towards science-driven DRR in Africa

Successful DRR depends on science, technology and innovation. This requires strengthened actions to mobilize and enhance the scientific and technical work on DRR and to integrate science into both policy and practice for disaster risk management. Ways of strengthening the scientific and technological base for risk-informed DRR include: (a) rehabilitating, modernizing and expanding basic hazard monitoring and data infrastructure; (b) maintaining and strengthening scientific institutions and networks; and (c) developing operational processes for sharing and exchanging scientific, technical and social data, information and experience, and technology applications.

Science and technology institutions, networks and platforms, such as Af-STAG, have to play a key part in achieving a stronger scientific base of DRR by enhancing their roles in: (a) assessing and reporting on current and future disaster risks and the status of DRM efforts; (b) providing guidance on terminology,
data, methodologies and standards for hazard and risk assessments and modelling; (c) communicating complex scientific information and evidence to support the decision-making of DRM policymakers and other stakeholders; (d) monitoring progress towards internationally agreed targets for reducing disaster losses in Sendai Africa PDA, (e) convening the science and technology (S&T) community to identify and address issues of scientific research, information and evidence for DRR, and (f) disseminating studies and reports on DRR.

To enhance the use of S&T for information and knowledge-based DRM by people and communities, it is necessary to strengthen existing, and identify future pathways for better transition from science to policy. These should involve: (a) promoting knowledge as a key feature of DRM action, with key activities underpinned by scientific information and evidence; (b) showing evidence of the added value of a science-based approach to DRM by strengthening the evidence base to demonstrate that disaster risk can be reduced and resilience enhanced through application of S&T in DRM; (c) promoting problem-solving approaches to research that integrates science into all hazards and DRM disciplines; (d) strengthening science advisory mechanisms for DRM; and (e) promoting and strengthening partnerships and networks for developing S&T for DRM.

Research in DRM, which is key to advancement of S&T for knowledge-based risk management, is underserved in Africa. Thematic areas for scientific research to advance DRM include: (a) understanding hazards, exposure and vulnerability to hazard risk, early warning and multi-hazard monitoring; (b) risk assessment and management; (c) data generation, synthesis and analysis, and knowledge management; (d) leveraging science by addressing research and capacity gaps and challenges to developing and applying S&T for effective DRM; and (e) use of science and technology tools, methods and standards for implementing and reporting on the Sendai Framework PDA in Africa.

1.3 Improving coherence of risk management and development policy frameworks

DRR is a cross-cutting endeavour which is often achieved as part of the goals of other frameworks for sustainable development. Attaining risk reduction therefore often depends on leveraging coherence among disaster risk reduction (DRR), climate change adaptation (CCA) and the Sustainable Development Goals (SDGs). Countries recognize and express the need to promote coherence among DRR, CCA and SDGs within their DRM strategies. However, a strong push is required to operationalize this recognition effectively through the development of explicit objectives, strategic focus areas and governance mechanisms to guide the process.

Effectively leveraging complementarities among the various frameworks to ensure an integrated approach to risk reduction also requires a common understanding of policy frameworks of the agreements and their inter-linkages, clear commitment and leadership, and specific institutional mechanisms for integration, including strengthened cooperation and coordinating arrangements of the different mandates, such as use of common metrics.

In particular, given the importance of climate change as a key risk driver, developing common mechanisms for assessing risk and for coordinating and monitoring climate and DRM actions will spur coherent and integrated integration of CCA and DRM. The opportunity provided by the inclusion of climate change as a target in the Sendai Framework PDA for Africa should be exploited to strengthen coherence and synergy between DRR and CCA in support of the achievement of the goals of the African Union’s Agenda 2063 and the global frameworks. This should be part of developing guidance on how to ensure comprehensive and effective coherence among DRR, CCA and the SDGs with African Union’s Agenda 2063.

Strengthening policy coherence also requires effective stakeholder involvement and efficient knowledge management through improved data and information for policy coherence. Additionally, formal and structured stakeholder interaction of practitioners, such as the peer learning exchanges, would help strengthen interaction among the various communities of practice relevant to achieving coherence.

Furthermore, addressing challenges to leveraging the many entry points currently applied in Africa for achieving coherence under the agreements would benefit from analytical efforts to generate information and understanding required to guide these efforts to ensure coherence.

Countries address disaster risks through direct DRM measures and those that aim to reduce disaster risk through broader resilient development processes. Therefore, it is important to track and understand the implementation and outcomes of these resilience strategies to provide lessons for strengthening coherence among the different development agendas. To advance this understanding and enhance risk-informed development, DRM strategies need to explicitly specify mechanisms for coordinating and linking DRR with the SDGs, given the broad recognition of the centrality of DRR for resilience and sustainable development.

