Gravitazz Institute

For disaster reduction and emergency management

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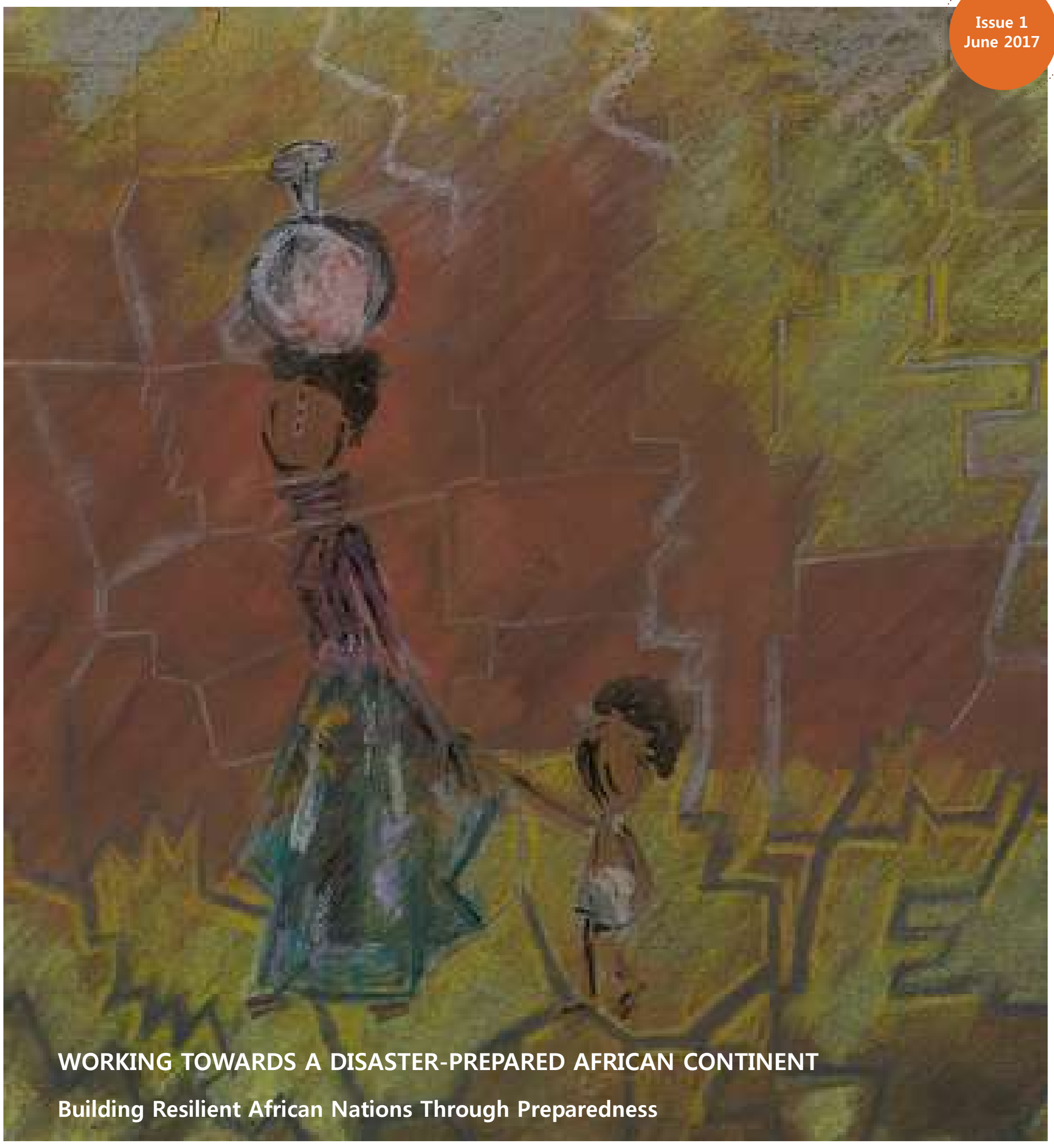

WORKING TOWARDS A DISASTER-PREPARED AFRICAN CONTINENT

Building Resilient African Nations Through Preparedness

Gravitazz Institute

For disaster reduction and emergency management

About Gravitazz Institute

The Gravitazz Institute for Disaster Reduction and Emergency Management was established in 2012 and since its inception has managed to acquire a name for itself as a reputable consultancy, research and capacity-strengthening institute across Africa and even beyond its continental border. Gravitazz` scope of work thus focuses on Disaster Risk Reduction (DRR) strategies towards natural and human-induced disasters, Climate Change Adaptation (CCA), Sustainable Development (SD) as well as complex emergencies around the world. The institute was further created to provide crucial technical and practical support to various stakeholders – ranging from governments, private sector companies, UN agencies, as well as NPOs – in the field of DRR, CCA, and resilience-building amongst others through its vast international network of expert-consultants. Although Gravitazz mainly operates on the African continent, it does not limit itself geographically and seeks to act wherever technical expertise is needed through its work and capacity-strengthening projects.

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DIMA Connect (Whatsapp group): This networking and information-sharing platform is aimed at linking DRR practitioners and experts from across the African continent. Currently, the platform brings together around 250 participants from a variety of sectors and countries, allowing for a fruitful exchange of information and best practices among like-minded professionals.

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Contents

Annexes

Editorial

The world is currently experiencing an alarming increase in the occurrence and magnitude of disasters (UNISDR, 2016). This has been attributed largely to global climate change.

Since 1980, eight of the world's ten deadliest natural disasters have occurred post-2000, the most devastating being the 2010 earthquake in Haiti. In 2015, a total of 1,565 earthquakes with a magnitude of 5 and above were recorded worldwide. According to the 2013 World Disasters Report, floods accounted for 44 % of deaths caused by natural hazards – more than any other natural disaster, including storms, which accounted for 41 % of total casualties. There is therefore a clear concern worldwide among decision-makers, experts, businesses and communities regarding the rising number of disasters and their severe impact on livelihoods.

Continentally, Africa has experienced its fair share of disasters, just like other continents. Although the scale of disasters in Africa is generally smaller than in other continents such as Asia, their effects on affected populations have been devastating. This is largely due to the high levels of vulnerability of populations in African countries. Out of 100 disasters reported worldwide, only 20 occur in Africa, yet the continent suffers 60% of all disaster-related deaths.

The World Risk Index indicates that out of the 15 countries with the highest level of vulnerability to disasters, 13 are located on the African continent. Indeed, countries like Liberia (ranked 56th), Zambia (ranked 66th) and the Central African Republic (ranked 71st) have high levels of vulnerability yet low levels of exposure to hazards. Natural hazards interact with human-induced hazards such as armed conflicts, air, road and railway incidents as well as industrial hazards such as mining accidents and chemical spills. Other contributing factors include rapid urban population growth, forced migration, environmental degradation, precarious urbanisation, food insecurity, poverty, fragile economies, infrastructure and institutions and cultural and political instability.

In 2016, Africa was hit by the worst drought in over 30 years as a result of the El Nino phenomenon, affecting over 40 million people in the Southern African region alone. This crisis prompted the Southern African Development Community (SADC) to launch a USD 2.4 billion appeal to assist populations in need of urgent food assistance.

It is especially at the national and local level in Africa that capacities need to be strengthened urgently. Although the continent's science, technology and academic capabilities in the disaster risk domain may not be as advanced as elsewhere in the world, in recent years, its capacity to produce high quality disaster risk research has gained considerable momentum. Moreover, the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) is people-focused and action-oriented in its approach to Disaster Risk Reduction (DRR) and applies to the risk of small-scale and large-scale disasters caused by human-induced or natural hazards as well as related environmental, technological and biological hazards and risks. International agreements can therefore play a substantial role in catalysing DRR activities in disaster-prone countries and leverage on this momentum.

