1   **Achieving Sendai Framework in Africa: Progress and challenges toward Target E**

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15   **Abstract**

16   Disaster risk reduction (DRR) strategies are critical for formalizing effective disaster risk reduction.
17   The overall objective of this study was to assess the progress the Africa Union member states are
18   making in developing DRR strategies as required by Target E of the Sendai Framework. The study
19   used both qualitative and quantitative approaches where in-depth desk review of DRR strategies and
20   online questionnaires were administered to 53 respondents. The findings shows about 68 % of the
21   AU member states have national strategies and 35 % have sub national strategies but generally there
22   is sluggish progress in updating DRR strategies in accordance with Sendai Framework Target E.
23   Weak technical and institutional capacities, inadequate funds, limited decentralization of DRR and
24   poor governance are key challenges hampering their implementation. Governments in Africa and
25   partners should pay immediate attention to accelerate development of risk-informed strategies to
26   achieve the aspirations of the Sendai Framework.

27

28   **Key words:** DRR Strategies; Resilience; Sendai Target E; Risk informed-planning

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30

31   **1. INTRODUCTION**
32   Africa countries face a myriad of development challenges from poverty and environmental
33   degradation to rapid population growth and urbanization that they are struggling to surmount though
34   development planning. These development challenges interact with natural and human induced
35   hazards to create disaster risks which have potential cascading impacts across the continent (Fraser
36   *et al.,* 2017). Building societal resilience to prevent losses and damages to assets and livelihoods
37   from disasters is a major concern of the disaster risk reduction strategies and plans. The Sendai
38   Framework for Disaster Risk Reduction (SFDRR) 2015-2030, adopted by 187 UN member states at
39   the third World Conference for Disaster Risk Reduction in Japan in 2015 has commitment
40   governments to develop and implement their strategies, policies and plans. The aim of the Sendai
41   Framework stated as a goal is to '*substantial reduction in disaster risk and losses in lives, livelihoods*
42   *and health and in the economic, physical, social, cultural and environmental assets of persons,*
43   *businesses, communities and countries'.* The stated outcome is ' Prevent new and reduce existing

44 disaster risk through the implementation of integrated and inclusive economic, structural, legal,
45 social, health, cultural, educational, environmental, technological, political and institutional measures
46 that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for
47 response and recovery, and thus strengthen resilience' (UNISDR, 2015). Implementation of the
48 Sendai Framework is expected to mutually reinforce the implementation of the Sustainable
49 Development Goals (SDGs), the Paris Agreement and further contribute to achieving Agenda 2063
50 commitment 'The Africa we want' (UNDRR, 2019; Manyena, 2016). The progress in achieving the
51 stated goal and outcome is progressively being monitored by seven targets and four priorities of
52 action.

54 Africa Union (AU), in consultation with her member states and stakeholders, revitalized their
55 commitment to the implementation of the Sendai Framework by updating the Programme of Action
56 (PoA) to be in line with the Sendai Framework. The PoA that was later endorsed by the member
57 states, received overwhelming support by the Africa Heads of States and Governments as means of
58 stepping up efforts to achieve sustainable development and address disaster risks in a holistic manner
59 in the continent (AU 2017). In line with the Sendai Framework, PoA requires collaborative
60 engagement of various stakeholders such as Non-Governmental Organizations (NGOs), the
61 academia, research organizations, the media and donors among others to work in tandem in
62 supporting governments to implement the strategies (6)van Niekerk, 2020). In 2018, for instance, the
63 Intergovernmental Authority on Development (IGAD) developed their regional strategy in
64 consultation with a variety of stakeholders where the author also participated. Member states are
65 required to develop their strategies in line with the Sendai Framework, the PoA and the sub regional
66 strategies. The AU with six economic communities plays a strategic guidance role to the member
67 states in development and implementing the strategies in line with the Sendai Framework (AUC,
68 2016).

70 The global assessment report on disaster risk reduction of 2019 (UNDRR, 2019a) emphasizes that
71 the member states who endorsed the Sendai Framework have the primary and overall responsibility
72 of designing and implementing these strategies. They can are required work collaboratively with
73 other stakeholders from civil society organizations, private sector and development organizations in
74 the design and implementation of the strategies. Depending on the context of the country, the DRR
75 frameworks can take many forms such as disaster laws, policies, regulations, strategies and plans.
76 The plans or strategies form the basis of understanding disaster risks, assigning responsibilities to
77 stakeholders, allocating resources for resilience building and enhancing gender equity and the
78 involvement of persons who are more exposure and vulnerable to the disaster impacts (UNDRR,
79 2019b).

81 This paper discusses the progress the member states of the AU are making in achieving the Sendai
82 Framework Target E. According to the SFDRR, Target E was required to be achieved by 2020 so
83 that it can guide implementation of other DRR activities that can contribute to reducing risks and
84 strengthening resilience. The paper first discusses the risk profile of the continent, then the concept
85 of DRR strategies and the critique to DRR strategies in the Africa context. Materials and methods are
86 presented in section 2 together with variables for measurement. The findings and discussions section
87 are presented in section 3 followed by key conclusions.