Action 2: Consideration of the most vulnerable

Being inclusive recognizes that risk is perceived differently by different stakeholders and that the impacts of shocks and stresses are greatest for the most vulnerable. Therefore, adopting an inclusive approach to DRR implies developing the capacities of risk-prone areas, vulnerable population groups and persons and disadvantaged groups, such as people with disabilities. This should include strengthening information and knowledge, skills, networks, partnerships, and organizations that they deal with. Leaving no one behind also requires inclusivity in terms of an all-of-the-society approach where appropriate roles are defined and delivered by key national and local systems concerned with crisis management, such as the civil and public service, emergency services, procurement mechanisms and public financial management systems.

2.1 Mainstreaming gender in DRM strategies and practices for resilience

Gendered disaster risk management is a key means to inclusive reduction of disaster risks. Integrating gender perspectives into all aspects of DRM to ensure gender equality and women empowerment should be the business of all involved in DRM and should include: encouraging and supporting civil society and NGOs to mainstream gender in their risk reduction and development programmes and developing capacity of women’s groups and incorporating gender perspectives in training, education and communication.

Tracking progress in designing and implementing gender-sensitive strategies and programmes need to be strengthened through improved and systemic development and dissemination of guidelines and tools, such as gender markers for DRM. Undertaking gender analysis and availing gender, age- and disability-disaggregated data for contextualized planning, implementing and monitoring of response, recovery, preparation and mitigation actions is essential to ensure greater planning, assessment, monitoring and accountability in pursuing the agenda of gender equality and empowerment in the region.

Effective leveraging of gender equality and women’s empowerment to advance inclusive risk reduction will thrive under conditions that: (a) ensure requisite interest and commitment of political leadership at all levels to the mainstreaming agenda; and (b) remove negative mindsets and deep-seated prejudicial feel-
ings in society, reverse institutionalized discriminati-
on and generate the long-term perspective and
forbearance required to undertake the complex and
difficult mission of gender mainstreaming. Above all,
it is important to avoid getting lost in the pervasive-
ness of mainstreaming (where several cross-cutting
development themes, such as population and cul-
ture, are being mainstreamed simultaneously) and in
the ‘malestream’ of male-centred mores and social
standards.

2.2 Urban risk management
The urban environment is both a setting for risk
creation and accumulation but also a set of unique
opportunities for resilient development. A twin-
pronged approach to advancing urban resilience
should therefore involve both minimizing factors
of risk accumulation in urban areas through improved
disaster risk management measures while also
leveraging their positive developmental features that
condition risk and contribute to DRR. Reducing risk
formation through minimization of risk accumula-
tion factors in urban areas should involve measures
such as investment in resilient infrastructure and
risk reduction structural measures decentralization
of settlement functions and services, environmental
protection and enhancing ecosystem services, and
social protection. Utilizing growth characteristics of
urban areas to reduce risk would involve leveraging
positive developmental features such as: access-
sibility to human capital for resilience management,
diversified livelihood strategies for risk reduction,
opportunities for diverse stakeholder involvement,
and development and enforcement of supportive ur-
ban development policies, legislation and standards.
Economies of scale can be leveraged, such as for
economic resilience and cost-effective protection of
large numbers of vulnerable people.

To enhance disaster planning and preparation,
the MCR campaign and other initiatives that have
bolstered understanding of the requirements for
integrating resilience in new urban development
should be strengthened. The progress achieved
to date in developing and utilizing those tools need to
be sustained and expanded.

Urban areas are not spatial islands – their success
in serving to reduce risk and gendering development
and welfare is shaped by their interlinkages with peri-urban and rural areas in several ways. Improving
networking and interconnectivity of settlements at
all scales through improved recognition and under-
standing of the interdependencies between urban
and rural areas is essential for risk systemic risk
management.

2.3 Community led resilience
Disasters occur, and are managed, at the community
level. Therefore, well designed and managed com-
munity-based disaster risk management (CBDRM)
is needed to generate enhanced capabilities and
expanded responsibilities, resources and capabili-
ties for disaster reduction at the local level. That way,
vulnerable groups and communities can become
disaster resilient through CBDRM by building on
people’s capacities to protect themselves against
stresses, threats and hazards.

Creating the culture of community-based risk ac-
tions in the practice of disaster risk management at
all levels and institutionalizing community resil-
ience in DRR frameworks depends on a conducive
policy environment, fit-for-purpose structures and
mechanisms, strong capacities, adequate fund-
ing and accountable governance. Strengthening
the policy environment for CBDRM will require
availing CBDRM projects in local government
programmes by decentralizing DRR frameworks that
prioritize local DRR strategies. This is contingent
on making local culture, including traditional knowl-
edge and wisdom, an integral part of the awareness
and empowerment process for community DRR. Addition-
ally, to optimize community voices and in-
pit in DRR, CSOs participation in DRR planning and
programming needs to improve.