Understanding disaster risk is the first priority for action of the SFDRR. Drawing on the current lack of DRR-related journals in Africa, the Gravitazz quarterly research publication series therefore seeks to publish a wide array of views, experiences and best practices from across the continent and beyond, in order to:

- Contribute **to building solid DRR knowledge in the continent;**
- Provide **a renowned, specialised and peer-reviewed publication platform for practitioners and experts to publish on issues related to DRR and Climate Change Adaptation (CCA);** and to
- Promote **evidence-based and applied research, knowledge exchange and best practices.**

The Gravitazz Publication Series entitled African Perspectives on Disaster Risk Reduction presents a selection of articles drawing from the institute's extensive network of experts on the African continent with the purpose of providing compelling research-based knowledge on DRR in order to inform the scientific community, media, policy- and decision-makers as well as the broader public on pressing topics and future research areas in this particular field. The series will be published on a quarterly basis resulting in four editions per year with a special edition as an outcome of the Africa Conference on the Economic Costs of Disasters: the Role of the Private Sector (ACECD 2017). The institute thereby aims to showcase an array of findings and good practices from the African sub-regions, thus ensuring a balanced representation of sources.

Jessica Johmann
Editor-in-Chief

Figure 1. Somali displaced people fleeing drought arrive at the Dadaab camp in Kenya (Source: Voice of America News)

Leveraging the Sendai Framework to Respond to Transnational Impacts of Drought in East Africa

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While pursuing his PhD studies, Joseph was also a Teaching Assistant in the Department of Disaster and Emergency Health. He is passionate and possesses multidiscipline knowledge and skills pertaining to natural and human-induced disasters, disaster risk management/ or disaster risk reduction, public health, emergency medical services, humanitarianism, climate change, and road injuries and safety researches. So far, Joseph has authored and co-authored some peer review articles related to these research areas whilst others are forthcoming.

Abstract

Over decades, natural and human-induced disasters compounded by complex emergencies (CEs) have been plunging the world especially in the developing countries of the Global South. The Eastern Africa (EA) region and particularly the Greater Horn of Africa (GHA) region, which forms part of it, remain some of the African regions most afflicted by disasters and complex emergencies; whenever one country is affected its neighbouring states or region are also affected in one way or the other.

The present paper discusses how the second priority of the Sendai framework, which is aimed at strengthening disaster risk governance in order to manage disaster risk and promote collaboration at national, regional, and global levels, is leveraged to respond to the transnational impacts of drought in the EA region. It is noted that Ethiopia, Kenya and Somalia remain more susceptible to the transnational impacts of drought in terms of conflict, displacement, food insecurity, poverty, unemployment and health risks.

The prolonged drought experienced in the GHA region shows how the Global South is suffering severely from the devastating effects of climate change. Therefore, any regional initiatives prompted to address and respond to the common challenges that affect the EA as a whole such as drought are to be applauded. However, the second priority of the Sendai framework needs to be emphasised and focused on. That should also be augmented by conducting evidence-based research, which comprehensively investigates and advances not only the most relevant mitigation measures, but also addresses other transnational disasters in the EA region.

Keywords: Sendai Framework, Disaster Risk Reduction, Drought, East Africa, Horn of Africa

Introduction

Over a period of decades, natural and human-induced disasters have been disproportionately plunging some parts of the globe, especially in developing countries of the Global South (UN, 2015). Often when a disaster strikes, it is accompanied with extensive fatalities, injuries, disabilities, displacement, disease outbreaks, physiological distress, property and environmental damage, and devastating economic losses - some of which exceed the ability of the affected community or society to cope using its own resources (UNISDR, 2017). Spiegel et al (2007) showed how disasters in the past years have been overlapping with the complex emergencies. Currently, the most significant cause of disasters worldwide is thought to be associated with climate change, which is estimated to be involved in more than 70% of disasters (IPCC, 2007). Common disasters include: droughts, floods, storms, landslides, mudslides, earthquakes, tsunamis, volcanic eruptions, fires, epidemics, pandemics, pests and extreme temperatures (Spiegel et al, 2007; UN, 2015; CRED, 2017).

However, it should be noted that with the evolution of globalisation and technological advancements human-induced disasters such as plane crashes, fire-outbreaks and explosions, ferry-boat capsizing, road traffic accidents, building collapses, conflicts, violence and terrorism are also increasingly manifesting (CRED, 2017; IDMC, 2017). The Eastern Africa (EA), which at times is referred to the Greater Horn of Africa (GHA), remains the African region most afflicted by disasters and complex emergencies (CEs) (Spiegel et al, 2007).

The GHA consists of Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania and Uganda. Prolonged drought and the continuation of unresolved and protracted conflicts remain one of the most serious challenges affecting some of the countries in the GHA region especially Ethiopia, Somalia, South Sudan, Sudan and elsewhere (UNHCR, 2014). As a result there have been major internal and cross-border displacements, violence, widespread poverty, food insecurity, high levels of malnutrition, and dire humanitarian crises in the GHA region (WHO, 2011). It is also imperative to note that frequently whenever one country is struck by disaster or crisis, it inevitably spills-over to other neighbouring countries or the entire EA region. This can often be attributed to the similar geopolitical characteristics that are shared among the EA countries.

To respond collectively to common political and socio-economic challenges such as drought affecting the EA as a whole, some regional blocs were established. These include the East African Community (EAC), which was initially composed of five member states: Burundi, Kenya, Rwanda, Tanzania and Uganda, but was later on expanded to six member countries after South Sudan joined in 2016 (EAC, 2017). Another key bloc in the GHA is the Intergovernmental Authority on Development (IGAD) that was created to respond to regional disasters and crises, especially recurrent droughts and violent conflicts (IGAD, 2017). Similar to the EAC, the IGAD at first consisted of only 7 countries: Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda, but was later joined by South Sudan after its independence in 2011. The IGAD superseded the defunct Intergovernmental Authority on Drought and Development whose mainstay was to coordinate efforts to combat drought, desertification and environmental degradation, which were the major causes of disasters on a number of occasions in the EA region (Dersso, 2014).

As noted above, different parts of the world are affected by disasters and CEs of varying degrees. According to the Intergovernmental Panel on Climate Change (IPCC), all countries irrespective of their development are predicted to experience climate change, but the most devastating effects are expected to be felt by developing countries in Asia and Africa. Although there is no one-size-fits-all approach to dealing with the climate change problem (IPCC, 2007), the regionally-oriented solutions, which tend to reflect different socio-economic conditions and geographical differences are often vital in responding to its impacts. To this matter, the present paper discusses how the second priority of the Sendai framework can be better leveraged to respond to the transnational impacts of drought in the EA region, which include: conflicts, food insecurity, poverty, unemployment and health risks.

The Sendai Framework for Disaster Risk Reduction 2015 – 2030

So far the EAC and IGAD have prompted some Disaster Risk Reduction (DRR) measures to address the common challenges affecting their respective member countries. However, in order to adequately address the transnational risk of disasters and their potentially devastating physical, social, economic and environmental effects in the EA there is a pronounced need for concerted actions to be coordinated across a wide range of sectors, institutions and disciplines (UNISDR, 2015).

That should also be aligned and implemented based on internationally adopted frameworks such as the Sendai Framework for Disaster Risk Reduction 2015 – 2030 (SFDRR). 187 member countries of the United Nations adopted the SFDRR in March 2015 at Sendai, Japan. It builds on the solid achievements of the previous decade of fulfilling the Hyogo Framework for Action 2005-2015. The Sendai Framework outlined four invaluable priorities and seven global targets of responding to disasters for the fifteen years after its adoption (UNISDR, 2015).

The four priorities include:

1. understanding disaster risk in all its dimensions and to use such knowledge for risk assessment, prevention, mitigation, preparedness and response;
2. strengthening disaster risk governance to manage disaster risk and promote collaboration at national, regional, and global levels;
3. investing in DRR to enhance the economic, social, health and cultural resilience of persons, communities, countries and their assets, and the environment;
4. enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction (UNISDR, 2017).