88
Disaster risks and vulnerabilities in Africa

90 Africa has made remarkable strides in economic growth averaging 4.5 per cent in the last two decades.
91 There has been remarkable improvements in life expectancy, school enrolment, and reduction in
92 infant mortality since the turn of the century. The continent has a huge potential of economic growth
93 with Gross Domestic Product (GDP) projected to hit over USD 20 Trillion by 2040 with youthful
94 population driving the growth (UNECA, 2015). However, these development gains are under serious
95 threat by disaster and climate change risks. The continent is exposed to a wide range of hazards
96 mainly hydro meteorological such as floods, drought, landslides, storms and cyclones. Besides, the
97 continent is exposed to small and every day hazards such as fires, localized floods, road crashes and
98 pest and disease outbreaks that cannot be ignored as they cause a lot of human suffering. These
99 disaster risks are deeply rooted in the continent's inequality, environmental degradation, poorly
100 planned but rapidly urbanizing settlements, state fragility and population explosion (Fraser *et al.,*
101 2017). Consequently, this has seen the disaster incidents to exponentially grow in Africa. Records
102 from EM-DAT statistics show that Africa is exposed to and suffered over 20 disasters with the eastern
103 and southern Africa recording the most disaster events and sustaining the greatest losses in lives and
104 economic aspects particularly in the period 2015-2019 (AUC, 2019; Figure 1). Disaster risk is
105 conceptualized to depend on the interaction of these natural or human induced hazards with
106 vulnerable populations, livelihoods, assets or the environment to culminate into a disastrous event
107 (IPCC, 2012).

108
109 For decades, drought disaster has continued to have devastating impact on people, livelihoods and
110 economies particularly in the eastern, southern and western parts of the continent. For instance in the
111 period 1900 – 2013, the continent witnessed 642 drought events that affected nearly 2 billion people
112 and killed 11.7 million people (Masih *et al,* 2014). In the Eastern Africa region between 1900 – 2017,
113 over 100 drought events, fuelled by climate variability and change have occurred, affecting 217
114 million people and claiming 572 000 lives (Haile *et al,* 2019). Moreover, in the recent past there has
115 been more severe and sustained droughts events of continental scale. These include the 1999–2002
116 drought in northwest Africa, the Sahelian droughts of 1970s and 1980s, the 2010–2011 drought in
117 the Greater Horn of Africa (HoA), the 2001–2003 drought in southern and south-eastern Africa, with
118 evidence suggesting multi-year occurrence of drought in a a single decade (EMDAT, 2020). The
119 impact of drought is projected to increase in frequency and intensity by up to 54 percent by end of
120 the 21st century as a result of climate change thereby putting development gains in the continent at
121 risk (Haile *et al.,* 2019). This has serious implications in development as it may worsen food security,
122 undermine progress educational, weaken agriculture and livestock sectors and stagnate economic
123 growth in the continent unless appropriate strategies are designed and implemented to mitigate the
124 effects of droughts and disaster risks.
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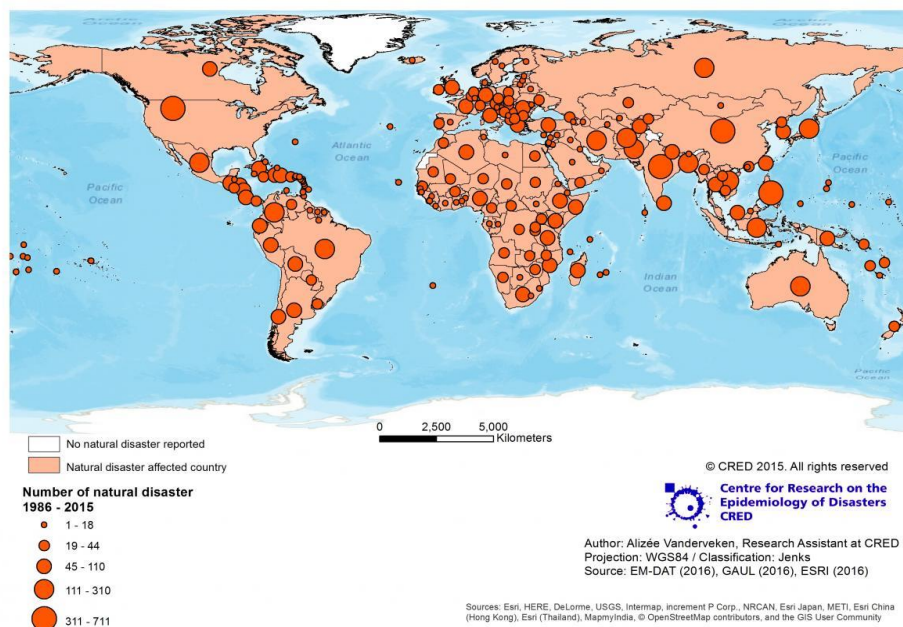
Figure 1: Global disasters (1986-2015 (Source: AUC Biennial report on the implementation of the Sendai Framework in Africa).

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131

It is instructive to note that majority of the people impacted by disasters are the vulnerable and the poorest in the communities living on less that two dollars day. These vulnerable populations live in flood plains, coastal areas, hillsides, riversides and other high risk areas where they face a double burden of disaster risks and uneven development. This was clearly highlighted by the devastating impacts of cyclone Idai and Kenneth that hit Mozambique, Malawi and Zimbabwe in early 2019 where over 1,300 mortalities were recorded and another 3 million directly affected (Pelling and Garschagen, 2019). Most of the affected were the poor whose daily income was less than USD 1.9, lived in remote isolated places and in coastal settlements that were completed cut off from emergency services. This further aggravated the pre-existing vulnerabilities and poverty. Similarly, in Nigeria studies by Hallegatte & Rozenberg (2017) demonstrated that the poorest 20 per cent are 50 more likely to be lose their lives, livelihoods and assets as a result of drought thereby further exacerbating their vulnerability to shocks. The number of poor people living in extreme poverty is estimated to be on the rise in Africa and is projected that it is nearly 9 in 10 people will be living in sub Saharan Africa (World Bank, 2018), despite projected economic growth. This people are often disproportionately affected by disasters losing more of their wealth and less likely to cope and recover from hazard impacts highlighting the urgent need for their inclusivity in development planning to bridge the gap.