Engaging and empowering the youth to create a
culture of resilience requires moving them from the
periphery to the centre. Recognition of the role
of the youth in DRR, including facilitating reduction of
vulnerabilities through education, capacity building
and innovative solutions using ICT, must be included
in all DRR programming at both community and
national levels.

Developing pathways for youth civic engagement
and empowerment in DRR should begin with nurtur-
ning supportive environments and creating opportu-
nities to lay the ground to fully address the positive
attributes of youth to increase their contributions
in achieving a resilient Africa. These positive traits
include their energy, optimism, leadership, com-
munication skills, culture of social interaction and
civic activism. Other constructive qualities are their
technological, social and financial innovation, and
entrepreneurial orientation.

To catalyse their involvement, it is vital to increase
awareness and recognition among the DRR com-
munity of the tremendous potential of the youth as
agents of change and key stakeholders in reducing
risk. Mapping youth-led engagement to develop a ty-

Action 3: Investment in DRR

Strengthening finance for development requires
making the case for investment in DRR, growing
domestic finance for DRR and enhancing gains from
external financing mechanisms.

DRR is cost-effective, partly because DRR measures
also have development benefits even in the absence
of disasters, but the evidence from Africa is patry. A
dedicated programme of research to generate and
show greater evidence that disaster mitigation pays
and that disaster reconstruction is cost-effective in
reducing future disasters in Africa, is a priority in
stimulating increased investment in DRR. However,
effectively demonstrating the value of DRR and its
cost-effectiveness, by applying risk-modified cost-
benefit analyses to assessment of development pro-
jects and measures may not alone be sufficient to
induce the requisite investment in DRR. To convince
national authorities and partners to invest in disaster
reduction, it is necessary to consider other factors
that shape decision-making on funding of DRR.
These relate to: adequacy of risk communication,
the weight of non-efficiency and political issues,
incidence of the burden of financing and adequacy
of overall incentives for DRR.

Domestic financing is modest but is the major source
of financing direct DRR investment. Hence, it is nec-
essary to develop guidelines, through an analytical
programme, to inform and improve the efficiency of
its allocation among competing programmes and
sectors. Domestic financing is seen as mainly public
financing, largely limited to government financ-
ing, but there is scope for public sector pro-profit
institutions to be induced to invest to complement
government budget finance for DRR. To this end, it
is necessary to study ways to enhance and increase
domestic financing for DRR through diversification
of funding sources.

Expanding the sources of DRR investment requires
a shift in mindset and orientation (i) from the cur-
rent focus on grant-based financing to prioritizing
investment decision-making for returns and (ii)
from viewing DRR investment as largely government
budget financing to one oriented to enhancing total
investment in DRR. The adoption of mixed financing,
involving integration of a wider range of available
options for disaster financing, will also advance this
re-orientation and help ensure dedicated, adequate,

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United Nations Office for Disaster Risk Reduction
ance. Countries need to work with donors to support post-DRR actions during recovery to increase total investment in DRR.

In line with the systemic approach to risk reduction and development management recommended in this report, enhancing synergy between financing for DRR, climate change and other elements of resilient development, in particular, by more vigorously exploiting opportunities provided for synergy and coherence by the overlap of DRM funding with climate risk management (CRM) investment, is needed to generate increased resources for DRR. To support coherence, allocation of funds should favour activities most aligned and coherent among the key Frameworks.

Beyond economic gains, finance finds a home where trust is engendered by good governance of financing arrangements. Compliance with the governance provisions of DRM financing, including those covering sourcing, allocation, utilization, monitoring and reporting, will enhance availability of investment for DRR. Greater and committed attention to ensuring the effective and efficient use of financial resources will improve the sustainability of financing flows for DRM. One way is for budget systems to explicitly document DRR, disaggregated by levels of government, sources of funding and activities.

Annex 1: Global ranking of countries by drought risk (top 10 countries)

<table>
<thead>
<tr>
<th>Country</th>
<th>Earthquake</th>
<th>Flood</th>
<th>Tsunami</th>
<th>Tropical cyclone</th>
<th>Drought</th>
<th>Natural</th>
<th>Projected conflict risk</th>
<th>Current high-risk conflict intensity</th>
<th>Human</th>
<th>Hazards &amp; exposure</th>
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<tr>
<td>Somalia</td>
<td>1.5</td>
<td>7.5</td>
<td>8.1</td>
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<td>10.9</td>
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<td>9.0</td>
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<td>Zimbabwe</td>
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<td>6.0</td>
<td>4.7</td>
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Source: INFORM Index mid-2019
### Annex 3: General classification of disasters