Drought

Climate change continues to receive substantial global attention in the scientific and academic communities. This trend largely began with the Group of Eight (G8) Summit in Gleneagles, Scotland in 2005. Since then some scholars and pundits have argued that climate change is a gradual phenomenon evolving with significant threats which affect both the human and global security (Barnett, 2003; Tord and McMichael, 2015). Indeed, the former United States President acknowledged this theory (Obama, 2009).

He argued that climate change represents a serious and growing global threat. Currently, drought is one of the most visible threats of climate change. Wilhite and Glantz (1985) define drought "as the prolonged rainfall shortage and its impact on climate, hydrology, ecology and agriculture". It is also attributed to variability and changing patterns in the meteorological conditions of rainfall, precipitation or extreme weather. Drought has a slow onset and large lag time before its consequences become fully apparent.

The GHA has been one of the most drought-stricken regions in the past sixty years and a recent estimation indicates that it has affected more than 22 million people (WHO, 2016). This has been witnessed in famine, malnutrition, conflicts and violence, migration and deaths. The GHA in particular and Sub-Saharan Africa in general are predicted to experience rainfall variability due to climate change in the next few decades.

As a result, this will likely result in more severe weather events by the end of the 21st century, notably in terms of frequent and intense droughts attributed to the increase of global mean temperatures estimated at between 1.4 and 5.8°C due to rises in greenhouse gas emissions (IPCC, 2007). According to UNOCHA (2011), many parts of the GHA continue to suffer a precarious situation with a harsh climate characterised by sporadic outbreaks of violence and prolonged droughts. In the recent past, Ethiopia, Kenya and Somalia have borne the greatest burden of drought compared to other EA countries as presented in the two figures below.

Drought-induced conflicts and displacement in East Africa

Over the past decades, drought has been an amplifying factor of cross-border violence, conflicts, cattle raids and tension in agro-pastoral communities in the EA (Massoi, 2015). This has been emanating from the scarcity of essential resources for humans and animals dwindled by drought. During the long spells of drought, some communities are forced to migrate from their territories to other places in search of vital resources like water and land that supports agriculture and grazing. However, this has led to human conflicts due to the competition and struggle for the control of such scarce natural resources.

As a striking illustration of this phenomenon, Huho (2012) cited a conflict that flared up between the Pokot and Karamajong communities of Kenya and Uganda respectively as each group scrambled for control of the same pastures during the 2007 drought. Other similar resource-ignited clashes caused by drought have been occurring among the pastoral people of the Oromia, Afar, and the Somali regions

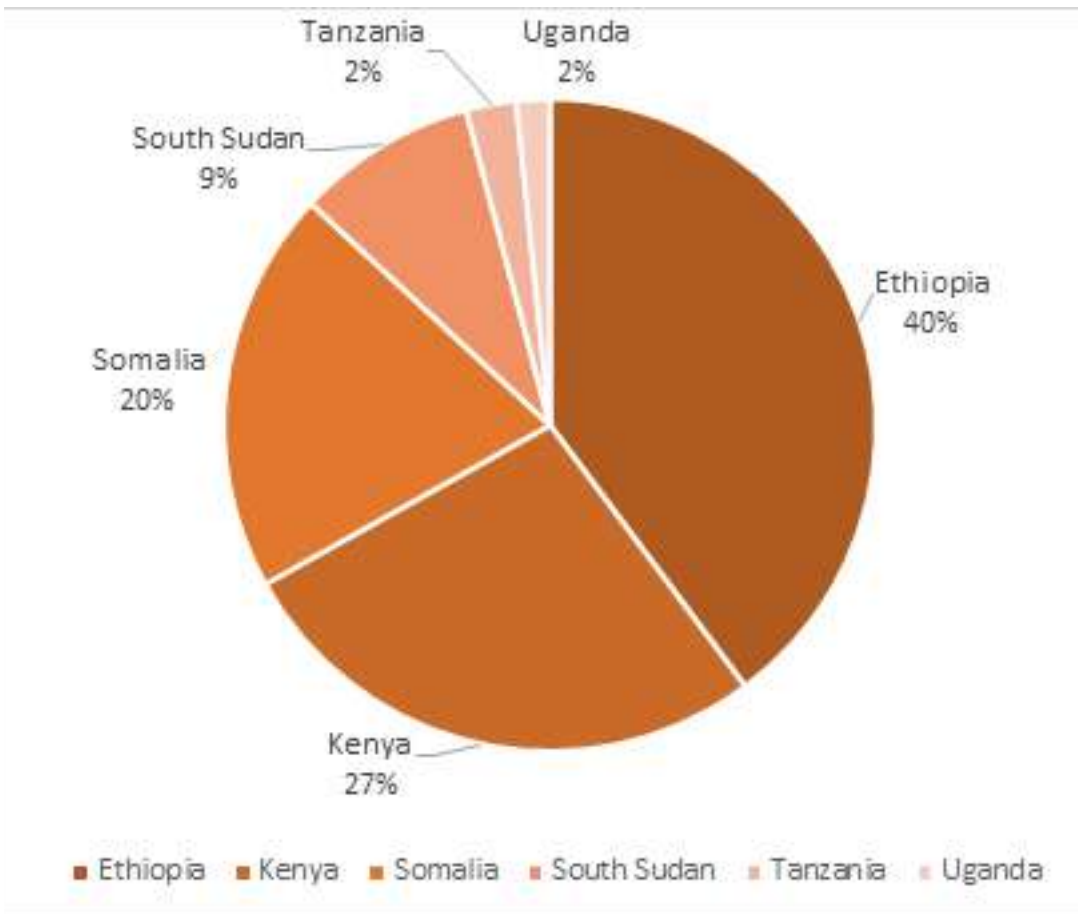

Figure 2: Percent of drought-induced internal and external displacements in seven East African countries between 2011 and 2015 (Source: IDMC)