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Thus, the continued rise in disaster risks as demonstrated by the damages and losses from recent

151 disasters is attributed to high vulnerability of the population, poverty and weak economies and is
152 worsened by minimal coping capacities. Besides, the rapid population growth, poorly planned
153 urbanization and climate variability and change is likely to make disaster risks complex and
154 complicated (UNDRR, 2019b). This has seen persistent escalation in the continental disaster risk
155 index from an average of 4.8 in 2015 to 5.4 in 2019 and the continent hosting over 10 ten countries
156 in the top twenty out of 194 countries amidst developmental challenges and rising inequality
157 (INFORM, 2020).

158

159 Disaster risk reduction strategies
160 Disaster risk reduction (DRR) strategies or frameworks are the cornerstone of reducing disaster risks
161 and setting a formal strategic direction for building societal resilience to disasters and climate change
162 risks. They are essential to cement the roles and responsibilities of various stakeholders involved in
163 disaster risk management such as the governmental and development agencies, private sector, civil
164 society organizations that are involved in DRR activities with active support and involvement of local
165 communities who are most affected by disasters (IFRC, 2013). This is also reflected in the SFDRR
166 2015-2030 that provides for a clear policy pathway in guiding countries and communities to
167 substantially reduce the effects of shocks caused by natural and human-induced hazards by 2030
168 compared to the 2005 - 2015 period (SFDRR, 2015). The DRR strategies or frameworks are tools
169 that supports risk-informed planning and aids planners and decision makers to mainstream DRR into
170 local and national development frameworks (UNDRR, 2017a). Thus, they are key in guiding and
171 making integrated coherent plans and actions at both the national and level.

172

173 An effective DRR strategy should have clear targets, timelines and indicators to measure progress
174 toward reduction of risks in the community. Additionally, the strategies should aim to reduce existing
175 risk and new risk and provide mechanisms for managing residual risks where all-of-society
176 engagement is required through a coherent and comprehensive action to achieve societal resilience
177 (UNDRR, 2017a). According to Target E of the Sendai Framework governments were required to
178 substantially increase the number of local and national DRR strategies and plans by 2020 that needs
179 to be designed by addressing ten points to achieve Target E (UNDRR, 2015; UNDRR, 2017b). The
180 extent of integrating the ten points, that is supporting monitoring progress in Target E, is measure of
181 degree of alignment to the Sendai Framework which can also measure the quality of the strategies.
182 The ten-point scale can be framed as questions to probe the quality of developed policies and
183 strategies are:

184   i.   If the policy has timescales and indicators and targets
185   ii.   If it aims at reducing new risk
186   iii.   If it aims at preventing the creation of new risk
187   iv.   If it aims at strengthening economic, social and environmental resilience
188   v.   If it addresses priority number 1
189   vi.   If it addresses priority number 2
190   vii.   If it addresses priority number 3
191 viii.   If it addresses priority number 4
192   ix.   If it promotes policy coherence
193   x.   If it has mechanism for follow up and reporting.

194 There is consensus among many DRR practitioners that developing and implementing of DRR

195   strategies and plans in an integrated manner is crucial to reduce disaster risk in a comprehensive
196   manner, a key outcome for AU member states in their sustainability trajectory. They should be
197   developed to address the ambitions that are reflected in the Agenda 2063: The Africa we want, the
198   Sustainable Development Goals (SDGs) and the Paris Agreement in coherent manner. These
199   strategies and plans should embody the vision of the people and communities in relation to disaster
200   risks, in line with the development objectives and priorities of the continent (UNDRR, 2017a; Peters,
201   2018; Fraser *et al.,* 2017).   Based on how they address disaster risk, the DRR strategies and policies
202   promoted by the Sendai Framework can be categorized into three. These are: (a) DRR strategies and
203   plans that prevent creation of new disaster risks through prospective disaster risk management
204   activities focus on reducing risks that may develop in the future if DRR strategies are not put in place;
205   (b) DRR strategies and plans that focus on reducing existing disaster risk through corrective disaster
206   risk management activities which are meant to remove or reduce disaster risks that are already present
207   and which need to be managed and reduced now through structural or non-structural measures; and
208   (c) Strategies and plans that address residual risk in the community through compensatory disaster
209   risk management activities which focus on building the environmental, health, social and economic
210   resilience of individuals and societies in the face of anticipated residual risk through preparedness,
211   response and recovery interventions and measures (UNDRR, 2017a).
212
213   Further research by the IFRC (2013), Wisner *et al.,* (2012), van Niekerk (2015) and Nyandiko, 2020
214   validate the importance of DRR legislation, policy and/or plan and emphasize the significance of
215   adequate disaster risk governance, involvement of decision makers and political leaders, effective
216   decentralization of DRR and strengthening of institutional capacities. These researchers particularly
217   highlight the importance of de-centralizing disaster risk reduction measures to sub national and
218   community levels where the effects are most pronounced due to the location and concentration of
219   vulnerable populations and assets that require corrective and prospective disaster risk management
220   measures. Decentralization of DRR has also potential to address marginalization of communities,
221   enhance conflict resolution, reduce inequality and augment provision of goods and services (Oloo,
222   2007; Amolo, 2010). The other reason advanced for decentralization for DRR is that it is effective
223   in promoting productive efficiency, promotes pro-poor policies, encourages participation of the at
224   risk communities and promotes transparency and accountability in governments (Nyandiko, 2020).
225
226   It is important to note that we are already past the year 2020 when Target E was set to be achieved.
227   As we proceed toward 2030 countries need to be supported to accelerate the implementation of the
228   DRR strategies developed to meet the ambition of Target E which contributes to achieving the SDGs
229   in Africa. Given that most countries in the continent suffer from acute governance and fragility
230   challenges that would divert attention from investing in DRR, there is need to address the interlinked
231   challenges of DRR, conflict and state fragility as well as climate change. This can be achieved with
232   the support of the development partners, academic and the civil society in a comprehensive and
233   integrated manner as critical enablers for building resilience in Africa (Peters, 2018).
234
235

