# Incorporating Disaster Risk Reduction into African Environmental Governance Frameworks for Sustainability

## Kariuki Muigua

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## Kariuki Muigua[*]

## Abstract

*This paper discusses how Africa can incorporate Disaster Risk Reduction into its environmental governance frameworks for sustainability. The paper argues that effective Disaster Risk Reduction is a key priority for Africa due to the continent's high vulnerability to disasters. It posits that the frequency and intensity of disasters in Africa is undermining Sustainable Development by causing loss of human life, economic losses and environmental degradation with the poor and vulnerable being adversely impacted. Despite its high vulnerability to disasters, the paper notes that most African countries are yet to put in place effective Disaster Risk Reduction frameworks thus worsening the risk of disasters in the continent. In light of these challenges, the paper discusses interventions towards incorporating Disaster Risk Reduction into African environmental governance frameworks for sustainability.*

## 1.0 Introduction

Disaster Risk Reduction involves reducing the risk of disasters through systematic efforts to analyze and manage the causal factors of disasters including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and environment and improved preparedness for adverse events[1]. This idea aims at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience against disasters towards Sustainable

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[1] Republic of Kenya., 'National Disaster Risk Management Policy' Available at https://repository.kippra.or.ke/xmlui/bitstream/handle/123456789/559/NATIONAL%20Disaster%20Risk%20Mannagement%20POLICY%20APPROVED.pdf?sequence=1&isAllowed=y (Accessed on 30/09/2025)

Development[2]. It involves policies and actions which seek to manage and transfer residual risks and to minimize losses and damages during hazardous events[3]. Disaster Risk Reduction can therefore be understood as a concept and practice of reducing disaster risks through systematic efforts to analyse and reduce the causal factors of disasters[4].

Effective Disaster Risk Reduction is vital in fostering sustainability. It has been pointed out that countries all over the world are facing increasingly severe natural events, driven by extreme weather and risk-blind planning[5]. Environmental and human-induced factors including climate change, poor urban planning and lack of disaster preparedness, are increasingly fuelling natural hazards, such as earthquakes, floods, volcanic eruptions and tsunamis with serious implications on both people and planet[6]. It has been argued that disasters often follow natural hazards and they are a result of the combination of factors including the prevalence of hazards, the conditions of vulnerability and of the insufficient capacity or measures to reduce the potentially negative consequences of the hazard[7]. Disasters often lead to loss of human life, economic losses and environmental degradation[8].

According to the United Nations, disasters are a growing threat to economic prosperity and Sustainable Development due to their huge human, financial and environmental costs[9]. Further, it has been pointed out that disaster costs are pushing countries into

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[2] International Organization for Migration., 'Taking Sendai Forward: IOM Strategic Work Plan on Disaster Risk Reduction & Resilience' Available at https://www.iom.int/sites/g/files/tmzbdl486/files/our_work/DOE/humanitarian_emergencies/Disaster-Risk-Reduction-Strategic-Action-Plan.pdf (Accessed on 30/09/2025)

[3] World Meteorological Organization., 'Disaster Risk Reduction (DRR)' Available at https://community.wmo.int/en/activity-areas/drr (Accessed on 30/09/2025)

[4] United Nations Educational, Scientific and Cultural Organanization., 'Disaster Risk Reduction' Available at https://www.unesco.org/en/disaster-risk-reduction (Accessed on 30/09/2025)

[5] United Nations., 'International Day for Disaster Risk Reduction' Available at https://www.un.org/en/observances/disaster-reduction-day (Accessed on 30/09/2025)

[6] United Nations Educational, Scientific and Cultural Organanization., 'Disaster Risk Reduction' Op Cit

[7] Ibid

[8] Ibid

[9] United Nations., 'International Day for Disaster Risk Reduction' Op Cit

increased debt, lower incomes, increased insurability, and repeated humanitarian crises[10]. Disasters are also linked to inequalities with developing countries, the poor and vulnerable communities being hit the hardest due to lack of sufficient resources to protect themselves and recover from the impacts of disasters[11]. It has been argued that unequal access to resources and services leaves the most vulnerable exposed to the danger of disasters while the effects of disasters exacerbate inequalities and push the most at risk further into poverty[12].

