

Harmonizing Disaster Risk Reduction and Climate Change Adaptation Frameworks for Risk Informed Development Planning in Sub-Saharan Africa: The Case of Uganda and Malawi

Nyandiko Nicodemus Omoyo¹, Kimokoti Susan¹, Odongo Janes Ouma^{2,3} & Ma Donghui²

¹ Center for Disaster Management & Humanitarian Affairs, Masinde Muliro University of Science and Technology, Kenya. Nyandiko's Orcid ID: 0000-0003-2084-5230; Kimokoti's Orcid ID: 0000-0001-6424-7748

² College of Architecture and Urban Planning, Beijing University of Technology, China. Odongo's Orcid ID: 0000-0002-1469-5240; Donghui's Orcid ID: 0000-0001-7109-775X

³ Department of Government and Legal Studies, The Technical University of Kenya, Kenya

Correspondence: Nicodemus Omoyo Nyandiko, Center for Disaster Management & Humanitarian Affairs, Masinde Muliro University of Science and Technology, Kenya. E-mail: nnyandiko@mmust.ac.ke

Received: April 25, 2022

Accepted: May 29, 2022

Online Published: August 17, 2022

doi:10.5539/jsd.v15n5p22

URL: <https://doi.org/10.5539/jsd.v15n5p22>

Abstract

Increasing impacts of disasters and climate hazards have prompted Africa countries to develop national disaster risk reduction (DRR) strategies with the aim of reducing mortality and other losses. However, disasters still have a significant impact on their populations, their livelihoods, and the infrastructure on which they depend. Furthermore, an increasing understanding of the need to address the root causes of risk has led to calls for greater coherence between strategies that focus on DRR, Climate Change Adaptation and Sustainable Development. There is acknowledgement of the existing implementation gap dividing the policy domains of Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) at the national as well as international levels. This paper analyses the gaps and opportunities in design and implementation of policies and practices within the two domains and suggest measures to enhance their collaboration in Malawi and Uganda. Document analysis and interviews with 8 respondents over a period of one month were undertaken to gather the needed information. Fostering conceptual understanding of resilience, joint planning and implementation of similar activities through a common coordination mechanism were found to be essential for achieving coherence across the five thematic areas.

Keywords: disaster, climate change, adaptation, risk reduction, coherence, risk-informed development

1. Introduction

Between 2008 and 2018, disasters affected close to 157 million people in Sub Saharan countries. These disasters mostly originated from hydro meteorological hazards (UNDRR, 2020). They are however attributed to poor human-environment interaction related to unregulated or unplanned land use which affects its productivity and ability to withstand hazards, poor regulation of the environment, climate change, non-adherence to building standards, poverty, poorly planned urbanization, excessive consumption of natural resources, and other factors associated with development that exacerbate vulnerability and exposure of ecosystems, people, property and vital infrastructure to disasters. It is expected that climate related risks facing Sub-Saharan Africa will increase in the coming years and decades due to intensified occurrence of extreme weather phenomena such as extreme temperatures that cause heat waves, longer dry spells resulting in droughts, hunger and starvation, and life-threatening rainfall intensities over short durations causing floods. In particular, seasonal rains are expected to unusually be concentrated into a few days or hours not only causing floods, but also limiting sustainable access to water for farmers throughout season resulting in losses and inadequate supply of food (IPCC, 2018).

Based on the above, it becomes necessary for Sub-Saharan Africa (SSA) to reduce disaster risks and adapt to climate change if it is to achieve sustainable development. Consequently, numerous SSA countries have bolstered national and localized efforts to proactively mitigate growing disaster risks by developing or updating strategies and mechanisms for reducing the potential impacts of a disaster (Nyandiko and Otwor, 2021). UNSDRR (2020) as well as Venton & La Trobe, 2008 report that the main aim of both Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) is to strengthen resilience of people and affected societies by managing inherent risks

associated with both disasters and climate change through various adjustments that can reduce incidences and enhance resilience. Although with strong similarities and complementarities, often times, DRR and CCA are implemented separately because they originated from different global processes, address unique though convergent global agenda, and are managed by different actors and custodian agencies (UNDRR, 2020a). This results in parallel interventions that though both target reducing the same risks (of disasters), are not effective in addressing them in a comprehensive manner due to competing interests, duplication of efforts and resources and wastages resulting from lack of harmonization.

Ideally, by adopting the Sendai Framework for Disaster Risk Reduction 2015-2030, the 2030 Agenda for Sustainable Development and the Paris Agreement for Climate Change in 2015, the international community, led by the United Nations and her member states introduced a change in gameplan for integrated planning. These policies all aim to address both DRR and CCA (IFRC, 2019) and should hence work harmoniously with each other if not integrated. The supposed acknowledgement of existing linkages between DRR and CCA through the aforementioned three global processes is aimed toward introducing and then furthering coherence and linkages in their respective core themes that feature in the agreements. It is however not certain whether and to what extent these efforts to harmonize operations towards realizing these policy objectives have succeeded. The challenges and successes facing their harmonization in SSA are also largely under-researched and undocumented

2. Synopsis of the Policies

2.1 Sendai Framework in Sub-Saharan Africa

The SFDRR is a non-legally binding framework that provides a comprehensive guidance to governments, nongovernmental organizations (NGOs), the private sector, local authorities, and academic institutions, in their efforts to reduce risk related to hazards (UNISDR, 2015). The framework aims at preventing new and reducing existing disaster risks and managing residual risks in order to strengthen resilience. Consequently, it targets the achievement of sustainable development by implementing integrated and inclusive measures to prevent and reduce hazards, vulnerabilities as well as exposure to disaster. To ensure proper implementation of the SFDRR in Africa, the AU has updated the Programme of Action (PoA) and designated the Regional Economic Communities (RECs) with the responsibility of providing strategic guidance to their member states. The RECs develop and implement sub-regional DRR strategies. They also coordinate interstate DRR initiatives (Nierkerk *et al.*, 2020). The PoA, in line with the Sendai Framework is centered around four priority areas and seven (7) targets (UNDRR, 2015).

With the four priorities, the Sendai Framework provides an opportunity to address systemic disaster risks with an aim to protect development gains. Consequently, significant efforts have been dedicated by Sub-Saharan Africa countries towards the design of DRR strategies that align to mainstreaming the Sendai Framework and DRR in different sectors of their economies (Nierkerk *et al.*, 2020). This has offered national governments an opportunity to enhance their capacities to deal with disaster risks at all scales and across all sectors in a more systematic and coherent manner. The implementation of the SFDRR agenda has led to the creation of a diverse range of institutional arrangements, planning documents, funding mechanisms and monitoring and evaluation frameworks in many countries (UNISDR, 2008; UNDRR 2020a).

2.2 The Paris Agreement

With a ten-year tenure, this agreement binds actors to strengthening responses to the threat of climate change. The actors are expected to deliver on this commitment by the undertaking efforts geared towards keeping the century's global temperature rise well below 2 degrees Celsius above pre-industrial levels. Moreover, the agreement targets limiting the temperature rises further, below 1.5 degrees Celsius. This is to be realized through an array of mitigation measures (UNFCCC, 2017; Streck *et al.*, 2016).