236   **Gaps in DRR strategies and plans or frameworks**
237   Studies have has shown that many DRR strategies are deficient in embracing decentralization,
238   inadequate in providing for community participation, lack coherence with the Sustainable

239 Development Goals and other development frameworks. Besides, majority of the existing DRR
240 strategies have been found to focus on managing disasters, lack comprehensive measures for risk
241 management and are generally wanting in clarifying roles and responsibilities of the many
242 stakeholders involved in DRR (Van Niekerk, 2015; Nyandiko, 2020). A number of DRR strategies
243 in Africa have been found not actionable due to lack of dedicated resources for their implementation,
244 have limited technical and institutional capacities and lack ownership from national and local leaders
245 (UNDRR, 2017a; Manyena, 2016). Additionally, some DRR strategies have shown to lack an
246 inclusive and transparent governance mechanism at national and local levels.

248 Research has also shown that the first step in developing and implementing DRR strategies is the
249 establishment of a coordination mechanism or identifying and enhancing an existing one at both
250 national and community levels. In many countries and some sub-national governments a coordination
251 mechanism focused on DRR issues such as the National Platform for DRR or Local Platform for
252 DRR is operational such as Kenya but deficiency in technical knowledge for DRR is hampering its
253 effectiveness (Pelling and Holloway, 2006; Nyandiko, 2020). Most of the DRR strategies and plans
254 in Africa seek to be aligned to the global Sendai framework as well as the continental Programme of
255 Action (PoA) that is guiding the AU and the member states towards building disaster resilience in the
256 continent. Given that there is evidence of continued impact of the disasters on economies, assets,
257 people and livelihoods in the continent, the relevance of these global and continental policy
258 frameworks in contributing to effective risk reduction in Africa is highly being questioned. According
259 to the Risk Inform Index most countries in Africa have shown significant increase in the risk index
260 due to increased exposure of assets and livelihoods and partly because of increased frequency and
261 intensity of hazards driven by climate variability change (INFROM, 2020; AUC, 2019). Somalia,
262 South Sudan, Central Africa Republic and Congo top the list of countries in the continent with the
263 highest risk index from the East Africa Community (EAC) and Inter Governmental Authority on
264 Development (IGAD) sub regions having the highest risk index (INFORM, 2020). There is urgent
265 need for these frameworks to be coherent and adaptable to the local socio economic circumstances to
266 fully exploit on the opportunities geared towards building disaster resilience in the continent (Oxley,
267 2015).

269 However, DRR strategies and plans or frameworks alone are not enough in building the expected
270 societal resilience to shocks and stresses. It is the adoption and proper implementation of these
271 strategies that will determine their effectiveness, and how well countries and communities can
272 progress towards the Sendai Framework targets to reduce damage and losses. The losses are
273 envisaged through reduction in loss of lives (Target A), affected persons (Target B), economic losses
274 (Target C) and damage to critical infrastructure and disruption of basic services (Target D). As
275 mentioned earlier, insufficient resources, shortage of skilled personnel and poor governance are the
276 critical factors that hinder implementation of DRR strategies and measures and achieving sustainable
277 development in Africa (Pelling, 2006; Nyandiko, 2020). Achieving good governance in Africa is
278 particularly challenging and is at the root of supporting development of risk- informed DRR strategies
279 and measures. Leadership that is enlightened on disaster risks and information, which the DRR
280 strategies and frameworks should strive to promote, inform good governance.

2. MATERIALS AND METHODS

283
284 This study assesses the progress countries are making to develop risk informed DRR strategies,
285 policies and plans and the attendant obstacles and drivers to their development and implementation
286 in Africa.   The nature of the study necessitated use of a mixed methods approach where both
287 qualitative and quantitative data were utilized. The overall objective of the study was to document
288 the progress Africa is making towards achieving Target E. Data was collected through online
289 questionnaires administered to member states focal persons during regional workshops and
290 supplemented with interviews and documentary reviews. Further systematic review of a sample of
291 the AU member states DRR policies and strategies complemented findings from the KIIs.
292
293 The main focus was a sample of 18 countries who are member states of the AU who have committed
294 to submit period progress reports on the development and implementation of DRR strategies and
295 measures in order to meet the goal of achieving Tart E of Sendai Framework. The increasing
296 frequency and intensity of large scale hazards have reinforced the drive by these countries to develop
297 and implement the strategies and plans. Most of the countries sampled experience a wide of hazards
298 and varying socio economic profiles. Floods are most prevalent in the Economic Community of West
299 African States (ECOWAS) sub region, drought and floods being more prevalent in the Inter
300 Governmental Authority on Development (IGAD), epidemics and floods are prevalent in the
301 Economic Community of Central Africa States (ECCAS) sub region while cyclones and drought are
302 common in the Southern Africa Development Community (SADC) sub region. The increasingly
303 urbanizing Africa is also showing growing concentration of disaster risks   (ECOWAS, 2016; IGAD,
304 2019; Fraser *et al.,* 2017). These countries also diverse socio economic challenges and population
305 dynamics suggesting that the process of development the DRR strategies or pans need to consider
306 these peculiarities.
307
308
309 The questions probed examined the relevance and scope of the policies or strategies, barriers and
310 drivers to their design and implementation. Some of the questions that were in the online
311 questionnaire administered to the DRR focal persons are: (1) Does your country have a DRR
312 policy/strategy? (2) Does your country have DRR legislation? (3) Does your country have
313 legislation/policies that seek to address the global and continental DRR target to reduce disaster
314 mortality? (4) Does your country have national legislation/policies that seek to address the global and
315 continental DRR target to reduce the number of people affected by disasters? (5) Does your country
316 have a local DRR strategy policy/strategy/plan? How was it developed? (6) What are the challenges
317 to the design and implementation of the DRR strategies in your country?
318
319 **Analytical framework for design and implementation of DRR strategies**
320 The analysis of the framework for this study was guided by the Sendai Framework. Taking
321 cognizance that a DRR framework requires strategic effort to formulate and implement, a number of
322 critical elements are envisioned as shown in Table 1.
323
324
325
326