In light of the foregoing, strengthening Disaster Risk Reduction is key towards ensuring Sustainable Development and protecting the most vulnerable. The United Nation's *2030 Agenda for Sustainable Development[13]* notes that more frequent and intense natural disasters threaten to reverse much of the development progress made in recent decades. It urges all countries to promote resilience and Disaster Risk Reduction[14]. The Agenda notes that Disaster Risk Reduction is key in realizing most of the Sustainable Development Goals (SDGs) including combating poverty (SDG 1), achieving food security (SDG 2), making cities and human settlements inclusive, safe, resilient, and sustainable (SDG 11), and combating climate change (SDG 11)[15].

In addition, the *Sendai Framework for Disaster Risk Reduction* establishes global targets and objectives towards preventing, reducing and managing the risk of disasters for Sustainable Development[16]. Under this Framework, states commit to foster Disaster Risk

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[10] Ibid

[11] Ibid

[12] United Nations., 'Fighting Inequality for a Resilient Future' Available at https://www.un.org/en/observances/disaster-reduction-day (Accessed on 30/09/2025)

[13] United Nations General Assembly., 'Transforming Our World: the 2030 Agenda for Sustainable Development.' 21 October 2015, A/RES/70/1., Available at https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf (Accessed on 30/09/2025)

[14] Ibid

[15] Ibid

[16] Sendai Framework for Disaster Risk Reduction 2015-2030., Available at https://www.undrr.org/media/16176/download?startDownload=20240430 (Accessed on 30/09/2025)

Reduction and the building of resilience to disasters with a renewed sense of urgency within the context of Sustainable Development and poverty eradication, and to integrate, as appropriate, both Disaster Risk Reduction and the building of resilience into policies, plans, programmes and budgets at all levels and to consider both within relevant frameworks[17]. The Sendai Framework identifies four priority actions for effective Disaster Risk Reduction[18]. These are understanding disaster risk; strengthening disaster risk governance to manage disaster risk; investing in disaster risk reduction for resilience; and enhancing disaster preparedness for effective response and to 'Build Back Better' in recovery, rehabilitation and reconstruction[19]. Effective Disaster Risk Reduction is therefore a key global agenda whose achievement is key towards sustainability.

This paper discusses how Africa can incorporate Disaster Risk Reduction into its environmental governance frameworks for sustainability. The paper argues that effective Disaster Risk Reduction is a key priority for Africa due to the continent's high vulnerability to disasters. It posits that the frequency and intensity of disasters in Africa is undermining Sustainable Development by causing loss of human life, economic losses and environmental degradation with the poor and vulnerable being adversely impacted. Despite its high vulnerability to disasters, the paper notes that most African countries are yet to put in place effective Disaster Risk Reduction frameworks thus worsening the risk of disasters in the continent. In light of these challenges, the paper discusses interventions towards incorporating Disaster Risk Reduction into African environmental governance frameworks for sustainability.

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[17] Ibid
[18] Ibid
[19] Ibid

## 2.0 Examining the Need for Disaster Risk Reduction in Africa

Africa is highly vulnerable to both natural and human-made disasters[20]. It has been observed that the occurrence of disasters triggered by natural hazards, the number of people affected and economic losses are rising all over Africa[21]. Adverse climatic and weather events including droughts, flood, windstorms, tropical cyclones, landslides and wildfires, occur most pervasively in Africa and account for most of the people affected by disasters in the continent[22]. Further disease outbreaks including epidemics and pandemics such as HIV/AIDS, malaria and tuberculosis are impacting individuals, households and communities fuelling the risk of disasters in Africa[23].

Climate change has been identified as a major cause of disasters in Africa[24]. It has been argued that climate change is adversely impacting Africa, unleashing more frequent and severe weather events such as droughts and floods increasing the risk of disasters[25]. Adverse climatic events including extreme flooding, droughts and wildfires are intensifying disasters in Africa by causing loss of human life, displacement of populations, death of livestock and wildlife, destruction of agricultural yields, and damage to critical infrastructure and essential services including hospitals, schools and roads[26].