Article 7 of the Paris Agreement outlines a global goal namely "adaptation, to enhance adaptive capacity, strengthen resilience and reduce 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" (UNFCCC, 2015). Climate Change Adaptation (CCA) is the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities (IPCC, 2012). Africa is particularly vulnerable to CC yet is only responsible for four percent of global emissions. The impact of climate change on Africa is severe with reported adverse effects, coupled with high agricultural dependency and limited capacity to adapt (UNFCCC, 2017). Countries have pledged commitments through their Nationally Determined Contributions (NDCs) and other policy frameworks on how they will address climate change. This is in line with Paris Agreement's Article 9.1, in which developed countries are invited to provide financing needed by their developing counterparts so as to help these peers achieve their own adaptation and mitigation goals (Streck, *et al.*, 2016). It is thought that a number of the adaptation actions are similar to the risk reduction and resilience actions

that are recommended in the Sendai Framework (IPCC, 2012).

3. DRR and CCA Integration

A number of studies have shown that the two approaches of DRR and CCA share commonalities and convergence on the problems they seek to solve in the SSA region. They also share similar approaches, tools, objectives and outcomes. The two also share similar understanding of risk as a product of three interlinked elements: exposure, extreme event and vulnerability to hazards or climate change (IPCC, 2012). The commonalities can be exploited to better inform and contribute to enlightened discussions as the region seek to develop or update their DRR and CCA policies and strategies.

The Paris Agreement has no direct reference to the Sendai Framework. It similarly does not acknowledge disasters or the DRR community. However, its articles 7 and 8 on CCA and loss, and damages associated with effects of climate change respectively, are inherently linked to DRR (IFRC, 2019, Venton P & La Trobe, 2008). Moreover, Article 8.4 of the Agreement summarizes available opportunities for possible cooperation and cooperation in order to augment understanding, interventions and support for preventing, reducing and addressing losses and damages. All these are core-working areas for DRR community and are partly reflected in the scope, priorities and targets of the Sendai Framework. In particular, the Paris Agreement promotes cooperation with other stakeholders on risk assessments, early warning systems and emergency preparedness (Booth *et al.*, 2020). Indirectly, the Paris Agreement mentions the DRR community and seeks to see them collaborate with other stakeholders on risk assessments, contingency planning, early warning systems, and disaster preparedness. Similarly, the Sendai Framework explicitly promotes coherence and consistency with climate change management frameworks on policies, strategies, tools and programmes. Kelman (2015), however, remarks that “the Sendai Framework does not go into further details regarding the impact of climate change on the different components of risks”; particularly with regard to vulnerability and hazards. With regard to financing, both policies call on the necessity of increasing investment in risk reduction and adaptation by diversifying funding opportunities and financing instruments, among them being insurances (Kelman, 2015; Kellet *et al.*, 2014). Furthermore, DRR and CCA domains share similar thinking in that the higher the vulnerability, or exposure or likelihood of a hazard, the higher the risk.

Disaster risk reduction and adaptation to climate change are concerned with reducing exposure and vulnerability and increasing resilience to the potential adverse impacts of climate extremes, even though society may never eliminate risks fully (IPCC, 2012; Nyandiko, 2020). There is consensus among the scientific community and practitioners from the two fields to have a proper understanding of drivers of current and future vulnerability and characteristics of hazard to effectively address disaster risks (Booth *et al.*, 2020). The guiding principles in the Sendai Framework are explicit in advancing policy coherence with other frameworks. These include policies touching on health and safety; food security; climate change, variability and adaptation; sustainable environmental resource use and management; and sustainable development (Nierkerk *et al.*, 2020). Ultimately, guided by prevailing climate change situations in each context, a full-range risk assessment should be undertaken. This can inform and better shape contingency policies and plans, as well as programs resulting in improved preparedness, response and recovery for the affected (UNDRR, 2017).

Even though, both have many similarities and convergences, there are glaring differences between these two fields (EEA, 2017). DRR approaches tend to be reactive, based on experiences, while CCA proactively focuses on future projections (Booth, *et al.*, 2020). That notwithstanding, the isolated operation of DRR and CCA fields, ignoring the similarities, has contributed to increased vulnerabilities of communities and tended to reduce effectiveness of the interventions of the two domains (Booth *et al.*, 2020). The increased evidence of climate change influencing the intensity and frequency of hazards and deepening the underlying vulnerability of the populations exposed makes future management of disaster risks complicated. The complication arises from the fact that climate change makes it harder to predict or forecast the timing and magnitude of disaster events to proactively tackle them (EEA, 2017). Besides, the perception and understanding of the hazards causing disasters by communities is thus challenged, thereby undermining their capability to anticipate, respond, cope and recover from these events with devastating socioeconomic consequences (Booth *et al.*, 2020). Integration of CCA and DRR is thereby needed to bring solid solutions, reduce vulnerabilities and enhance resilience to both disasters and climate change (Venton, P & La Trobe, 2008; IPCC, 2012). This interaction between climate change and disaster risk reduction thus calls for urgent and greater engagement of the two domains to develop risk-informed solutions and contribute to sustainable development in SSA.

Despite this position there exists limited understanding of likely means for achieving policy coherence between DRR and CCA in practice. Also lacking is adequate knowledge of ongoing initiatives aimed towards addressing this gap. Despite the relevance and importance of DRR to adaptation agreements, strategies and approaches, the

incorporation of DRR into UNFCCC decision making processes, on the whole, has been ad hoc and piecemeal (Venton and La Trobe, 2008). In Africa, some governments and non-state actors have devised tools and programs geared towards fostering policy coherence. Such include the regional framework for integrated approaches to address climate change and disaster risk management (UNDRR, 2020). In SSA, more guidance, entry points and examples of good practices are needed at national and local levels to foster policy coherence between DRR and CCA.

This paper asks three fundamental questions: (a) what are the barriers and opportunities to CCA and DRR coherence; (b) what are the appropriate institutional mechanisms that can be adopted to enhance coherence; and (c) what activities and processes can bring the DRR and CCA interlocutors' work more closely together? This study thus aims to examine policy integration and coherence, and provides the basis for policy discussions and suggestions towards entry points and coherence between DRR and CCA. Furthermore, it provides relevant scientific background information to be taken in consideration by practitioners when implementing DRR and CCA projects. Malawi and Uganda have been used as case studies for this research.

4. Methodology

The researchers employed exploratory policy analysis approach to evaluate the progress the two countries have made and the attendant impediments as well as drivers to their development and implementation. Sixteen policies, strategies, and plans related to DRR and CCA as well as 'planning' were analyzed across five coherence thematic areas (Supplementary file 1). These documents were obtained from respective country focal persons and online sources such as UNFCCC and UNDRR websites for all the strategies and policies reviewed).