327
328   Table 1: Analytical framework
329

Strategy aspect	Issue to examine
Understanding risk	The extent strategy is based on comprehensive understanding of risk, underlying risk factors, connectedness and impacts. To examine such things as: • Existence of clear goals and targets • Undertaking risk assessments • Awareness creation, education, training and research to support evidence basis of the strategy • Risk information and impacts
Governance	The extent there is a strong governance mechanisms to facilitate the passage of DRR strategy and its full implementation such as: • DRR institutions established and anchored at highest level of government • DRR staffing with adequate knowledge and skills • DRR platforms for coordination • DRR parliamentary caucus for advocacy
Financial resources	Stable and adequate financing plan for implementing the strategy/framework: • Clear budget lines for DRR available • Risk transfer mechanisms • Risk-informed planning and development
Technical & institutional capacities	• DRR scientific expertise and skills • DRR Institutional capacities • Other existing capacities such as private sector and academia
Monitoring and Reporting	• There is an established a mechanism to monitor implementation and progress

330
331

332   The paper also benefited from review of the Bi-annual Report on the Programme of Action (PoA) for
333   the implementation of Sendai Framework for DRR in Africa was used (2015-2018).

334

335   **3. RESULTS AND DISCUSSION**
336   The aim of this is study was to investigate the progress AU member states are making in developing
337   and implementing national and local risk informed DRR frameworks by 2020. The Sendai
338   Framework and the SDGs markedly recognize the importance of the national and local DRR
339   strategies. For example, the DRR strategies are also intended to deliver on monitoring the
340   implementation of SDGs where Target E1 is contributing to SDG Goal 1 Target 1.5; Goal 11 Target
341   11.5 and 11b and Goal 13 Target 13.1. Secondly, the Sendai Framework indicators are aiding to
342   measure achievement of Target E: (1) Number of countries that adopt and implement DRR strategies,
343   and (2) Percentage of local governments that adopt and implement local DRR strategies and plans.

344

3.1 Achievements in national DRR strategies and plans

345

346 The research found that 88% (44) of the fifty AU member states that responded to this questionnaire
347 reported to have developed or developing at least a DRR framework. Majority of the DRR strategies
348 (80%) were reported to be addressing the global and continental target of reducing the number of
349 people affected by disasters. 93 % of the countries reported to have an institution responsible for
350 DRR matters, whereas 62 % have DRR parliamentary caucuses (Table 2). Further analysis of a
351 sample of DRR strategies shows that a number of the frameworks were developed before 2015 and
352 thus assumed to be aligned to HFA and are currently being updated in line with the SFDRR
353 requirement (Table 3). The member states also have overarching DRR legislation, action plans and
354 other frameworks that guide the implementation of risk reduction activities such as in Nigeria, South
355 Africa, Gambia, Ghana and Kenya.

356

357 Table 2: Achievements in DRR strategies in Africa

358

Aspect	Yes (%)
Does your country have a national DRR/DRM policy or legislation?	88 %
Does your country have a national DRR Strategy/Plan?	65 %
Does your country have legislation/policies that seek to address the global and continental DRR target to reduce disaster mortality?	79 %
Does your country have legislation/policies that seek to address the global and continental DRR target to reduce the number of people affected by disasters?	80%
Does your country have legislation/policies that seek to address the global and continental DRR target to incorporate DRR in the country's educational systems at all levels?	74 %
Does your country have legislation/policies that seek to address the global and continental DRR target to reduce economic loss due to disasters?	65 %
Does your country have legislation/policies that seek to address the global and continental DRR target to increase funding for DRR?	71 %
Is there a government institution/s responsible for Disaster Risk Reduction/Disaster Risk management?	93 %
Does your country have a national DRR/DRM Platform?	81 %
Does your country have a parliamentary subcommittee dealing with DRR issues?	62 %

359 Source: Member states reporting to the questionnaire

360

361 Further analysis of 17 DRR strategies and plans from the member states indicates that five were
362 adopted before 2015 and therefore can be assumed to be aligned to the Hyogo Framework for Action
363 (HFA). Thus, it can be assumed that six out of 15 policy frameworks sampled from Africa (Djibouti,
364 Gambia, Ethiopia, Rwanda and Uganda) are yet to be aligned to the Sendai Framework since they
365 were developed before 2015 (Table 3). Ten policy frameworks (about 65 %) have or being developed
366 after the adoption of the Sendai Framework thus it would be assumed they are aligned though some
367 are at drafting stage (Ghana, Sudan, South Sudan, Somalia and Tanzania are in drafting stage). The
368 major outstanding feature of these policies or strategies if they are correctly aligned to the Sendai
369 Framework compared to the predecessor, the Hyogo Framework for Action, is the extent they seek