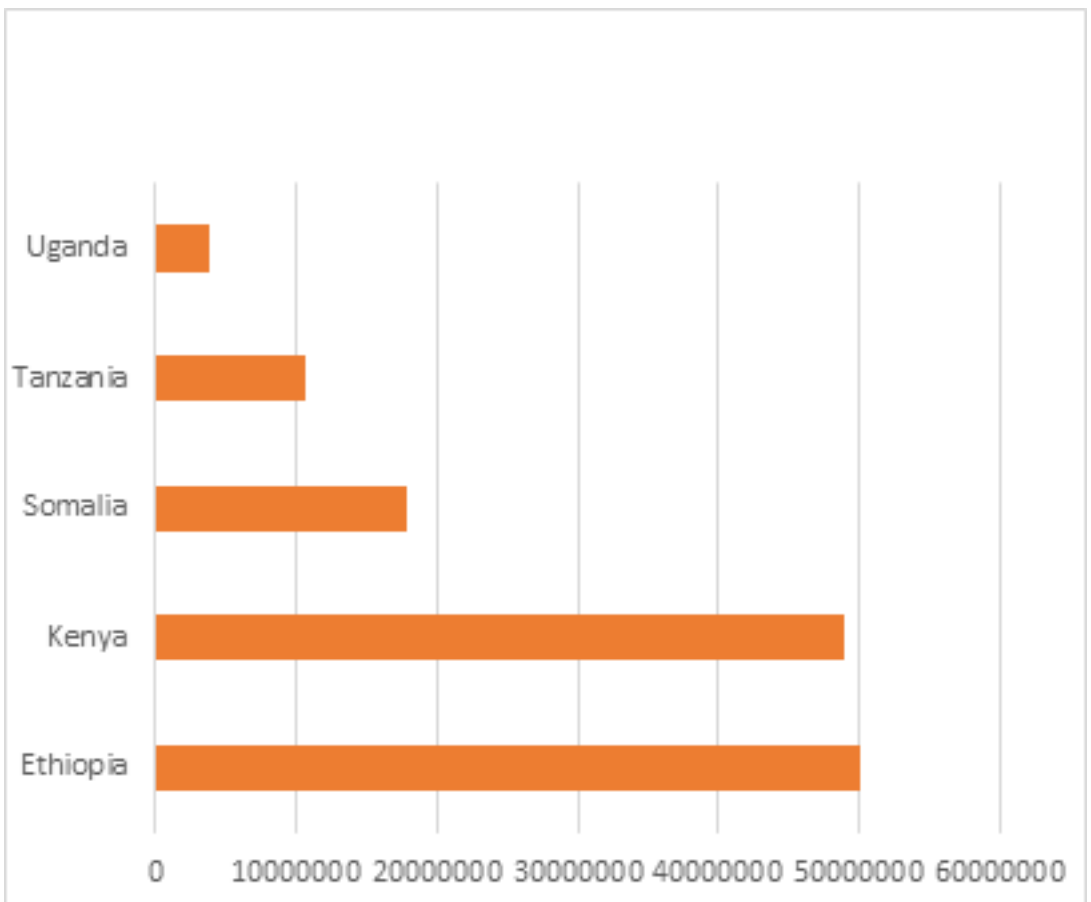

Figure 3: Total population affected by drought in six East African countries between 1990 and 2016 (Source: CRED)

in Ethiopia; between the Toposa of South Sudan and Turkana of Kenya; and the Turkana against the Karamajongs of Uganda (UNOCHA, 2011; Tamara, 2013). These confrontations are often characterised by deaths, injuries, property losses, revenge and retaliatory attacks, and a vicious circle of cattle raids all of which lead to longstanding hostilities among the rival communities. As observed in Figure 2, this in turn contributes to internal and external displacements since hundreds of thousands of people have to flee the affected areas in order to escape from conflicts and their associated violence. It was reported that of all the 36,400 displaced people from Somalia in 2011 who fled to Kenya, 9,500 were displaced by drought and the associated conflicts it created (UNOCHA, 2011; IDMC, 2017).

To respond to drought-induced conflicts, several conflict resolution and peace building initiatives have been embarked on at the community, national and regional levels across the EA. Some of the initiatives involved community meetings, mediations, negotiations or treaties, which bring onboard the respective national governments, local governments, civil societies as well as community elders from communities in conflict with one another (Huho, 2012). Nonetheless, these initiatives need to be integrated with some climate mitigation measures in order to help address the impacts of drought that are inevitable as a consequence of climate change. In this regard, there is a need for promoting transboundary cooperation that enhances integration and the implementation of different ecosystem-based approaches to managing shared resources such as the grazing land and water across communities as outlined in the Sendai Framework. This similarly applies to the EA so as to amicably assist in reducing conflicts and displacements, which are aggravated by drought.

Food insecurity, poverty and unemployment due to drought in East Africa

It is true that drought-affected areas severely suffer from food insecurity, extreme poverty and socio-economic inequality (Barnett, 2003; WHO, 2011). As noted earlier, drought is associated with the reduction in the precipitation and late or below average rainfall. This reduces agriculture and farming productivity through the degradation of soil fertility, crop failure, decline in harvests or loss of pastures. The GHA where the majority (estimated at roughly 70%) of the population is dependent on rain fed-agriculture has been particularly affected (Menghestab, 2005).

Thus, over time the affected people are forced to flee from the famine and hunger-hit areas, whilst others escape to search for better livelihood opportunities than those offered by agriculture and farming. Similarly, droughts have significant economic impacts on directly affected countries and their neighbours within the EA. This is particularly apparent in terms of the decrease in food and livestock production, food exports, food price inflation, unemployment as well as the expenses incurred in caring for and hosting those displaced. Apart from the generalised violence, human rights violations and armed conflicts, the drought of 2011, which induced extreme poverty, hunger and lack of livelihood opportunities, was reported to have forced hundreds of Somalis to flee to Kenya and Ethiopia; due to lack of access to basic needs such as food, medical services, health care and livelihoods (UNOCHA, 2011).

Additionally, poverty, inequality, conflict and disaster often co-exist (Tamara, 2013; Spiegel et.al, 2007). At times people who flee countries characterised by violent conflicts, persecution, discrimination and human rights abuses might also be escaping from the dire economic circumstances associated with the aforementioned problems. The current high rate of poverty and unemployment in many parts of the EA can be attributed to the ongoing drought, which has so far been identified to be the worst in the 21st century (UNHCR, 2014). This argument is based on the fact that it has caused widespread migrations from the arid and semi-arid areas of Ethiopia, Kenya and Somalia. These displacements have not only been leading to rural-urban migration in those countries, but also rapidly contributing to mass cross-border movements as the victims search for alternative means of economic survival and sustainable livelihoods all over the EA region.

To tackle the drought-led challenges, the promotion of food security and disaster-resilient agriculture needs to be strengthened and enhanced, which the Sendai Framework calls for. This should be based on the sustainable use, rehabilitation, and management of vital resources such as land, water and livestock. Moreover, it can enhance the improvement, the productivity, and the preservation of natural resources and ecosystem services, and make them better able to withstand the effects of climate variability that is often experienced in some drought zones within the EA. Likewise, sustainable development and poverty eradication programmes that encourage the development, investments, and the provision of social services both in the urban and rural settings as stipulated in the Sendai Framework should be applied to address the challenges of poverty and unemployment often triggered by drought in the EA.

Health risks of drought in East Africa

Drought aggravates food and water scarcity, which in-turn impacts the health and well-being of people exposed to it. According to Aderita et. al (2014), drought is largely a hidden risk with the potential to become a silent public health disaster. As noted above, the drought-affected areas experience food insecurity and depletion of water resources.

Apart from being exposed to hunger and chronic malnutrition, which result from inadequate quantities of food or poor quality diets, people

in drought struck areas are also often at risk of suffering from water and food borne epidemics such as malaria, cholera, diarrhea, measles, typhoid fever, shigellosis, and hepatitis A and E (WHO, 2011). These diseases can be easily transferred among the population through contact in the course of migration or within camps or crowded places. In 2016, more than 200 cases of cholera in the Moyale - Oromia and Somali drought struck regions in Ethiopia were reported to have spread up to the border of Kenya (WHO, 2016).

Drought also places a certain degree of psychosocial stress on its victims after they encounter hard economic and livelihood conditions such as unemployment and the scarcity of viable land available for agriculture and grazing. As a result, those affected can sometimes develop mental health disorders, while others forced to overcome potentially life-threatening situations may end-up resorting to engaging in violence, conflicts and animal raids for survival as is commonly reported in the drought-affected areas (Aderita et.al, 2014). Correspondingly, unusual heavy rains sometimes exacerbate the devastating conditions of drought in the GHA. This can condition the land to become a breeding ground for vector-borne diseases. For example, tick borne diseases are known to infect the agro-pastoralist communities during long-spells of drought. Similarly, the current drought plaguing the GHA has been occasionally characterised by heavy El Niño rains, which were linked to a resurgence of cross-border Rift Valley Fever that infected animals in Somalia, Kenya and Tanzania (WHO, 2016).

More so, in 2016 an outbreak of tick borne disease was reported among nomads in Kenya, Uganda and South Sudan. Its cause was largely attributed to massive movements of livestock across the borders of three countries in search of pasture and water (UNOCHA, 2017). Again the Sendai Framework provides some benchmarks of partnership, for example, sharing of data, early warning systems, practices and knowledge, and capacity development, which can be explored collectively to best respond to the disease and health problems that commonly affect the EA region.

Conclusion

The prolonged drought, which is being experienced in the EA is an example of how the Global South is disproportionately suffering from the devastating effects of climate change. The regional initiatives prompted through the EAC and IGAD to address the common challenges affecting EA are particularly crucial, since the EA is still facing problems from its limited financial, technical and institutional capacity to adequately respond and cope with the transnational impacts of drought.