Primary data that was collected through interviews from November-December 2020 through virtual interviews and group discussions to supplement the analysis of the policy documents from the two fields (Supplementary files 2). The interviews involved the focal persons from the institutions responsible for DRR, CCA and planning from the two countries. A total of eight purposively selected Key Informants interviews, each lasting about one hour, drawn from the relevant DRR, CCA and planning institutions were conducted over the period. The questions probed the relevance scope and barriers as well as opportunities for integrated planning and implementation of these frameworks in order to optimize institutional interconnectedness. The interviews were recorded, transcribed and coded into themes on knowledge and practice along with their barriers and opportunities for coherent implementation of DRR and CCA (Urquhart, 2013; Glaser, 1978).

5. Analytical Framework

The Sendai Framework guided the analytical framework for this study. Taking cognizance that a DRR or CCA framework requires strategic effort to formulate and implement, a number of interlinked elements are envisioned. Guided by UNDRR 2020a, five elements have been used to determine the extent of coherence between the two domains (see Table 1 for details). The five coherence elements are strategic, conceptual, institutional, operational and financial. A rating of either 'limited', 'partial', or 'substantial' is assigned to each level depending on the level of coherence of the framework (Supplementary material 3).

6. Malawi and Uganda Hazard and Risk Profiles

Malawi is a land locked country with a population of 19,568,276 and a total area of 94,552square kilometers making a population density of approximately 207 people per square kilometer (UN Data). Separated from Uganda by Tanzania, her East African neighbor, Malawi, which is largely an agricultural economy but with vibrant manufacturing and service sectors, faces a number of hazards, both natural, climate-related and human-induced, which include floods, drought, stormy rains, strong winds, hailstorms, landslides, earthquakes, pest infestations, diseases outbreaks, fire and accidents (GoM, 2018). Here, droughts and floods, out of all the weather-related shocks, have had the most impact on the national economy, people's lives and livelihoods, and various types of public and private infrastructure.

The Republic of Uganda, on the other hand, is similarly a land-locked country within the Great Lakes and East African region. A member Country of the East African Community (EAC) unlike Malawi which belongs in the Southern African Development Community (SADC), Uganda's population is estimated at about 44 million people spread across the country's landmass which measures approximately 241,038 km². Its population density is hence roughly 157.1/ km². The economy is, similarly, mainly dependent on agriculture, manufacturing and trade. The country is exposed to a number of hazards including drought, floods, animal and human epidemics, earthquake, lightning, landslides, technological hazards and wildfires among others. Frequent landslides because of land degradation and heavy rains around Mt Elgon region have contributed to loss of lives and property and livelihoods (GoU, 2010). In 2019, Uganda experienced its worst impacts from disasters which affected 297, 000 people, and

resulted in the death of 257 (EMDAT, 2020).

7. Results and Discussions

7.1 Policy Landscape for Malawi and Uganda

7.1.1 Malawi

There are three (3) policy instruments support Malawi to implement DRR in the country: Malawi Disaster Risk Financing and Implementation Plan 2019-2024, International Disaster Response Law (IDRL, 2019) and the National Resilience Strategy (2018-2030) for Malawi. Malawi's Disaster Risk Financing and Implementation Plan (2019) focuses on achieving national resilience towards disasters with climate change identified as a predecessor or risk factor. In Malawi, the International Disaster Response Law endeavors to introduce early warning, response and reconstruction. This connotes that CCA can be integrated into this framework. It advocates for decentralized DRR structures with coordinated joint efforts of international and national actors. The National Resilience Strategy (2018-2030) for Malawi is another DRR instrument that seeks to promote linkages amongst institutions addressing vulnerable people; risk reduction and improving national resilience to climate change, and provides detailed description of roles and responsibilities for DRR and CCA activities.

With regard to CCA, four (4) frameworks guide the implementation of adaptation actions in Malawi. The National Climate Change Policy; National Adaptation Plan Framework; National Meteorological Policy and Malawi Intended Nationally Determined Contribution (INDC). The National Climate Change policy recognizes that climate change is a risk factor increasing frequency of disasters in the country. Malawi National Meteorological Policy aims to provide accurate and specific weather and climate information to aid prevention, preparedness, management and recovery from climate related disasters like floods and droughts. The policy further provides a vertical approach to institutional framework. The policy considers DRR as a specific sector whereby the function to develop and implement the national disaster contingency plan is assigned to the Department of Disaster Management Affairs (DoDMA). Malawi's INDC incorporates priorities given to UNFCCC and sustainable development.

Finally, Malawi Growth and Development Strategy (MDGs) III is the planning framework that recognizes that climate change is a disaster risk factor and thus incorporates both fields to address poverty with aim of reducing vulnerability to climate extreme events and shocks. There is also incorporation of vulnerability assessment, climate change and environmental management in the planning framework.

7.1.2 Uganda

Uganda has two (2) instruments that guide DRR actions: Uganda's Five-Year Disaster Preparedness Strategic Plan and Budget (2018-2022) and the National Disaster Preparedness and Management Policy (2010). Adopted in 2010, Uganda's Disaster Preparedness policy aims at strengthening institutions and mechanisms that will reduce the vulnerability of the people, livelihoods and assets to disasters through systematic disaster prevention, mitigation, preparedness and management. The National Disaster Preparedness Strategic Plan 2018-2022 seeks to operationalize the policy with key actions geared at supporting the National Integrated Early Warning System (NIEWS), conducting hazard and risk profiling and strengthening the National and District Emergency Coordination Centers (NECOCs).

With regard to CCA, Uganda uses five (5) climate change related policy/strategies and programmes to advance CCA actions and resilience to climate change. These include the country's NAPA, their National Climate Change Policy adopted in 2015, the Intended Nationally Determined Contribution (INDC, 2015), and the Guidelines for Integration of Climate Change which features in Sector Plans and Budgets. Additionally, Uganda developed the National Climate Change Costed Implementation Strategy in 2013 and the Uganda's National Readiness Proposal in 2019 to on how to access funding under the Green Climate Fund Readiness and Preparatory Support Programme (GCFRPP).

Uganda's Third National Development Plan (NDP) developed in 2020 is the overarching 'planning' instrument guiding the country on how to deliver the aspirations of Vision 2040 and the SDG agenda in the country. The NDP III (2020/21 – 2024/25) bases upon the gains made, challenges met and endured, and lessons learnt from similar former planning and implementation encumbrances and experiences of NDP I and NDP II. According to the respondents, lessons learned on the interlinked challenges of disasters and climate related extreme events in curtailing economic progress from NDP II & I, the country has made deliberate effort for integrated planning of the climate change and DRR fields that is classified into one chapter in the NDP III document.