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<th>Natural Disaster</th>
<th>Geophysical</th>
<th>Meteorological</th>
<th>Hydrological</th>
<th>Climatological</th>
<th>Biological</th>
<th>Extra-terrestrial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A hazard originating from solid earth. This term is used interchangeably with the term geological hazard.</td>
<td>A hazard caused by short-lived, micro- to meso-scale extreme weather and atmospheric conditions that last from minutes to days.</td>
<td>A hazard caused by the occurrence, movement, and distribution of surface and subsurface freshwater and saltwater.</td>
<td>A hazard caused by long-lived, meso- to macro-scale atmospheric processes ranging from intra-seasonal to multi-decadal climate variability.</td>
<td>A hazard caused by the exposure to living organisms and their toxic substances (e.g. venom, mold) or vector-borne diseases that they may carry. Examples are venomous wildlife and insects, poisonous plants, and mosquitoes carrying disease-causing agents such as parasites, bacteria, or viruses (e.g. malaria).</td>
<td>A hazard caused by asteroids, meteors, and comets as they pass near-earth, enter the Earth’s atmosphere, and/or strike the Earth, and by changes in interplanetary conditions that effect the Earth’s magnetosphere, ionosphere, and thermosphere.</td>
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<td></td>
<td>Mass Movement (dry)</td>
<td>Fog</td>
<td>Landslide</td>
<td>Glacial Lake Outburst</td>
<td>Insect infestation</td>
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<td>Animal Accident</td>
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<td>Flood</td>
<td>Drought</td>
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Source: EM-DAT
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Endnotes

2 Angola, Burundi, Benin, Burkina Faso, Botswana, Central African Republic, Cabo Verde, Côte d’Ivoire, Cameroon, DRC, Ethiopia, Equatorial Guinea, Guinea-Bissau, Lesotho, Mozambique, Eritrea, Madagascar, Mauritius, Malawi, Mali Namibia, Rwanda, Senegal, Seychelles, Chad, Togo, Sao Tome and Principe, Sierra Leone, South Africa, South Sudan, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe
3 United Nations Office for Disaster Risk Reduction (2019a)
4 Ibid.
5 UNDP (2010b) Urban Risk Management
6 Ibid.
8 According to Howe, N. (2019), 70% of deaths from Indian Ocean tsunami in 2004 were women
9 According to Whiting, K. (2019) Women are 47% more likely to suffer severe injuries in car crashes
11 Twigg, J. (2015). Disaster risk reduction
12 Angola, Burundi, Benin, Burkina Faso, Botswana, Central African Republic, Cabo Verde, Côte d’Ivoire, Cameroon, DRC, Ethiopia, Equatorial Guinea, Guinea-Bissau, Lesotho, Mozambique, Eritrea, Madagascar, Mauritius, Malawi, Mali Namibia, Rwanda, Senegal, Seychelles, Chad, Togo, Sao Tome and Principe, Sierra Leone, South Africa, South Sudan, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe
13 EM-DAT contains essential core data on the occurrence and effects of over 22,000 mass disasters in the world from 1900 to the present day. The database is compiled from various sources, including UN agencies, non-governmental organizations, insurance companies, research institutes and press agencies. See: https://www.emdat.be/knowledgepolicy/dataset/ds00107_en. EM-DAT is the Emergency Events Database at the Université Catholique de Louvain. It collects and compiles information on ‘natural’ and technological disasters from public sources. EM-DAT data does not include war, conflict or conflict-related famine disaster events. Data on disasters form natural hazards include: weather-related events (meteorological, such as storms and extreme temperatures; hydrological, such as floods, mudslides and pluvial/flash floods; and climatological, such as droughts and wildfires), geophysical events such as earthquakes, and biological events/epidemics. Data about technological disasters is not included in this analysis. See: https://media.ifrc.org/wp-content/uploads/sites/5/2018/10/10-C-07-WDR-2018-7-trends.pdf. EM-DAT includes all disasters from 1900 until the present, conforming to at least one of the following criteria: 10 or more people dead; 100 or more people affected; the declaration of a state of emergency; a call for international assistance.
14 www.desinventar.net/whatisdesinventar.html
16 UNDRR (2019).
17 Ibid.
20 See: www.inform-index.org
21 Except for a spike in 2014.
22 UNDRR (2019).
23 Ibid.
25 This region is also covered by the Intergovernmental Authority of Development (IGAD) and comprises Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda.
27 A new displacement denotes that an individual can, for example, be displaced twice in a year and this will be recorded as two displacements.
28 Ibid.
29 https://reliefweb.int/sites/reliefweb.int/files/resources/situation_report_no.13_-_July_2017_0.pdf
35 Development Agenda/
40 Development Initiatives (2020a), and Development Initiatives (2020b)


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It is important to note that these findings are still preliminary as the SFM is still a new tool and so far, more than half of the countries in the region have not yet reported on indicator E1.

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