Disasters in Africa have adverse impacts on vulnerable populations including the poor, women, the elderly and persons with disabilities. For example, it has been pointed out

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[20] African Union., 'Africa Regional Strategy for Disaster Risk Reduction' Available at https://www.preventionweb.net/files/7603_AFRICAREGIONALDRRSTRATEGYfullPDF.pdf?startDownload=true (Accessed on 30/09/2025)

[21] Ibid

[22] Ibid

[23] Ibid

[24] African Risk Capacity., 'The State of Natural Disasters in Africa' Available at https://www.inter-reseaux.org/wp-content/uploads/ARC_white_paper_2024.pdf (Accessed on 30/09/2025)

[25] Ibid

[26] Africa Center for Strategic Studies., 'Record Levels of Flooding in Africa Compounds Stress on Fragile Countries' Available at https://africacenter.org/spotlight/record-levels-of-flooding-in-africa-compounds-stress-on-fragile-countries/ (Accessed on 30/09/2025)

that while natural disasters are gender-neutral, their impacts in Africa reveal gender disparities and vulnerabilities, with women being disproportionately affected[27]. This is largely driven by resource constraints and structural factors that place women at greater risk due to inadequate access to the critical information and resources they need for effective disaster preparation, response, and adaptation[28]. Further, the poor and vulnerable communities including indigenous peoples are adversely impacted by natural disasters in Africa due to several factors such as historical marginalization and the lack of adequate financial resources to respond to disasters[29]. Further, the elderly and persons with disabilities are also severely impacted by natural disasters due to reduced mobility which undermines their coping capabilities[30].

The risk of disaster in Africa in Africa is therefore very high with adverse impacts on vulnerable people and communities. African Union's *Agenda 2063*[31] acknowledges the vulnerability of Africa to disasters. It notes that due to its geographic location and low level of technological development, Africa remains highly vulnerable to disasters which usually appear in the form of climate related or hydro-meteorological hazards including droughts, floods and windstorms[32]. Further, Agenda 2063 points out that pest infestation, earthquakes, landslides, wildfire and volcanic eruptions are some of the less frequent form of disasters in Africa[33]. Africa has also in the recent past faced disease outbreaks including epidemics and pandemics such as Ebola and COVID-19[34].

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[27] African Risk Capacity., 'The State of Natural Disasters in Africa' Op Cit
[28] Ibid
[29] Ibid
[30] Ibid
[31] African Union., 'Agenda 2063: The Africa we Want.' Available at https://au.int/sites/default/files/documents/33126-doc-framework_document_book.pdf (Accessed on 30/09/2025)
[32] Ibid
[33] Ibid
[34] United Nations- Habitat., 'COVID-19 in Africa Cities: Impacts, Responses and Policies' Available at https://unhabitat.org/covid-19-in-africa-cities-impacts-responses-and-policies (Accessed on 30/09/2025)

The prevalence and intensity of disasters has negative impacts on Sustainable Development in Africa. It has been argued that disasters in Africa often take a huge toll on vulnerable populations[35]. Loss of life and livelihoods in the face of already existing challenges sets communities back many years leaving them at risk should other natural hazards occur[36]. Disasters lead to the loss of human life, destruction of property including vital infrastructure and services, famine, food insecurity and poverty therefore affecting Sustainable Development in Africa[37]. Natural disasters in Africa also result in environmental degradation, displacement of populations leading to an increase in the number of internally displaced persons and refugees therefore affecting human lives and essential assets required for development[38]. With increased frequency and intensity of extreme climate and severe weather events alongside other disasters, Africa experiences the severe consequences of disasters since resources for development are diverted to finance disaster emergencies[39].

In light of the foregoing, effective Disaster Risk Reduction is vital in fostering sustainability in Africa. However, achieving this ideal remains a challenge in Africa thus intensifying the impacts of disasters in Africa with severe consequences on Sustainable Development. For instance, it has been observed that most African countries suffer from inadequate information to enable risk-informed decisions for effective Disaster Risk Reduction[40]. The national capacity to systematically anticipate, respond and recover from

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[35] United Nations Office for Disaster Risk Reduction., 'Building Disaster Resilience in Sub-Saharan Africa' Available at https://www.preventionweb.net/resilient-africa/home.html (Accessed on 30/09/2025)
[36] Ibid
[37] United Nations Environment Programme., 'Indigenous Knowledge in Disaster Management in Africa' Available at https://www.humanitarianlibrary.org/sites/default/files/2013/07/Appendix9IndigenousBookletUNEP.pdf (Accessed on 30/09/2025)
[38] East African Community., 'Disaster Risk Reduction and Management' Available at https://www.eac.int/gender/114-sector/environment-natural-resources-management/disaster-risk-reduction (Accessed on 30/09/2025)
[39] Ibid
[40] United Nations Office for Disaster Risk Reduction., 'Building Disaster Resilience in Sub-Saharan Africa' Op Cit

disasters in most African countries is low[41]. Further, poverty and low levels of economic growth which hinder access to basic services also worsen the impacts of disasters especially for vulnerable individuals and communities[42].