7.2 Elements of Coherence

7.2.1 Strategic Coherence

At strategic level, Malawi's CCA frameworks were found to have partial linkages with the DRR instruments that includes a number of references to DRR global frameworks and processes. Analysis of the DRR instruments reveals that Malawi's National Resilience Strategy has substantial coherence with the CCA frameworks while the Malawi Disaster Risk Financing and Implementation Plan had partial linkages. In Uganda, analysis of the Preparedness Strategic Plan 2018-2022 shows that it has partial coherence with CCA. The document makes reference to global and regional processes only related to DRR. It specifically states that the plan "aims to build resilience of Ugandan people, infrastructural and development projects to natural disasters and climate change, which are steadily on the rise reversing years of development gains". Some of these disasters mentioned are caused by extreme weather and climate events that is also the concern of the country's National Climate Policy as well as the DRR field.

A number of references are made in the document on the need to mainstream both DRR and CCA into sectors. The Strategic Plan further recognizes DRR as a multi-sectoral responsibility and asserts that "Disaster Risk Management is not a separate discipline but a cross-cutting issue that needs to be considered in many areas and sectors and at all levels of policy, society and economy". Analysis of Uganda's CCA instruments revealed there is substantial strategic coherence of the National Climate Change Policy with DRR. The policy document makes a number of references to international instruments such as the UNFCCC requirements, which Uganda is a signatory, the CoPs & Kyoto protocol and the EAC climate change policy. Specifically, the document makes clear reference to Uganda's National Disaster Preparedness and Management Policy (2010) noting that its agenda is to further its implementation and other sectoral strategies and policies. Moreover, the policy emphasizes to complement operationalization of existing frameworks through "a harmonized and coordinated approach" to ensure there is a low-carbon climate - resilient and sustainable development, which can be leveraged to promote proper integration of CCA measures with DRR.

Interviewees from the CCA sector generally demonstrated good understanding of the intersecting risk and resilience concepts between DRR and CCA articulating linkages at vision, mission and objectives level. In Malawi, respondents who took part in the CCA study perceived the DRR field as focusing purely on hazards whereas CCA was understood to attend more to issues of adaptation of ecosystem, livelihoods (such as fisheries, herding and farming and trade in agricultural commodities) water supply, and peace and conflict management dynamics to climate change. All respondents indicated from the two fields tended to converge on achieving resilience from disasters and climate change, which they can easily identify and associate with at strategic level. This can be leveraged to further advance closer collaboration between the two fields. However, the respondents noted that the different national and local institutional and coordination set ups that implements the DRR and CCA agenda in the country are a barrier to fostering common approach (IFRC, 2019; Becker *et al.*, 2021). Despite striking similarities in mandates, projects and activities, the DRR interlocutors expressed disappointment with skewed political support towards CCA actions, partly attributed to increased resources readily available for the latter from international community.

7.2.2 Conceptual Coherence

The climate change and disaster risk are understood to have three interlinked elements namely: hazard, exposure and vulnerability (IPCC, 2012; Peters *et al.*, 2016; EEA, 2017). The social, economic and, environmental systems of the country tend to shape and influence the exposure and vulnerability components of risk while climate change is being associated with increase in intensity and frequency of hydro meteorological hazards such as floods and droughts that are dominant in the two countries (Becker *et al.*, 2021). Malawi CCA instruments encourages conceptual coherence with partial linkages with DRR while for DRR instruments coherence is limited. Conceptually, Malawi's National Climate Change Policy and the National Meteorological Policy are the most progressive in promoting good interlinkages between the two fields while the country's National Adaptation Plan Framework and the INDC show limited integration to DRR frameworks. Generally, there is common understanding that climate change is a driver of disaster risks in the DRR frameworks with the CCA instruments focusing exclusively on hydro meteorological hazards and the DRR instruments focuses on all hazards. Addressing vulnerable populations is another key concern of all the strategies particularly as documented by the INDC and the NRS. However, different approaches are employed by the two domains to carry out vulnerability assessments making it hard for the findings to be jointly utilized by the two fields to reduce or prevent risk. There was convergence among the interlocutors from the two fields on the need to integrate vulnerability and risk assessments to promote coherence in the two countries country.

In Uganda, both the Disaster Preparedness Policy (2010) and Disaster Preparedness Strategic Plan (2018-2022) recognize climate change as a major risk in escalating frequency and intensity of disasters. It states that “*With impacts of climate variability and change become more pronounced leading to increasing incidence of climate-induced disasters and wide-ranging impacts on the lives and livelihoods of people, the need to mainstream DRR and CCA into the development planning process and to build capacities for reducing and mitigating their impacts has been recognized by the GoU in the NDP and other policy pronouncements*”.

Similar to DRR framework, Uganda’s Climate Change Policy document recognizes crosscutting nature of climate change impacts. It states that; “*Climate change affects all sectors of the economy ‘making preparedness inevitable.... for example, flash floods wash away the roads and bridges, prolonged droughts affect agriculture and food security and hydro power generation and trigger epidemics.*” The document further states that the “*frequency of hot days has increased while frequency of cold days has decreased resulting to Malaria parasites spreading into other parts of the country.*”

This indicates that the concepts of climate change risk and disaster risk are addressed in the two fields and are interlinked with regard to climate – induced disasters that requires a common approach to address them in a coherent and comprehensive manner. In Malawi, respondents identified hazard and vulnerability mapping as one area that was recognized for closer engagement of the two communities to understand the current and future risks from climate change on disaster risks. Damage and loss assessment is another area that provides opportunities for closer engagement of the two fields as articulated in Article 8 of the Paris Agreement. In Uganda, the DRR respondents indicated that their current Strategic Plan requires collaboration with CCA in various ways including risk profiling of the districts; contingency planning; strengthening National Information and Early Warning Systems and issuance of advisories. This is in agreement with areas of cooperation that are stipulated in the Paris Agreement on early warning systems, disaster preparedness, comprehensive risk assessments, risk insurance and resilience of communities (UNFCCC, 2015, EEA, 2017). This suggests risk assessments provides, ESWs and contingency planning are excellent areas for advancing mutual collaboration and benefit of the two communities. However, DRR respondent from Uganda noted that the policy frameworks for CCA exclusively tackles climate-induced hazards such as floods and droughts while DRR focuses on all hazards that may hinder collaboration despite many activities that are overlapping the two domains as such as construction of dams. Differences in institutional mandates, funding arrangements and planning are mentioned as barriers to collaboration between the two fields despite repeated reference to building ‘resilience’ from documents reviewed and stakeholders interviewed that can be capitalized by the two fields to further conceptual coherence in the two countries (Amarathunga *et al.*, 2020).

7.2.3 Institutional Coherence

Institutional coherence was analyzed by examining the extent the documents envision joint coordination between DRR and CCA and the extent the roles and responsibilities for institutions responsible for DRR and CCA are clarified to support joint implementation of activities. KIIs interviewed have been used to document barriers and opportunities that likely to be encountered during the joint design and implementation of interventions that harmonizes log-frames within the two fields. In Malawi, the findings show that DRR instruments have partial integration on institutional aspects with Malawi’s National Adaptation Plan Framework and Malawi National Meteorological Policy indicating stronger commitment to integration. The NRS for Malawi demonstrates excellent institutional linkages with the CCA frameworks having roles and responsibilities of the various stakeholders spelled out. Additionally, a joint technical coordination committee is established by the NRS. The committee brings onboard representation from the DRR and CCA fields, among other practitioners who together, facilitate joint planning as well as implementation of common activities and measures in Malawi. However, respondents indicated that the technical committee in Malawi had unclear terms of reference raising concern that it might undermine its performance in delivering the coherence agenda in Malawi. The country’s Climate Change Policy has provisions for clear institutional arrangement with relevant policy organs such as Cabinet and District Committees recognized to support government-wide coordination of climate change actions.