370 to reduce existing risk, prevention of new risk, management of residual risk and building-back-better
371 in response and recovery (UNDRR, 2015).   Generally, this research demonstrates good progress is
372 being made by AU member states towards developing policy frameworks as required by the Sendai
373 Framework but is sluggish in a number of countries.
374
375 Table 3: Analysis of some DRR frameworks in Africa
376

Country	Name of the policy/strategy plan	Status of the policy	Year of adoption/version	Implementing institution	Type of the framework
Burundi	National Disaster Risk Management Policy	Adopted	2018	Ministry of Security and Disaster Management	Policy
Djibouti	National Strategy for Risk and Disaster Management (2005)	Adopted	2005	Not determined	Strategy
Gambia	National Disaster Management Policy	Adopted	2005	National Disaster Management Agency (NDMA)	Policy
Ethiopia	Disaster Risk Management Policy-Ethiopia	Adopted	2013	National Disaster Management Commission (NDMC)	Policy
Ghana	Draft National Policy on Disaster Risk Reduction	Draft	2019	National Disaster Management Organization (NDMO) in Ministry of Interior	Policy
Kenya	National Disaster Risk Management Policy for Kenya	Adopted	2017	National Disaster Operation Centre (NDOC) in Ministry of Interior	Policy
Madagascar	Stratégie Nationale de Gestion des Risques et des Catastrophes (2016) (2016-2030)	Adopted	2016	The National Council for Risk and Disaster Management (CNGRC)	Strategy
Malawi	National Resilience Strategy	Adopted	2018	Department of Disaster Management Affairs	Strategy
Nigeria	National Policy on Disaster Risk Management Policy	Draft	Draft (2018	National Emergency Management Agency	Policy

				)	(NEMA)	
Rwanda	National Disaster Management Policy	Adopted	2012	Ministry of Disaster Management	Policy
Sudan	Draft National Disaster Risk Management Policy (2018)	Draft	Draft (2018)	Humanitarian Aid Commission (HAC)	Policy
South Africa	National Disaster Management Act	Adopted	2005	National Disaster Management Centre	Legislation
South Sudan	National Strategy for Disaster Risk Management in South Sudan	Draft	Draft (2019)	The Ministry of Humanitarian Affairs and Disaster Management	Policy
Somalia	Draft National Disaster Management policy	Draft	Draft(2017)	The Ministry of Humanitarian Assistance and Disaster Management (MoHADM)	Policy
Tanzania	National DRR Strategy	Draft	Draft(2018)	Disaster Management Department in the Office of the Prime Minister	Strategy
Uganda	National Policy for Disaster Preparedness and Management	Adopted	2010	Department for Disaster Preparedness and Response	Policy

377

378 DRR strategies and plans are critical tools for shaping comprehensive risk management through
379 stand-alone or through sectoral DRR frameworks. Sectoral plans or strategies such as land use,
380 infrastructure, health, agriculture and environmental among many others, for example, can also play
381 a significant role to reduce risks in the sectors. Regulating land use by adopting good building codes,
382 for example, through government sectors responsible for urban and land use planning have shown
383 capacity to reduce disaster risk that governments need to make. They can address many disaster risks
384 such as seismic risk or underlying disaster risks as a result of rapid urbanization and construction of
385 buildings that does not meet safety standards in the continent (Kioko, 2014).

386

387 Interviewees reported and in congruence with Kioko (2014) that a number of non-approved buildings
388 such as housing and public infrastructure projects have shown to pose the risk of collapse due to a
389 variety of reasons. The factors responsible for the poor state of the construction industry in Africa
390 include faulty design, use of poor concrete mix ratio, limited planking and strutting, too wide column
391 spacing cost cutting by constructors and changing recommended concrete mix ratio among other
392 reasons. Countries in the continent, for instance, can enhance resilience of the build environment by
393 strengthening the capacity of the responsible sector to regulate and enforce the building codes and
394 land use plans in urban areas, train artisans involved in the construction of buildings and ensure there
395 is compliance with the required construction standards (Kioko, 2014). In agriculture sector, adopting
396 new technologies and crop varieties that are resilient to climate variability and change and drought