In light of the foregoing, it is imperative to effectively prevent, reduce and recover from the impacts of disasters in Africa. Strengthening Disaster Risk Reduction in Africa is therefore a key agenda for sustainability.

## 3.0 Incorporating Disaster Risk Reduction into African Environmental Governance Frameworks

There is need to strengthen Disaster Risk Reduction in Africa. Effective Disaster Risk Reduction is key in ensuring that Africa's development achievements are not lost when disasters hit[43]. Disaster Risk Reduction is also key in protecting vulnerable individuals, households, and communities in Africa from the adverse effects of disasters[44]. Natural disasters including floods, droughts, cyclones, earthquakes and landslides are worsening in Africa causing increased mortalities and economic losses[45]. In addition, it has been argued that the risk of disasters in Africa is multi-dimensional in nature[46]. This means that the incidence and interactions between different types of hazards such as floods, droughts, cyclones, earthquakes, landslides and conflicts contribute to the overall risk profile of any given locality, country, region and entire continent[47]. It is therefore imperative to strengthen the capacity of African countries to anticipate, respond and

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[41] Ibid

[42] East African Community., 'Disaster Risk Reduction and Management' Op Cit

[43] The World Bank Group., 'Building Resilience in Africa' Available at https://www.worldbank.org/en/topic/disasterriskmanagement/brief/building-resilience-in-africa#:~:text=The%20World%20Bank%2C%20Global%20Facility,rural%20areas%20throughout%20the%20continent. (Accessed on 30/09/2025)

[44] African Risk Capacity., 'The State of Natural Disasters in Africa' Op Cit

[45] African Union., 'Catalysing Risk-Informed Early Action in Africa: Investing in Multi-Hazard Early Warning Systems to Strengthen Resilience to Disaster Risk' Available at https://au.int/sites/default/files/documents/42530-doc-AUC_DRR_Policy_Brief_2.pdf (Accessed on 30/09/2025)

[46] Ibid

[47] Ibid

recover from disasters in order to foster Sustainable Development in the continent. African countries have been urged to prioritize proactive measures to build a resilient future for all citizens in the continent through sound disaster preparedness and responses[48]. Incorporating Disaster Risk Reduction into African environmental governance frameworks is therefore key for sustainability

The *Sendai Framework for Disaster Risk Reduction* sets out several principles and action areas that can guide African countries in integrating Disaster Risk Reduction into their environmental governance frameworks[49]. The Framework urges states to strengthen the understanding of disaster risks; invest in disaster risk governance to manage disaster risk; foster disaster risk reduction for resilience; and enhance disaster preparedness for effective response, recovery, rehabilitation and reconstruction[50]. It is therefore vital for African countries to implement the Sendai Framework for effective Disaster Risk Reduction.

In addition, the *Africa Regional Strategy for Disaster Risk Reduction[51]* aims to contribute to the attainment of Sustainable Development and poverty eradication by facilitating the integration of Disaster Risk Reduction into development programmes in the continent. In order to achieve this goal, the Strategy urges African countries to increase political commitment to Disaster Risk Reduction; improve identification and assessment of disaster risks; enhance knowledge management for Disaster Risk Reduction; increase public awareness of Disaster Risk Reduction; improve governance of disaster risk

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[48] AUDA-NEPAD., 'A New Era in Disaster Management: Launch of the African Disaster Risk Management and Recovery Platform' Available at https://nepad.org/news/new-era-disaster-management-launch-of-african-disaster-risk-management-and-recovery#:~:text=The%20African%20Disaster%20Risk%20Management%20and%20Recovery,Ensure%20long%2Dterm%20environmental%2C%20social%2C%20and%20economic%20stability (Accessed on 30/09/2025)

[49] Sendai Framework for Disaster Risk Reduction 2015-2030., Op Cit

[50] Ibid

[51] Africa Regional Strategy for Disaster Risk Reduction., Op Cit

reduction institutions; and integrate disaster risk reduction into emergency response management[52].