In Uganda, the DRR strategic plan and Policy recognizes the Department of Relief and Disaster Preparedness in the OPM as a lead agency coordinating DRR in the country in collaboration with other stakeholders. Four external actors are identified to support implementation of the plan. These include CSOs/NGOs; UN agencies; International organizations and private sector. However, the plan fails to allocate specific role to CCA, which is critical in hazard and vulnerability mapping, early warning systems, and contingency planning (Becker *et al.*, 2021). Consequently, the study rates the institutional coherence of DRR policy and plan as limited with CCA. For CCA coordination, analysis of the documents shows that Uganda’s Climate Change Unit under the Ministry of Water and Environment. The document narrates an institutional and coordination mechanism that has potential for collaboration with the

DRR institutions. This includes establishment of the National Climate Change Commission in the Ministry of Water and Environment to act as a national coordination organ for climate change in Uganda.

The policy provides a specific role to the Ministry of Finance and National Planning Authority to ensure national, district, sectoral budgets reflect climate change budgets, and the MDAs integration of CC in their programs, projects and work plans, that has potential to foster institutional coherence. The budget can support crosscutting activities between DRR and CCA while the planning Authority would help support integration of DRR agenda into the MDAs actions as well. The National Policy Committee on Environment (PCE), which is chaired by the Prime Minister and is charged with climate change policy implementation and resource mobilization, is the highest coordination mechanism that should incorporate the department responsible for DRR, which is also under the Prime Minister's Office who also chairs a high policy organ for DRR. National Climate Change Advisory Committee is operational supporting technical implementation of the policy and strategy and is chaired by the Minister responsible for climate change. Given that this is a multi-sectoral technical committee, the head of DRR department can be incorporated to advance coherence of the DRR and CCA implementation in the country.

In Malawi, DRR oriented institutions tend to focus more on reducing disaster risk and impacts through early warnings, information dissemination, promoting risk prevention measures and vulnerability reduction, as well as emergency preparedness for improved and timely responses that also is the focus of the CCA instruments. On the other hand, the CCA oriented institutions focus on building the capacity of the people to adapt to changing climate conditions. Respondents indicated that the two separate global frameworks (the Sendai Framework for DRR and the Paris Agreement for CCA) that does not foster close linkages and is partly contributing poor coordination, duplication of efforts and resource misuse in the two countries. The Ministry of Planning for Uganda has demonstrated a best example how planning can bring together related institutions to design joint activities but parallel budget line would be a barrier to fostering institutional coherence. The study finds Uganda's Office of the Prime Minister responsible for high-level separate coordination of CCA and DRR is impeding coherence and is contributing to wastage of resources, reduced synergies and inefficiency of the government (Becker *et al.*, 2021).

Generally, the institutional and coordination mechanism in the two countries is promoting parallelism from national to local in the design and implementation of DRR and CCA interventions despite overlapping mandate, similar interventions and funding that requires joint planning to enhance their effectiveness and support delivery of the SDGs in the country (Booth *et al.*, 2020). However, in Malawi the research found the NRS to be the most progressive in encouraging institutional coherence while in Uganda institutional coherence is achieved through the Ministry of Planning that has brought together the DRR and CCA sectors. The major challenges cited by respondents for institutional coherence include external and factors as well governance in the two countries. Externally, the global frameworks and funding mechanism for CCA and DRR that are operating in isolation were mentioned as great disincentive to joint planning and implementation of activities.

7.2.4 Operational Coherence

Operational coherence is contemplated to the extent to which measures, actions and activities bring together or apart the two communities of DRR and CCA. Reviewed documents reveal that Malawi's CCA instruments show limited coherence while the DRR strategies have partial coherence; implying the DRR instruments have more activities that would foster collaboration. Malawi Growth's and Development Strategy II and NRS were found leading in championing activities that foster coherence in the DRR and CCA domains. These activities include flood control, early warning systems, response systems, catchment protection and management among others. The NRS and INDC for Malawi also have good examples that highlight activities that can catalyse inter-sectoral cooperation with CCA. These include documenting and sharing risk information; developing early warning systems and sharing climate information; awareness raising activities on CCA and DRR; safety nets and ecosystem management and land use practices. Using common mainstreaming tools and entrenching the joint coordination mechanism in the country-planning framework would help streamline operational coherence of the two fields in the country.

In Uganda, DRR frameworks have a number of activities that can foster operational coherence. Mapping of risks and hazards in 112 districts in Uganda through joint effort with CCA counterparts and climate scientists would help develop risk profiles that addresses the current and future climate change scenarios hence boost resilience. The planned development of district and national disaster preparedness and contingency plans need to reflect and consider the climate change risks in their planning process as well. The planned activity to develop and disseminate disaster early warning in a timely manner can bring the interlocutors' work together thus boost operational coherence. As was noted by the DRR respondent, "*early warning systems needs a collaborative effort of many agencies and technical personnel thus this would enhance collaborative engagement with colleagues from Uganda*".

Met Agency and the Climate Change section.”

Uganda's CCA frameworks demonstrate substantial operational coherence with DRR. The documents make references to DRR not only in the objectives but also in sectoral activities, which aim at reducing risks in a number of sectors such as agriculture, water, transport, housing and urban planning. In particular, the policy makes reference to a number of measures to be undertaken by the department responsible for DRR to reduce disaster risks in sectors. These include: developing and implementing a climate change-induced DRR strategy; promoting vulnerability-based mapping in the context of climate change; developing and promoting innovative insurance schemes to insure against losses occasioned by extreme weather/climate events; and strengthening the National Emergency Coordination and Operation Centre. Promoting early warning systems and preparedness systems for weather and climate induced extreme events, and providing relief assistance to victims of climate change-induced disasters are other activities outlined in the document.

This research has further demonstrated that DRR and CCA fields share quite a number of activities that would foster mutual collaboration to better enhance resilience to disasters and climate change. Parallel funding mechanisms, tight control of institutions from external influence, weak governance and fear of the unknown are some of the factors contributing to parallelism. This state of affairs is associated with wastage of scarce resources and efforts, and duplication of initiatives that is reportedly prevalent in most African countries (Becker *et al.*, 2021). In Uganda, the DRR respondent indicated that often the CCA colleagues fail to turn up in meetings when they are invited to provide support such as the conducting District risk profiles in the country. In Malawi, the CCA respondents were quite explicit on the issue of duplication of interventions and wastage of resources by the two interlocutors. They mentioned that you can attend a workshop in the morning convened by DRR say, and later attend another on CCA in the afternoon and then discover that the content and participants for the two events were the same.