397 can contribute to enhancing food security and resilience to sustainable development in Africa's dry
398 lands (Omoyo, *et al.,* 2015). This observation raises serious concern on the extent sectoral strategies
399 and plans are appropriately designed and implemented to complement the existing standalone DRR
400 strategies and frameworks in the continent to support effective disaster risk reduction efforts.
401 In-depth analysis of the national DRR frameworks indicates most lack important elements as required
402 by Target E of the Sendai Framework. Target E has ten elements for the two indicators on developing
403 DRR strategies that aim to measure improvements in the existence and quality of actionable public
404 policy on national and local disaster risk reduction strategies or legislation. The DRR strategies,
405 among other elements, should have well defined goals and objectives across different timescales with
406 concrete targets, indicators and clear reporting arrangements. The policy frameworks for Djibouti,
407 Kenya, Uganda, Ethiopia and Gambia, for example, lack indicators, timeframes and reporting
408 arrangements. Disaster risk management corrective measures are not elucidated while the activities
409 are inclined toward disaster response. This is in congruent with the opinion of majority of the
410 interviewees from the DRR focal points who reported that resources for risk prevention and
411 management are not earmarked but only for response in the national budgets and in most instances
412 they are diverted to other sectors that have higher political profile compared to DRR (Pelling and
413 Garschagen, 2019). This raises concern on the level of risk awareness among political and decision
414 makers in Africa despite showing commitment in the adoption of the Sendai Framework and the PoA.
415
416 Moreover, in line with the Sendai Framework, some of these strategies do not have a clear mechanism
417 for monitoring and reporting and there is do not mention on measures for corrective risk management
418 in the various sectors (UNISDR, 2017a). This would hamper proper monitoring in the progress the
419 countries are making toward achieving the Sendai Framework goal, outcome and Targets. The
420 framework documents do not recognize the sectors that are risk sensitive and vulnerable to losses
421 such as infrastructure, livestock, agriculture, water and housing so that preventive risk reduction
422 measures are designed. This is a clear lack of attention to priority 2 and 3 of the Sendai framework
423 and can be attributed to limited understanding of the evolving concept of disaster risk in Africa
424 (Wamsler & Johannessen, 2019). This was also highlighted by the respondents and emerged from
425 analysis of literature. In overall, there are notable weaknesses in drafting these strategies as required
426 by Target E with insufficient inclusion of the basic elements for comprehensive implementation of
427 the risk reduction measures essential for laying the foundation for protecting citizens and economies
428 from the impact of disasters particularly in fragile contexts (Peters, 2018).
429
430 **3.2 Local DRR strategies and plans**
431 The Sendai Framework requires countries to develop and implement DRR strategies and plans to
432 support local level risk reduction measures. Interviews with respondents and analysis of literature
433 highlight the importance of localizing DRR strategies and plans. Local DRR strategies and plans are
434 essential to shape activities and measures that aim at reducing exposure and vulnerability to hazards
435 to local communities where if the disasters occur are most felt and hence action is most needed.
436 Moreover, the tools and approaches to reduce exposure and risk to these hazards are local that requires
437 local actors and communities to engage in order to design and implement effective DRR measures
438 (UNDRR, 2019C).
439
440

441   This research shows that on average 38 % of AU member states have developed sub national policies
442   and strategies. Ghana, Mali and South Africa reported the most substantial progress with all the sub
443   national entities indicating to have developed the required DRR policies and strategies.   The other
444   member states reporting good progress are Benin (58%), Malawi (88%), Niger (88%), Sierre Leone
445   (63%) and Zimbabwe (85%) (Supplementary material, 1). The findings show that Burkina Faso,
446   Chad, Equatorial Guinea and Tunisia have less than 10 % of their sub national authorities with DRR
447   policies/strategies. Closer examination of the sub national policies and strategies from Kenya,
448   Uganda and Gambia show similarity with the national DRR strategies in many fronts such as lack of
449   indicators, timeframes and mechanisms for preventing creation of new risk and reduction of existing
450   risk. Generally, the research finds this performance and progress through developing risk-informed
451   local DRR strategies below average thereby calling into question the commitment by Africa political
452   leaders and decision makers to reducing disaster risk (Kellett *et al*., 2014). This is contrary to the
453   continent's perceived obligation to the DRR agenda when they endorsed the Sendai Framework in
454   2015 and the subsequent adoption of the Programme of Action by AU member states for its
455   implementation in Africa. This finding further demonstrates limited understanding of the concept of
456   disaster risk in these instruments and majority are poorly fully aligned to the Sendai Framework.

458   This research concurs with Tiepolo and Braccio (2020) that revealed that most of local level DRR
459   strategies and plans tend to overlook a number of actions. Prominent gaps found in these strategies
460   are lack of actions to deal with small scale disasters in the community, avoidance of risk transfer
461   mechanisms, absence of actions to address fires and lack of initiatives to manage road traffic
462   accidents/crashes. The other missing actions in the strategies are coastal flooding as a result of sea
463   level rise, urban flooding, collapse of buildings, absence of crop and livestock insurance, windstorms
464   and dust storms among others. It is important to note that sub-national strategies are essential
465   instruments for addressing such localized small scale but frequent disaster risks as they accumulate
466   over time under the influence of hazard exposure and vulnerability and driven by the socio economic
467   characteristics of the local area. Conducting a comprehensive hazard and risk profile of the local area
468   should be the starting to a better understanding and development of the local DRR strategies and
469   plans (UNDRR, 2019c). The design and implementation of policy frameworks should be undertaken
470   in consultation with stakeholders drawn from government, private sector, civil society organizations
471   and the vulnerable persons in the community is critical in reducing exposure of people, assets and
472   livelihoods to the devastating impact of hazards (UNDRR, 2019).

474   This calls for countries in Africa to accelerate the design and implementation of local DRR strategies
475   given that disaster risks are local phenomena and their impacts are often most intensely felt in local
476   areas where the governments and the citizens can best engage to address them (UNDRR, 2019c).

478   **3.3 Challenges to design and implementation of DRR strategies and plans**
479   Analysis of the frameworks revealed that majority have elaborated mechanisms for resource
480   mobilization to fund DRR interventions. Most of the models for mobilizing funds advocated in the
481   DRR frameworks are falling into three main categories: (a) risk retention modalities where the
482   ministry responsible for finance or treasury allocates standalone budget for the implementation of
483   DRR activities such as the case in Malawi, Uganda, Ghana and Ethiopia. (b) Contingent budget where
484   there is a dedicated budget line for disaster or emergency response and, (c) risk transfer mechanism

485 where the ministry responsible for finance, in liaison with the private sector or the Africa Union Risk
486 Capacity has an insurance schemes for protection of assets and livelihoods such as crops and livestock
487 in the event of a catastrophe (Kellett *et al*., 2014). Interviews with DRR focal persons cited
488 inadequacy and unpredictability of the funds from the government as a serious impediment for
489 effective implementation of DRR interventions. Interviewees indicated that most of funds are little,
490 unpredictable, inclined toward disaster response, disbursed late and rarely reach the local
491 communities where impact of disasters are felt.