Effective Disaster Risk Reduction is therefore a key continental priority towards sustainability in Africa. In order to achieve this goal, it is imperative to strengthen disaster early warning and preparedness including through investing in effective early warning systems[53]. It has been argued that early warning systems are integral in Disaster Risk Reduction efforts by providing timely and informed alerts on disasters enabling individuals, households, communities and nations to effectively anticipate, respond and recover from disasters therefore reducing the impact of disasters on human life and economic development[54]. By disseminating timely and accurate information regarding disasters, early warning systems enable preparedness action as well as a rapid response from workers, employers, and national or local authorities[55]. It is therefore imperative for African countries to invest in early warning systems for effective Disaster Risk Reduction.

It is also vital to build effective institutional frameworks in order to strengthen Disaster Risk Reduction in Africa[56]. Effective institutions are key in ensuring preparedness, prevention, and response to disasters while also strengthening long-term resilience of African countries to future disaster risks[57]. Embracing technology is also important in strengthening Disaster Risk Reduction in Africa. It has been argued that modern technology and digital tools such as remote sensing technologies and satellite imagery are becoming vital tools for disaster prediction and response[58]. African countries should

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[52] Ibid

[53] Ibid

[54] International Labour Organization., 'The importance of early warning systems in disaster risk reduction' Available at https://www.ilo.org/resource/article/importance-early-warning-systems-disaster-risk-reduction (Accessed on 30/09/2025)

[55] Ibid

[56] Africa Regional Strategy for Disaster Risk Reduction., Op Cit

[57] United Nations., 'Building a resilient Africa through disaster risk reduction, preparedness' Available at https://africarenewal.un.org/en/magazine/building-resilient-africa-through-disaster-risk-reduction-preparedness (Accessed on 30/09/2025)

[58] Ibid

therefore leverage the benefits of technology for effective Disaster Risk Reduction. Further, there is need to protect vulnerable groups and communities including through timely and adequate access to information to enable them anticipate and respond to disasters and humanitarian aid and financial support which is vital in responding and coping with the impacts of disasters[59].

Harnessing and utilising indigenous knowledge can also strengthen Disaster Risk Reduction in Africa. It has been argued that indigenous and traditional knowledge is a precious national resource that can support the process of disaster prevention, preparedness and response in cost-effective, participatory and sustainable ways[60]. For many centuries, African communities have tackled disasters effectively, often utilizing traditional coping mechanisms based on local knowledge and experiences[61]. These communities have utilised various strategies including growing drought-resistant and early-maturing indigenous crop varieties, gathering wild fruits and vegetables, wetlands cultivation, livestock diversifying and splitting, and weather observation techniques which have enabled them to survive disasters including droughts and floods[62]. Harnessing indigenous knowledge is therefore vital for effective Disaster Risk Reduction in Africa.

## 4.0 Conclusion

Strengthening Disaster Risk Reduction in Africa is a key priority in light of the continent's high vulnerability to disasters including floods, droughts, landslides, windstorms, wildfires and earthquakes. It is therefore imperative to incorporate Disaster Risk Reduction into African environmental governance frameworks including through

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[59] Africa Regional Strategy for Disaster Risk Reduction., Op Cit

[60] International Organization for Migration., 'Indigenous Knowledge for Disaster Risk Reduction' Available at https://environmentalmigration.iom.int/sites/g/files/tmzbdl1411/files/documents/png-indigenous-knowledge-report-print.pdf (Accessed on 30/09/2025)

[61] Africa Regional Strategy for Disaster Risk Reduction., Op Cit

[62] United Nations Environment Programme., 'Indigenous Knowledge in Disaster Management in Africa' Op Cit

investing in early warning systems, building effective institutions, protecting vulnerable populations, harnessing technology and utilisng indigenous knowledge[63]. Incorporating Disaster Risk Reduction into African environmental governance frameworks is therefore necessary, for sustainability.

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[63] Africa Regional Strategy for Disaster Risk Reduction., Op Cit

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https://www.iom.int/sites/g/files/tmzbdl486/files/our_work/DOE/humanitarian_emergencies/Disaster-Risk-Reduction-Strategic-Action-Plan.pdf

Republic of Kenya., 'National Disaster Risk Management Policy' Available at https://repository.kippra.or.ke/xmlui/bitstream/handle/123456789/559/NATIONAL%20Disaster%20Risk%20Mannagement%20POLICY%20APPROVED.pdf?sequence=1&isAllowed=y

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