7.2.5 Financial Coherence

Most of the reviewed documents point to there being efforts to mobilize funds for implementing respective DRR or CCA measures for each jurisdiction without any reference to joint solicitation of funding that combines these efforts, thus pointing to there being limited in financial coherence if not lack of it. Generally, the CCA frameworks have a number of fund-raising opportunities than DRR that would be leveraged to support activities that cuts across the two domains. There is apparent stronger support from the government toward CCA field than DRR as revealed by stakeholders during the KIIs. Furthermore, efforts should be made to promote resource mobilization for both CCA and implementation by exploiting synergies and complementarities to enhance resilience to both CC and DRR and support achievement of SDGs. The limited financial resources for DRR activities have contributed to the concentration of its activities at national level with some stakeholders accusing the department responsible for DRR in Uganda for “*Kampalarization*” of its program. Given that, a significant amount of CCA financial resources are channeled from development partners such as World Bank, UN agencies and bilateral donors who play a profound influence in policy/strategy/program design and implementation, it is critical they be engaged to ensure mobilized resources boost financial resilience in Africa.

Additionally, according to respondents, limited budget and low political profile has seen majority of the DRR interventions inclined to disaster response. This is despite the plans having indications that they will fund preparedness and even risk reduction activities such as strengthening emergency coordination centers in Uganda, to developing early warning systems. The countries are using domestic financing instruments to fund DRR activities such as the contingency budget and the departmental budget vote. Numerous UN agencies are also funding various DRR related activities. Interviews with Key Informants from DRR in both Malawi and Uganda indicated that the budget vote for DRR is much lower than for CCA as it enjoys higher political profile than disaster risk reduction. Consequently, much of the budget funds for DRR are utilized to meet the administrative expenses such as salaries and little on tangible projects that actually reduce disaster risks.

The study has revealed that limited risk financing from domestic resources and lack of a dedicated DRR budget has highlighted the urgent need to reduce wastage in government expenditure and limit duplication by fostering joint planning and implementation of activities. This requires the ministries responsible for planning and finance to play a key role of convening related sectors for joint planning and financing. It is important to note that Priority 3 of the Sendai Framework, which deals with investing in DRR, is among most underrepresented key elements in DRR strategies in sub-Saharan Africa, pointing out the challenges that countries face in integrating financial considerations in DRR plans and strategies. Developing financial policies that brings domestic and international resources together, as well as consolidates different financial instruments to fund disaster prevention, response and recovery in a coherent and systematic manner is urgently needed (UNDRR, 2020a).

8. Conclusions

The research found resilience and risk-informed development to be the key converging concepts and objectives of both the DRR and CCA policy instruments. The findings show that developing common understanding of the concept of risk, vulnerability, hazard and exposure drives conceptual linkages between the two domains and is a critical enabler toward integrating the two policy and practice arenas. The research established and demonstrated that there exist different approaches, methods and tools for assessing risk as well as hazard and vulnerability that needs to be harmonized and promoted to foster linkages for coherent risk-informed development. Potential opportunities were seen to exist in fostering joint risk assessments, particularly in Uganda as elaborated in their current DRR Strategic Plan, which is particularly essential in assessing current and future risks from climate change scenarios. Parallel coordination mechanisms for DRR and CCA were evident in the two countries with Malawi's NRS pioneering excellent collaboration with CCA through joint coordination and implementation of activities. National Planning in Uganda was found to be a critical enabler in facilitating joint planning of activities for related sectors and departments but parallel funding for the two domains is a barrier to coherence and indication of an inefficient and ineffective manner in budgetary allocation of resources.

The findings also revealed that limited funds and low political goodwill towards the DRR sector has consigned its operations to response orientation making it lose its important obligation in fostering risk -informed solutions and achievement of the SDGs. By limiting its scope of work due to low budgetary allocations and low political profile, the DRR domain is been made to lose its purpose and relevance in achieving the SDGs while that of CCA is prominent and fully supported financially and politically. Joint planning processes and creating awareness even to top decision makers can be an impetus for fostering overall coherence, in acknowledgment of the multiplicity of hazards and vulnerability conditions of which climate change related risks form a part.

9. Recommendations

By considering the negative impacts of parallelism in the DRR and CCA fields, the research strongly recommends the urgent need to review governance, coordination arrangements and policy structures relating to DRR and CCA from global to national levels to foster policy coherence in Africa. This can be done through advocacy, awareness creation and peer-learning exchanges at regional, national and local levels. Consolidated national development planning has shown to be useful in limiting duplication in Uganda. However, separate financing of DRR and CCA related activities, and failure to use the high-level coordination mechanism embedded in the Prime Minister's Office to promote joint planning for the two is a barrier to coherent implementation of DRR and CCA activities in the country. That the concepts of risk and resilience have an overarching goal in the two domains is evident and needs to be capitalized on to promote coherence. Establishing a joint coordination mechanism similar to Malawi's can be a useful tool for accelerating the desired harmonization. This policy orientation can be adopted and pursued by other SSA countries as well.

As the countries move to review or develop new policy instruments in future, there is need to ensure all these issues are well articulated and the roles and responsibilities of the DRR and CCA stakeholders are clarified. Similarly, areas of joint collaboration should be mapped out accordingly to deepen institutional coherence. Developing common mainstreaming guidelines for DRR and CCA can support better integration of the two fields into a sector, and facilitate the development of common or universally coherent risk management frameworks in the region. In particular, the two domains should strive to include colleagues from the other domain in all existing structures, activities and mechanism. Building capacities of all relevant stakeholders, and planning needed processes that are supported by high-level decision makers can ensure coherent planning and integrating risk reduction into sectors. Involvement of the ministry responsible for finance to bolster inclusive and effective budgeting that fosters coherent and joint implementation of similar activities can accelerate risk-informed development and achievement of the SDGs in Africa.

Declaration of competing interest

The author declares there is no known competing interest or relationships that would have appeared to influence production of this work.

Acknowledgements

The research acknowledges the use of portions of the data and findings in this article based on research conducted for the United Nations Office for Disaster Risk Reduction in Africa.

References

Amarathunga, D., Haigh, R., & Nuwan, D. (2020). *A new strategic vision to approach natural disaster risk reduction and climate change adaptation*. Global Disaster Resilience Centre, University of

Huddersfield:United Kingdom.