492

493 The little resources dedicated for DRR are evidence of low priority accorded to DRR by decision
494 makers and limited understanding of disaster risk in the continent (Nyandiko, 2020). In some
495 countries where the DRR strategies show some level of inclusivity, such as South Africa, Kenya,
496 Nigeria and Rwanda poor governance and inadequate institutional capacities is persistently
497 hampering implementation of these strategies, thereby making them in-actionable (van Niekerk,
498 2020; van Niekerk, 2015). This is a contradiction to the commitment by the DRR policy and decision
499 makers at continental level through declarations such as Tunis Declaration that was endorsed by the
500 AU Heads of States and Governments to accelerate the implementation of DRR in a coherent and
501 integrated manner in Africa (AU, 2018). Consequently, this results in poorly tailored strategies,
502 policies and plans with limited impact on reducing disaster vulnerabilities and risks (Twigg, 2015).
503 This finding suggests that it is not the number of DRR instruments that are important in the continent
504 but the extent these strategies are enabled with adequate resources from national governments and
505 stakeholders to support their implementation.

506

507

508 The extent the local DRR strategies and plans are mainstreamed into the local level planning and
509 level of genuine engagement of the public in designing and implementing DRR measures is essential
510 in reducing disaster risks and build societal resilience. Interviews with KIIs and analysis of the
511 frameworks and literature from the AU member states reveal that inadequate decentralization and
512 localization of the DRR agenda is another challenge impeding implementation of risk reduction in
513 the continent. Most respondents indicated that inadequate capacity of the local communities, limited
514 understanding of disaster risks and illiteracy are hampering implementation of DRR in Africa. They
515 stressed that local communities can engage in local DRR if they know benefits of the outcome i.e. by
516 understanding that they are at risk from disasters and they play a role to prevent disasters from
517 occurring at the local community (UNDRR, 2019).

518

519 This results implies that increasing awareness and knowledge on DRR to local communities and local
520 decision makers has significant influence to accelerate the adoption of DRR in communities.
521 Interviewees and analysis of the instruments were congruent that funding for DRR is skewed to
522 national level in many countries in the continent such as in Uganda, Malawi, Kenya and South Africa,
523 to name but just a few, with funds earmarked for DRR frequently diverted to other interventions that
524 have higher political profile. They suggested DRR finance to be mainstreamed and integrated across
525 all local sectors such as planning, fiancé, agriculture, water, energy, infrastructure, health and
526 education to ensure sustainable and stable access to adequate funds to prevent creation of new risk
527 and reduce existing risk in the sectors. Another critical challenge is limited provision for horizontal
528 linkages with other local governments and communities to address transboundary risks by

529 harmonizing the approach to DRR within diverse local political or administrative boundaries or units
530 (UNDRR, 2019). Despite a number of countries indicating some progress in developing the local
531 DRR strategies and plans, these interlinked challenges suggest that plans or strategies on their own
532 are insufficient to address disaster risks at community level.
533
534
535
536 ### 4. CONCLUSIONS AND RECOMMENDATIONS
537 The study has noted there systematic commitment by most member states in development of DRR
538 policies and strategies to support implementation of risk - informed planning. DRR policies, legal
539 frameworks, national DRR platforms to support coordination as well as dedicated institutions for
540 DRR are in place in most of the member states. However, some countries have yet to develop and
541 align their DRR strategies to the SFDRR one year into the deadline of developing these national and
542 DRR strategies. However, the research has shown that by measuring the number of national and sub
543 national DRR strategies is not enough but it critical to ensure these instruments incorporates the ten
544 elements and should be appropriately aligned to the global and regional frameworks as envisaged in
545 the Sendai Framework. Governments in Africa and partners should pay immediate attention to
546 support develop risk inform policies and strategies and provide the necessary institutional and
547 technical capacities for their implementation in the next ten years.
548
549 Inadequate budgetary allocation was found to be the most significant challenge impeding
550 development and implementation of the DRR policies and strategies by governments in Africa. The
551 research has found that the resources are inadequate, inclined toward disaster response, concentrated
552 at national level and prone to diversion to other sectors that have more political profile. Limited
553 technical personnel to run the various sections of the national disaster offices, weak institutional
554 capacities, limited integration to sectors and low political economy of the DRR agenda at national
555 and local levels are serious bottlenecks affecting their implementation. In some countries the DRR
556 strategies/policies lack a legal framework to back up and reinforce legally the implementation of the
557 DRR policies. The other challenges that need to be addressed include weak synergy between DRR
558 and sectors/planning frameworks such as infrastructure, climate change and health sectors, poor
559 understanding of DRR among the stakeholders and slow implementation of the DRR strategies and
560 policies. It is recommended that stakeholders from development partners, NGOs and UN system
561 should support governments in Africa to invest adequate resources to accelerate the design and
562 implementation of DRR strategies to achieve sustainable development in the continent. Furthermore,
563 there is urgent need to strengthen DRR Monitoring and Reporting systems in the member states to
564 bolster and contribute to transformation of the national disaster offices to be more efficient and
565 competent in designing and implementing risk informed strategies and plans.
566
567 **Declaration of competing interest**
568 The authors declares there is no known competing interest or relationships that would have
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