These initiatives can also help facilitate a collective response to the devastating impacts of drought, which spread from one country to another or even the entire EA region as a whole. However, to ensure effective implementation of the initiatives, the Sendai Framework needs to be incorporated – in particular the second priority of strengthening disaster risk governance to manage disaster risk.

Finally, future regional evidence-based research is required to comprehensively investigate, identify and advance the most cost-effective mitigation measures, which could be used to respond to drought and other transnational disasters most appropriately in the EA.

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Photo: Aliyu Adekunle S/Vanguard
Flooding leaves many homeless

Can we 'Build Back Better'? Lessons from floods recovery framework development and implementation in Malawi

Stern Mwakalimi Kita

Stern Mwakalimi Kita joined Malawi's Department of Disaster Management Affairs in 2009, where he currently works as Chief Mitigation Officer. During this time, he has been directly involved in coordination, implementation and research on issues of disaster risk management, climate change, social protection, conflict and community development. He has played a leading and central role in the development of several national frameworks for DRM in Malawi, including the country's disaster recovery framework, which is the focus of this paper.

He has presented several papers at local and international conferences, facilitated various training sessions and has published on disaster risk governance, Climate Change Adaptation (CCA), cash transfers, resettlement, risk perception and on the link between climate migration and international security. Mr. Kita is in the final stages of his doctorate studies with the University of Sussex, United Kingdom. His doctoral research focuses on CCA, Disaster Risk Reduction (DRR) and resettlement in the context of Malawi. He holds an MSc in Environment and Development from the University of Dublin, Trinity College, in Ireland and a Bachelor of Arts Degree in Humanities from the University of Malawi, Chancellor College.

Abstract

In January 2015, Malawi faced its worst flood disaster on record that affected 15 of its 28 districts. A post-disaster needs assessment was conducted that culminated in the development of a national recovery framework. This paper presents results of a study conducted to assess the process of developing and implementing the framework. Data were collected through review of relevant documents, key informant interviews and participant observation. The paper finds that the development of the framework has facilitated a mindset shift from the traditional focus on response and risk reduction to factoring in recovery. However, the development process was largely government-driven vitiated by inadequate consultations with non-state actors and communities. Its overall focus on 'visible' recovery was another drawback. Implementation of the framework has also encountered several bottlenecks, to the extent that the majority of planned interventions have not been funded. In developing and implementing post-disaster recovery frameworks, the paper recommends reflexivity and flexibility, focusing on addressing vulnerability, consideration of 'invisible' recovery aspects, ensuring availability of adequate financial resources, and enhanced coordination and involvement of a wider stakeholder group. When not done properly, the recovery framework may just be another mechanical tick-box exercise that fails to speak to reality.

Key words: Floods; disaster recovery; Malawi

Introduction

The fourth priority for action of the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) emphasises on preparing for post-disaster recovery in order to 'Build Back Better' (UN-ISDR, 2015). Recovery also provides an opportunity to integrate Disaster Risk Reduction (DRR) into development planning and practices. The notion of 'Building Back Better' entails that the focus of recovery ought to be on avoiding creating further risks or exacerbating existing ones. Several scholars have called for the need not just to focus on addressing livelihood needs and physical damage, but to consider the factors driving vulnerability as part of DRR and recovery (Turner et al., 2003; Wisner et al., 2004; Clinton, 2006; Ingram et al., 2006; Khasalamwa, 2008; Chhotray and Few, 2012; Joakim and Wismer, 2015; Kita, 2017).

Lack of a comprehensive master plan to guide the recovery and reconstruction phase can greatly affect 'Building Back Better' work (Guarnacci, 2012). While efforts have been made among African countries to share practices in disaster preparedness and response as well as DRR, the same cannot be said of recovery. A systematic review of publications on disaster recovery studies between 2002 and 2012 by Yi and Yang (2014) revealed that research focusing on recovery on Africa has been ignored.

This study contributes to filling this gap on the continent by assessing the process of developing and implementing a national floods disaster recovery framework in Malawi.

In 2015, Malawi faced severe flooding that affected 15 districts, leading to a declaration of a state of disaster. Government records show that the floods affected 1.1 million people, displaced 230,000 and caused 106 deaths, with 176 people reported missing. It further destroyed 64,000 hectares of crop fields and damaged public infrastructure and private property. A post-disaster needs assessment (PDNA) was conducted which revealed that 12 sectors were affected. Total damage and losses amounted to US$335 million, while recovery and reconstruction needs were valued at US$494 million. The largest impact was on housing (41.5%), followed by agriculture (20%), transport (15%), water and sanitation (7.8%), education (3.6%) and health (3.6%). The PDNA set the scene for the development of a national disaster recovery framework (DRF).

The development of the framework was guided by the Sendai version of the Guide to developing disaster recovery frameworks that was developed by the Global Facility for Disaster Reduction and Recovery (GFDRR). Applying the case study of Malawi, the objective of this study was to assess practical experiences in the development and implementation of the recovery framework. In doing so, the utility of the GFDRR guidelines in developing a recovery framework was also examined.

The study aimed at answering the following questions: What should be the key considerations in developing a recovery framework? How useful are the GFDRR guidelines in the development of a recovery framework? To what extent was implementation of recovery programmes guided by the recovery framework? What were the key lessons learnt in developing and implementing the recovery framework? This paper is not an assessment of the impact or effectiveness of recovery projects, but presents some of these interventions illustratively. While the DRF discussed here focuses on floods, the issues being raised can also be applied to other disasters.

However, lack of a comprehensive master plan to guide the recovery and reconstruction phase can greatly affect 'building back better' efforts (Guarnacci, 2012).

What should be the focus of a recovery framework?

With limited resources, the most tempting trajectory in developing a recovery framework or implementing recovery interventions is to restore damaged assets based on existing standards. While this might be desirable, it ignores the core principle of recovery, which is to 'Build Back Better', and safer:

> "A key test of a successful recovery effort is whether it leaves survivors less vulnerable to natural hazards...Recovery efforts should, at a minimum, ensure that communities become safer than they were before the disaster. We must bear in mind that each brick laid in the recovery process can either contribute to risk reduction or become an enabler for the next big disaster" (Clinton, 2006, p. 22).

As Clinton (2006) and others (Morgan, 1986; Ingram et al., 2006; Kita, 2017) point out, recovery frameworks or programmes should not just aim at addressing the impacts of a disaster, but should consider tackling the underlying causes of vulnerability. These could include lack of access to productive assets, location in high-risk areas, absence of construction standards, power relationships and environmental degradation. In the context of transitional shelter and settlements, Kennedy et al. (2008) recommend three strategies to ensure 'Building Back Better': i) involvement of the community; ii) consideration of actor capacity and collaboration across actors from different sectors; and iii) pre-disaster integration of DRR into relief and recovery efforts.

There are several dimensions of disaster recovery, including rehabilitation or replacement of damaged infrastructure and housing, psychological recovery, recovery of household livelihoods and assets and restoration of communities, culturally valuable sites and objects (Tierney, 2013). Often, the focus of recovery tends to be on addressing the most visible physical impacts of a disaster. While the socio-psychological effects are less visible, they may greatly determine the success of recovery interventions and the whole recovery process (Kristensen, 2012; Becker et al., 2015; Mannakkara and Wilkinson, 2015). People affected by disasters, especially those bereaved, can manifest post-traumatic stress disorder, major depressive disorder, functional impairment and prolonged grief disorder that may affect how they function and recover (Kristensen, 2012). The possibility of another disaster can have devastating effects on the mental health, physical and psychological functioning of disaster affected community (Wind et al., 2013; Becker et al., 2015). Comprehensive 'Building Back Better', therefore, requires integrating resilience, so that lives, livelihoods and infrastructures are not just restored, yet they are safer from future hazard impacts.