- Becker, P., Hagelsteen, M., & Abrahamsson, M. (2021). “Too many mice make no lining for their nest” – Reasons and effects of parallel governmental structures for disaster risk reduction and climate change adaptation in Southern Africa. *Jàmá: Journal of Disaster Risk Studies*, 13(1), a1041. <https://doi.org/10.4102/jamba.v13i1.1041>
- Booth, L., Scheuller, A. L., Scolobig, A., & Marx, S. (2020). Stakeholders’ solutions for Building Interdisciplinary and International Synergies between CCA and DRR. Elsevier. <https://doi.org/10.1016/j.ijdrr.2020.101616>
- European Environmental Agency (EEA). (2017). *Climate Change Adaptation and Disaster Risk Reduction in Europe. Enhancing Coherence of the Knowledge Base, Policies and Practices*. Copenhagen: European Environment Agency.
- Government of Malawi (GoM). (n.d.). *Malawi Disaster Risk Financing and Implementation Plan 2019-2024*. Lilongwe: Government of Malawi.
- Government of Malawi. (2012). *National Resilience Strategy. Department of Disaster Management Affairs*. Lilongwe: Government of Malawi, 1–128.
- Government of Malawi. (2015). *National Disaster Risk Management Policy. Secretary and Commissioner for Disaster Management Affairs*. Lilongwe: Government of Malawi, 1–13.
- Government of Malawi. (2017). *The Malawi Growth and Development Strategy (MDGS) III: Building a productive, competitive and resilient nation*. Lilongwe: Government of Malawi, 1–232.
- Government of Malawi. (2018). *National Climate Change Policy. Ministry of Environment and Climate Change Management*. Lilongwe: Government of Malawi, 1–24.
- Government of Uganda (GoU). (2010). *National Policy for Disaster Preparedness and Management*. Directorate of Relief, Disaster Preparedness and Refugees. Office of the Prime Minister. Kampala: Government Printers.
- Government of Uganda (GoU). (2013). *Uganda’s Costed Implementation Strategy, 2013*. Kampala: Government Printers.
- Government of Uganda (GoU). (2017). *Uganda’s Initial National Determined Contribution*. Ministry of Water and Environment. Kampala: Government Printers.
- Government of Uganda (GoU). (2020). *Third National Development (NDP III) - 2020/21-2024/25*. National Planning Authority. Kampala: Government Printers.
- Government of Uganda (GoU). (n.d.). *Guidelines for Integration of climate change into Sector Plans and Budgets*. Ministry of Water and Environment. Republic of Uganda.
- Government of Uganda: Ministry of Water and Environment (MWE). (2015). *Uganda National Climate Change Policy*. Retrieved from <https://www.mwe.go.ug/sites/default/files/library/National%20Climate%20Change%20Policy%20April%202015%20final.pdf>
- ICSU Regional Office for Africa. (2017). *Africa Science Plan for Natural and Human-induced Hazards and Disasters*. ICSU Regional Office for Africa Pretoria, South Africa.
- IFRC. (2019). *Literature Review on Aligning CCA and DRR*. Geneva: Switzerland
- IPCC. (2012). *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation: Special Report of the Intergovernmental Panel on Climate Change*. Cambridge UK, and New York, NY, USA: Cambridge University Press.
- IPCC. (2018). Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways.
- Kellett, J., & Caravani, A. (2013). *Financing Disaster Risk Reduction: A 20-year story of international aid*. London: ODI.
- Knoll, A. (2014). *Bringing policy coherence for development into the post-2015 agenda—challenges and prospects*. Discussion Paper No. 163. Maastricht: European Centre for Development Policy Management
- Mwalayo, D., & Thole, B. (2018). Prevalence of Aflatoxin and Fromisicne in Maize Consumed in Rural Malawi (JOUR).
- Nierkerk, D., Coetzee, C., & Nemakonde, L. (2020). Implementing the Sendai Framework in Africa: Progress

- against the Targets (2015-2018). *International Journal of Disaster Risk Science*.
- Nyandiko, N. O., & Otworu, D. (2021). Achieving Sendai Framework in Africa: Progress and Challenges.
- Nyandiko, N. O. (2020). Devolution and Disaster Risk Reduction in Kenya: Progress, Challenges and Opportunities. *International Journal of Disaster Risk Reduction*. <https://doi.org/10.1016/j.ijdr.2020.101832>
- Onchwo, S., Vanderwaal, K., Munsey, A., Nkamwega, J., & Ndekelezi, C. (2019). *Seroprevalence and Risk Factors for Lumpy Skin Disease Virus in Uganda*. BMC Veterinary Research. <https://doi.org/10.1186/s12917-019-1983-9>
- Peters, K., Bahadur, A., Tanner, T., & Langston, L. (2016). 'Resilience' across the post-2015 frameworks: towards coherence. ODI Working Paper. Overseas Development Institute: London.
- Streck, C., Keenslyside, P., & Unger, M. (2016). The Paris Agreement: A new Beginning. *Journal of European Environmental Law and Planning*. <https://doi.org/10.1163/18760104-01301002>
- UNDRR. (2015). *The Sendai Framework for Disaster Risk Reduction 2015-2030*. Third UN World Conference on Disaster Risk Reduction. Sendai: United Nations.
- UNDRR. (2017). *Build Back Better: In recovery, rehabilitation and reconstruction*. Consultative Version. Retrieved May 17, 2021, from https://www.unisdr.org/files/53213_bbb.pdf
- UNDRR. (2020a). *Disaster Risk Reduction and Climate Change Adaptation, Pathways for policy coherence in Sub-Saharan Africa*. Nairobi: UNDRR.
- UNDRR. (2020b). Highlights: Africa Regional Assessment Report 2020 (forthcoming). Nairobi, Kenya. United Nations Office for Disaster Risk Reduction (UNDRR).
- UNFCCC. (2015). *Paris Agreement*. UNFCCC, Bonn. Retrieved March 26, 2020, from <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- UNFCCC. (2017). *Opportunities and options for integrating climate change adaptation with the Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction 2015-2030*. UNFCCC, Bonn. Retrieved March 26, 2020, from https://unfccc.int/sites/default/files/resource/techpaper_adaptation.pdf
- Venton, P., & Lat Trobe, S. (2008). *Linking Climate Change and Disaster Risk Reduction*. Tearford. Retrieved from www.ids.ac.uk
- Wamsler, C., & Johannessen, A. (2020). Meeting at the crossroads? Developing national strategies for disaster risk reduction and resilience: Relevance, scope for, and challenges to, integration. *International Journal of Disaster Risk Reduction*, 45, 101452. <https://doi.org/10.1016/j.ijdr.2019.101452>

Annex 1. List of documents analyzed in the two countries

	Malawi	Uganda
DRR		
Laws, bills or act	Draft DRM bill	
Strategy*	National Resilience Strategy (2018 – 2030) National Disaster Risk Management Policy 2015	Five Year Disaster Risk Reduction Strategic Development Plan (2017-2022)
Plans	Implementation Plan of the National Resilience Strategy (2018-2023)	
Programmes		
CCA		
Laws, bills or act		
Strategy*	National Climate Change Management Policy (2016) National Environment and Climate Change Communication Strategy (2012) & Malawi's Climate Change, Learning Strategy (2012)	Guidelines for the integration Of Climate Change in Sector Plans and Budgets (2014) Uganda National Climate Change Policy (2016)
Plans		
Programmes	e.g. WFP, GCF funded programme on EWS	e.g. IFRC programme on FBF
INDCs	https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Malawi%20First/MALAWI%20INDC%20SUBMITTED%20TO%20UNFCCC%20REV.pdf	https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Uganda%20First/INDC%20Uganda%20final%20%2014%20October%20%202015.pdf
Readiness proposal	Malawi Readiness Proposal – UNEP https://www.greenclimate.fund/document/adaptation-planning-support-malawi-through-unesp	Uganda Readiness Proposal https://www.greenclimate.fund/document/nda-strengthening-country-programming-support-uganda-through-ggpi
Development		
NDP	Malawi Growth Development Strategy (MGDS III) -2017-2022	Third National Development Plan (NDPIII) 2020/21 – 2024/25