Methodology

This study combined personal experiences in the development and implementation of a flood recovery framework as well as semi-structured interviews conducted with officers involved in the design, implementation or financing of disaster recovery interventions in Malawi. Interviews were conducted through an e-mailed semi-structured questionnaire and through phone interviews in March 2017. Participants included 25 practitioners: nine officers from district councils, four NGOs, eight central government officials and four from United Nations agencies and donors. Key official documents and reports related to the recovery process were also reviewed.

Questions for the interviews focused on knowledge of and experience with the development of the recovery framework; the type of recovery projects being implemented or funded; relevance of the recovery framework; and challenges experienced in the implementation of the recovery framework and recovery interventions. The author also participated in a number of supervisory and monitoring activities of NGO and government projects between 2015 and 2016. In addition to observing practices, these field visits provided room to discuss with implementers and communities different aspects of the recovery process.

A national platform conference was held in May 2016 and was attended by more than 200 participants. Stakeholders shared what they were implementing as well as key lessons learnt. Insights from the conference presentations and discussions with key actors also complimented the data. Data were analysed using thematic analysis, where themes were generated from pre-coded data. Constant comparison analysis was also applied in generating themes as the study used more than one data collection approach (Charmaz, 2003; Braun and Clarke, 2005).

Recovery framework development and implementation 'The DRF Guide'

The Sendai conference version of the Guide to developing disaster recovery frameworks (GFDRR, 2015) is meant to facilitate the process of developing a post-disaster recovery framework. It encompasses all emergencies and comprises six modules: conducting post-disaster damage and needs assessment; policy and strategy setting for recovery; institutional framework for recovery; financing for recovery; implementation arrangements and recovery management and strengthening recovery systems in national and local governments. As a guide, it promotes flexibility in its usage and countries can adapt it to their specific context. Importantly, it establishes a clear bridge between a post-disaster needs assessment and a recovery framework.

What the guide mainly achieves is to provide general direction on the recovery process as a whole. It does not prescribe a specific organisation of a recovery framework, nor does it provide step-by-step guidance in the development of a recovery framework. Practitioners who are used to guides that instruct them on what to do and how to do it, may not find the guidelines useful in that context. The onus remains on those facilitating the development of a DRF to strategise and agree on how best to present their information and determining what aspects of the 'guide' are useful. This was the approach that the Malawi team adopted.

Malawi floods 2015
http://keywordsuggest.org/gallery/810296.html

Logistical considerations

What is the best time to develop a DRF? Obviously, waiting too long may be a challenge as the momentum from donors and other key players would have waned, while doing it too early may end up leaving out important issues. The DRF guide suggests it can also be carried out pre-disaster, though this would mostly be more suitable for a contingency plan than a recovery plan. Since the DRF responds to a specific disaster situation, it should be developed as soon as possible, mostly in parallel with the provision of short-term humanitarian support.

While it would be more strategic to develop the DRF with funding in the offing as it may incentivise all those involved, the challenge is that it may end up bringing confusion if not clearly specified. The Malawi DRF was developed at a time when the World Bank had committed some resources to support the recovery process through a Malawi Floods Emergency Recovery Project (MFERP). This led to confusing the DRF with the project. The challenge of linking the recovery framework to the MFERP was indicated by several district officials. Even during review meetings, the project overshadowed the DRF and despite organising sensitisation workshops to clarify, the confusion persisted.

Should an individual consultant be recruited? Perhaps a good approach, however, the consultant's role should solely be to facilitate the process, rather than being tasked to develop the DRF itself. He/she may be involved in the write-up process, but local actors should take a leading role in the whole process so that outcomes is something they know, own and can implement. A local core task-team should be set up to lead the entire process and undertake the actual drafting. Where possible, having multiple expertise is essential, with a mix of local and international stakeholders.

Consultations, multi-actor involvement

The development of the initial inputs into the DRF was undertaken by officers from key sectors from the affected district councils who were organised in clusters. The assumption was that their contributions were based on consultations with communities, which was mistaken, as community-level consultations were mostly not carried out.

Since most of the interventions would be implemented at local level, communities should not only be consulted but should feel to be part of the process. Social capital, in form of equity, participation, leadership and governance is critical to successful recovery. Participation should not be a top-down process where communities are just informed about interventions, instead it should aim at empowering them (Davidson, 2007; Khasalamwa, 2009; Tierney, 2013; Lawther, 2016). This element was neglected in the Malawi context, which had repercussions during the implementation phase.

As one respondent highlighted: "The framework was not aligned to needs of the people as expressed by them." Steinberg (2007) has argued that prolonged consultations may cause delays, which can infuriate communities who require urgent recovery assistance. However, in this case the major challenge was the lack of community consultation, which meant that local actors were not aware of the recovery framework's purpose. The persistence of local councillors and members of parliament who were demanding 'recovery' projects in areas not affected by floods attested this.

The role of NGOs is critical, therefore they should be part of the core team drafting the DRF. For most developing countries, NGOs deliver the majority of DRR services at local level (Allen, 2006; Batley and Rose, 2011; van Niekerk, 2015; Jones et al., 2016). For instance, in Phalombe District, five out of its six recovery projects were implemented by NGOs. While consultations with NGOs were undertaken, most of it was top-down, focusing on soliciting information from them. During consultations with district councils, no NGO was represented, which could partly explain the discrepancies between what the DRF stipulated and what NGOs were implementing on the ground. As argued by an officer from the UN:

> "My feeling is that this document was developed and launched with limited knowledge of stakeholders. Some of its contents were questioned at the last DRM (disaster risk management) platform, which indicated that it was not owned and, therefore, difficult for stakeholders to comply".

However, practitioners are aware that consultations can be a nuisance. Sometimes people who were consulted can, later on, state that they were not consulted, or that they did not have adequate consultations, or simply that their views were not taken on board. Staff turnover in government and NGOs further complicates the matter. Most NGOs employ staff on one-year projects, which brings in continuity challenges. Just within the first two years of the DRF implementation, most NGO projects wound up. On government side, all district commissioners from the 15 affected districts had been transferred at least once within the period. In the words of one district officer:

> "Since some sector leads could be coming from a district, which was not affected by the 2015 floods, they may not be conversant with some implementation modalities unless they read the DRF manual through and through."

This requires continuous capacity building of actors, something that can be difficult where resources are constrained.

Political support and pragmatism

Political support at all levels is a prerequisite for the success of the recovery process. Where political will is lacking, recovery efforts can be hampered (Raju and van Niekerk, 2013). The head of a local NGO summarised this requirement:

> "Poor policy alignment at the highest level, lack of strong political will as well as poor governance, all contribute to retarded and prompt decision-making process. This, in turn, slows down the implementation of recovery activities."

Jones and colleagues (2016) have highlighted the need for champions to provide incentives for DRR. The political will should also be seen from key players that will be involved in the process, including donors and NGOs. Recovery is multi-sectoral, which requires buying in from the highest echelons of government ministries and departments, NGOs and donors. The recovery process in Malawi commenced with grandeur, with the head of state officially launching the PDNA report. When only one donor showed interest to support government, the momentum withered.

Recovery prioritisation

Oftentimes, resource constraints, time limitations and other factors define what can be implemented. As such, although the DRF may cover everything that was impacted by the disaster, it may not be feasible to expect to implement all aspects. Where resources are inadequate, prioritisation of interventions is paramount, so that only those deemed critical are considered. The first step in doing this is to set-up a prioritisation task-force that has representation from all key sectors and actors.

As many stakeholders as possible should be consulted before, during and after the prioritisation process. The prioritisation process is conducted by a set of guiding principles identified by the 'prioritisation task-force' and involves prioritising interventions, geographical areas, sectors and financial resources. The GFDRR guide proposes six principles, but in the Malawi case, nine principles steered the prioritisation process. The focus was on the following principles:

i. Potential for direct and wide humanitarian impact;
ii. Supporting preparedness and response for the 2015-2016 rainy season;
iii. "Quick wins" with tangible impacts;
iv. Areas and sectors most hit by the disaster;
v. Pro-poor, pro-vulnerable, and gender-sensitive agendas;
vi. Potential to generate sustainable livelihoods;
vii. Showing a balance between public and private sector recovery;
viii. Showing a balance between physical infrastructure reconstruction and less visible recovery; and
ix. Focusing on restoring and rebuilding critical infrastructure and services.

The prioritisation process itself requires pragmatism and flexibility, as it can become very contentious and mechanical. Often, each sector would expect its activities to be prioritised. Another common oversight during prioritisation is to dwell on the most visible interventions (fig. 1) and ignore recovery of persons and other intangible aspects. Wisner et al.'s (2004) pressure and release model emphasises the need to address key drivers of vulnerability, which can be social, political, economic, cultural or environmental. While this model has been widely used by practitioners, it is often ignored in the recovery process. Often, 'Building Back Better' is equated to reconstructing roads, houses, schools, hospitals, markets and other physical assets.

Strategies that promote community cohesion, socio-psychological and cultural recovery, capacity building, strengthening local governance systems and mapping of settlements are frequently ignored. For instance, a concern that was mentioned by several people in the

Figure 1: The most visible aspects of recovery; reconstruction of a washed away bridge in Phalombe District

most affected districts was that the floods had destroyed their graveyards; nevertheless no efforts were made to support such recovery. Concerns were further raised about the lack of support to those who had lost family members or close friends. Habitually, such affected people resort to avoidant coping through denial, distraction or emotional dismissal as they attempt to reconstruct their lives and livelihoods, which can have long-term effects and hamper recovery (Becker et al., 2015).

Where such issues are considered, they tend to be taken as cross-cutting, hence receiving scant attention. In addition, integration of resilience into national policies and plans, including in the budgeting process was not prioritised within the window offered by the disaster. An NGO officer stated the following:

> "Most government line ministries continue to do their 'business as usual', and do not take the recovery framework as part of their normal programming. Thus, internalisation is not there. Our national budget process does not reflect inclusion of the framework's principles".

Financial malady, implementation, monitoring and evaluation

Most affected people do not have the means and resources to build better houses and reconstruct lives and livelihoods on their own following a disaster, which calls for government support (Chhotrav and Few, 2012; Joakim and Wismer, 2015; Kita, 2017).

For most developing countries, financial constraints force them to be at the mercy of external support in form of loans or grants. Commonly, NGOs end up taking the lead in community-level recovery work (Freeman, 2004; Freeman et al., 2003; Lyons, 2009). Lack of autonomous government funding can make guiding NGOs challenging, as an interview with a government officer revealed:

> "Without government funding, it is difficult to control stakeholders to align to the recovery framework".

Often, NGOs will have their own goals and, as argued by one officer from the UN, "Some projects align to the needs and visions of implementing organisations and their donors" rather than the framework. Most NGO recovery projects were already underway at the time of developing the recovery framework.

District officials had not considered these when developing their frameworks. Consequently, the financial prioritisation showed several sectors with committed resources, when in actual sense the recovery projects were different from those in the DRF. Lack of government funding also means that sectors at district level cannot implement recovery interventions that they had planned.

A district-level officer pointed out:

"Honestly, as a district, we have not been fully guided by the framework because what we planned in the framework and their associated costs for activities to be implemented do not match with the available funds. The other reason is that the donors have their own guidelines that we follow regardless of the availability of the framework. We are just told sometimes that the project is going to do A, B, C and D and then we just follow".

Implementation of a recovery framework should be guided by resilience standards in key sectors such as housing and transport. In post-Tsunami reconstruction in Sri Lanka, for instance, government issued minimum standards on housing and a construction manual, which had to be followed by all actors (Lyons, 2009). Scholars have also called for the need to map areas to identify safer places for post-disaster reconstruction (Guarnacci, 2012; Kita, 2017).

However, in the Malawi case, while the Ministry of Lands, Housing and Urban Development has developed safer housing construction guidelines, each agency used its own standards, designs and materials in constructing houses. In two sites in Nsanje and Chikwawa, reconstruction work was underway at places considered flood prone. At one resettlement site in Chikwawa, an earth dyke was hastily put up by community members to prevent floodwaters from reaching the site (Figure 2). Several NGO recovery projects have not been completed; with several houses constructed without doors, windows or concrete floors.

Figure 2 An earth dyke constructed by communities at a new resettlement site in Chikwawa to prevent flooding

Considering that local authorities provide input and that interventions are implemented at local level, central control of the recovery process should be avoided. Most respondents considered this a major challenge. A central government officer stated:

"Some of the components are centrally implemented, which leaves out local councils who are very critical to the implementation being that they are the ones who are closer to the people."

Achieving better recovery also requires constant monitoring and supervision, which demands allocation of adequate resources.

The importance of coordination

Multilevel institutional and actor arrangements can pose coordination and information sharing challenges in a DRM context. This calls for a shift from top-down arrangements to vertical and horizontal coordination arrangements (Guarnacci, 2012). For instance, NGOs usually want to be seen at the centre of the most impacted area (Chhotrav and Few, 2012), which may leave other areas unattended. In the words of a central government officer:

"Geographical distribution of the interventions is not even. Most interventions are concentrated in specific areas, for instance, Nsanje, Chikwawa and Phalombe, leaving out other districts that were equally affected by floods".

Several respondents highlighted the need for proper coordination during recovery not just between government sectors, but also with NGOs, donors and development partners.

"Sectors work in isolation without referring to the framework. They also work without being guided by the responsible department in charge of making sure that interventions are aligned to the framework i.e. DoDMA and the Department of Economic Planning and Development,"

argued a government officer. Adequate attention should be paid to recovery by DRM authorities. In times of protracted disasters, as was the case between 2015 and 2017 where floods in 2015 were followed by drought in 2016, focus usually shifts to disaster response than recovery. A senior government officer declared: "Government does not seem to take recovery efforts seriously." Raju and van Niekerk (2013) also raised similar concerns in the context of South Africa, where coordination effort was placed on disaster response rather than on recovery. A core foundation in developing a recovery framework is to regard it as a living document, which can be revised as needs and circumstances change. It should also be flexible enough to incorporate emerging disasters. For instance, Malawi's DRF was revised in 2017 to incorporate drought. Moreover, continuous sharing of experience during implementation is critical, which provides room for re-strategising. A district officer reported:

"Lack of a coordination forum at national level to guide and ensure adherence to the recovery framework remains a challenge. Since we developed the framework, we have never ever met to track progress at national level."

Key lessons and conclusion

This paper sought to share experiences in the development and implementation of a floods recovery framework in Malawi. It presents some of the key issues to consider when designing and implementing recovery programmes. The study underlines the relevance of the recovery framework guide and points out certain weaknesses. Several lessons can be discerned from the process as presented by the paper. Primarily, these include:

1. Despite its shortfalls, most respondents agreed that a recovery framework inculcates a culture of post-disaster recovery among actors. It brings more awareness on the need for recovery than the usual focus on disaster response;
2. While transitional recovery needs can be urgently met, long-term recovery requires adequate planning, from a developmental perspective, with continuous consultations with the affected community and other key actors;
3. A key aspect during this stage is to build on the momentum that comes with disaster response and integrate disaster resilience in the national development framework, while at the same time mainstreaming DRR in key national policies and plans. This is key to the principle of 'Building Back Better' in the long-term;
4. While quantitative results such as number of houses constructed, number of schools rehabilitated, or number of households supported with farm inputs are important, they should not be emphasised at the expense of the quality and long-term sustainability of the interventions. This also requires frequent monitoring and supervision of both private and public recovery processes to ensure they are 'Building Back Better';
5. Recovery should stress on less visible aspects that are root causes of vulnerability, such as leadership and governance systems, culture and economic systems;
6. Disaster recovery requires adequate funding. While for most low-income countries some donor support may be available, governments should be able to budget for recovery; and ultimately
7. Achieving all these requires political support and commitment at the highest levels from government, donors, NGOs and the private sector.