* If the strategy isn't available the consultants will analyse the policy

Annex 2. List of Institutions Contributing Interviewed Respondents

S/No	Institutions
1.	Civil Society Network on Climate Change (CISONECC)
2.	Department of Disaster Management Affairs
3.	Ministry of Finance, Economic Planning & Development
4.	Ministry of Forestry and Natural Resources, Environmental Affairs Department
5.	Sustainable Development Initiative (SDI)
6.	UNDP, Malawi
7.	UNHabitat, Malawi

Annex 3. Tool for the analysis of coherence in DRR and CCA documents

Thematic areas	Level of integration (limited; partial; substantial)
<p>1. Strategic (vision, aim, goals and principles) - Goals and priorities sets the ambitions of national policies and strategies. As such, they can guide actions and activities towards the achievement of coherence. This thematic area looks at the extent to which the document explicitly aims at strengthening relationships and linkages between DRR and adaptation fields</p>	
<p>1.1 Does the document refer to global and regional processes for DRR and CCA? (Vertical integration)</p>	
<p>SFDRR Paris Agreement Agenda 2030 Agenda 2063, The Africa we Want</p>	
<p>1.2 Does the document address DRR and CCA in the vision/goals/principles?</p>	
<p>DRR and CCA are addressed jointly (S) DRR/CCA is a cross-cutting themes or one standalone goal (P) Does not address DRR/CCA into the vision/goals/principles (L)</p>	
<p>1.3 Does the document have a stated aim to mainstream DRR and/or CCA into sectors?</p>	
<p>Aims to mainstream DRR and CCA jointly into sectors (S) Aims to mainstream DRR into CCA and vice-versa (P) Aims to mainstream only DRR or CCA into development and other sectoral policies and plans, but doesn't specify which sector (L)</p>	
<p>2. Conceptual - The conceptual thematic area looks at the extent to which the document links the core concepts of DRR and adaptation notably through their definitions and the notion of risk (hazard, exposure, vulnerability).</p>	
<p>2.1 Does the document establish the links between disaster and climate change risks?</p>	
<p>The document includes a risk assessment with projections of climate change (S) The document refers to the need to link DRR and CCA through risk assessments (P) The document recognizes that climate change is one risk factor, increasing frequency and intensity of disaster events (L)</p>	

2.2 Does the document refer to synergies and/or differences between DRR and CCA?

The document refers to synergies and / or differences between DRR and CCA (S)

The document provides definitions of DRR and CCA (P)

The document does not refer to synergies/ differences between DRR and CCA (L)

3. Institutional - This thematic area looks at the extent to which coordination between DRR and adaptation is envisioned, and if/how institutional arrangements support a coherent implementation of activities.

3.1 Does the document refer to a coordination mechanism involving CCA and DRR?

The document refers to a mechanism in place for the coordination of DRR and CCA (S)

The document has an objective to set up a cross-sectoral coordination mechanism to support coherence of DRR and CCA or strengthen an existing sectorial mechanism for coherence of DRR and CCA (P)

The document refers to a coordination mechanism for the implementation of the strategy which mentions the lead DRR or CCA/Environment agency (L)

3.2 Does the document includes references to coordination between DRR and CCA at the decentralized level?

Yes (S)

No (L)

3.3 Does the document identify roles and responsibilities linked to DRR and CCA activities?

The document includes a cross-sectoral plan which details roles and responsibilities for the implementation of DRR and CCA activities (S)

The document does not identify the actors who will be responsible for implementation of DRR and CCA activities (L)

3.4 Does the document identify external actors (UN, NGOs, Funding mechanisms etc.) who support coherence?

Yes (S)

No (L)

4. Operational - The operational coherence thematic area looks at the extent to which measures, actions and activities bring together DRR and adaptation fields.

4.1 Does the document has objectives and activities to boost coherence between DRR and CCA?

The document has activities which aim at aligning methodologies, conducting common risk assessments etc. (S)

The document includes capacity building activities to support the integration of DRR into CCA / CCA into DRR (S)

The document includes an objective to mainstream DRR or CCA into the other fields (P)

The document does not include objectives or activities aiming to boost coherence (L)

4.2 Does the document objectives and activities cover the following areas of work?

Risk knowledge, (e.g. integrating climate change scenarios into DRR strategies for future risk; developing climate impact scenarios etc.) [Prevention]; [Preparedness]

Meteorological information [Preparedness]

Awareness raising, strengthening knowledge of all actors - including the public - on DRR and

CCA and risks [Preparedness]
 Early Warning Systems [Preparedness]
 Contingency planning [Preparedness]
 Safety nets [Prevention]
 Integrate climate scenarios to BBB [Recovery]
 Ecosystems for reduction of risks (Eco-DRR, EBA, NBS) [Prevention]

4.3 Does the document include measures and activities which aims at reducing risks in the following sectors?

Agriculture (livestock and fisheries included)
 Water and sanitation
 Health
 Land use planning and urbanism
 Housing and infrastructures
 Tourism
 Transports
 Industry
 Education
 Energy

4.4 In CCA strategies only, is DRR/DRM is considered as a specific sector?

5. Financial - This area looks at the extent to which strategies include funding strategies and investments which bring together DRR and adaptation.

5.1 Does the document include an estimation of budget in support of joint DRR and CCA activities?

The document includes a joint budget for DRR and CCA activities (S)
 DRR and CCA activities outlined above are budgeted (P)
 The document doesn't include a budget (L)

5.2 Does the document refer to the mobilization of DRR funding for CCA and/or vice versa?

Yes (S)
 No (L)

5.3 Does the document promote the use of financial mechanisms which reduce the impacts of disasters or CC?

The document promotes risk insurance schemes to reduce impacts of climate change / disasters (P)
 The document doesn't promote the use of financial mechanisms which reduce the impacts of disasters and CC (L)

Additional: M&E

Does the strategy include an M&E with indicators for DRR and CCA?

The document includes a joint M&E framework with indicators relevant to monitor DRR and CCA (S)
 The document plans to develop a joint DRR/CCA M&E framework (P)
 No (L)
 For CCA strategies, are Sendai Framework indicators used in the M&E framework?

Does the document refer to an M&E framework which integrates actors in DRR and CCA?

The document includes an M&E framework outlining actors involved, roles and responsibilities for DRR and CCA (S)

The document plans to develop an M&E framework which includes DRR and CCA actors (P)

No (L)

Overall level of integration

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).