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Utilising TVET as a tool to achieve Disaster Resilience among disaster prone countries:

Cross countries analysis of experiences from Nigeria and Thailand

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Abstract

This papers aims at underlining the importance of the role of Technical and Vocational Education and Training (TVET) and its impact on disaster resilience in the context of the experiences from the 2012 Nigerian floods and the 2011 Thailand floods respectively from an Africa-Asia perspective. Rapid-onset disasters such as floods can be devastating for growing economies. Disaster resilience provides a cushion for an economy in a flood disaster scenario. The methodology applied in this study involves a qualitative method approach towards collecting data pertaining to experiences of vulnerable employment sector during disaster events. The paper aims to analyse various aspects of TVET thereby assisting disaster management in both countries through Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. The findings presented include significant monetary and social losses, barriers to employment during and post floods, elongated recovery from floods and Disaster Risk Reduction (DRR) initiatives to be adopted. Through a comparative countries' analysis, recommendations have been put forward in order to contribute to strengthening the disaster management systems and to reducing vulnerability in both flood prone countries.

Key Words: TVET, Disaster Resilience, Vulnerability, Disaster Risk Reduction.

Introduction

Disasters are disruptive events which adversely affect the employability, growth and development of an economy. Technical Vocational Education and Training (TVET) plays a crucial role in employment particularly in lower and middle-income countries. This study attempts to examine the relationship and impact of TVET in terms of employment generation during disasters. In order to ascertain the comparative scenarios, the 2011 floods in Thailand and the 2012 floods in Nigeria have been chosen for this research.

Previous research illustrates the significance of TVET in order to achieve benefits for the economy and society (Bennell, 1996; UNESCO-UNEVOC, 2007). Employment generation is thus among one of the major contributions of TVET. This should be utilised during disaster scenarios where most employment is either suspended or comes to a standstill. Natural disasters such as floods cause higher labour force dropouts and an increase in the unemployment rate particularly in countries with a high level of vulnerability to disasters. TVET therefore constitutes a critical tool in order to enhance employability and technological advancement and further assists in acceleration of the disaster recovery process. One important finding of this research demonstrates that TVET notably contributes to the generation of employment of both women and men alike (Ministry of Education, Thailand, 2006; Dangote, 2013).

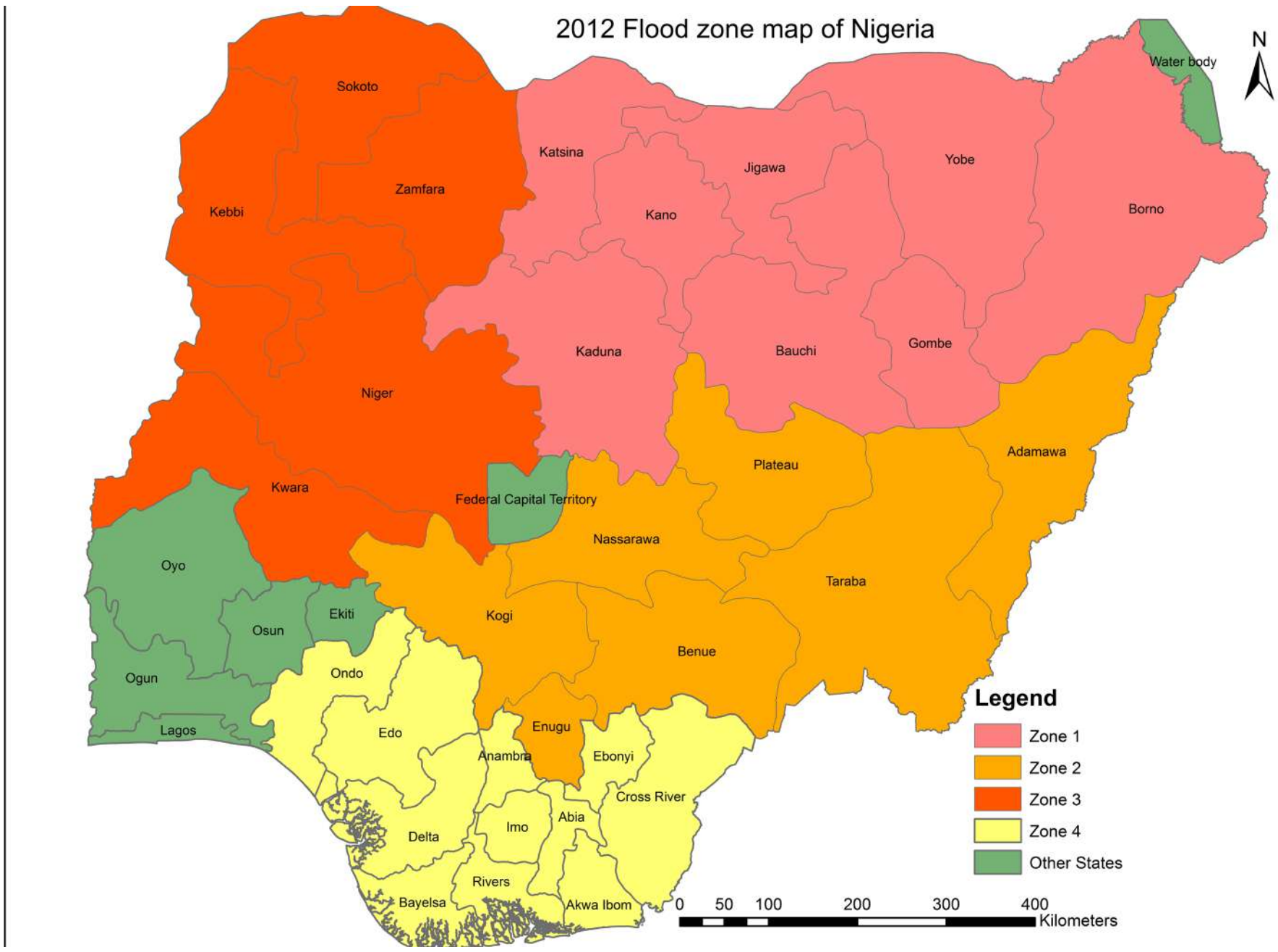


Figure 1: 2012 flood zone map of Nigeria
Source: Adapted from UNOCHA

The flood zonation map in Figure 1 depicts the flood intensity throughout Nigeria. The extent of floods was severe and resulted in a large number of unemployment or suspension of the labour force during the floods.

In juxtaposition, the 2011 Thailand floods were one of the largest floods in Thailand and costliest among the Asian region (World Bank, 2012). Almost entire central Thailand was severely affected by the floods (see Figure 2), which consequently led to several businesses having to permanently close down while several others had to be on a standstill for more than two months from October 2011 until December 2011. Employment was severely affected across the industrial sector as well as other sectors of the economy (Pathak & Ahmad, 2016).

In such major disaster scenarios, TVET offers several opportunities mainly for the labour section of employees. Even with offices relocated to the flood safe Bangkok Metropolitan area, workers had to struggle to secure any form of income and to merely survive throughout the 2011 floods. TVET could thus be applied as a crucial disaster management tool with regards to employment during the disaster recovery phase.

Disaster Management Framework in Nigeria and Thailand

The disaster management framework in Nigeria (see Figure 3) is well defined, however, it lacks considerable implementation of plans and policies, which are needed to ensure efficiency. The Federal Government through the National Emergency Management Agency (NEMA) heads the well-defined framework, which is responsible for facilitating the establishment of enabling legislation and monitoring the activities of the State Emergency Management Agency (SEMA) as well as the Local Emergency Management Authority (LEMA).

The aforementioned organisations are closely working with community through Disaster Response Units (DRU). Yet, the policy implications through these agencies on ground level were severely criticised during the 2012 floods on the basis of lack of inter-departmental coordination and lack of transparency during flood management.

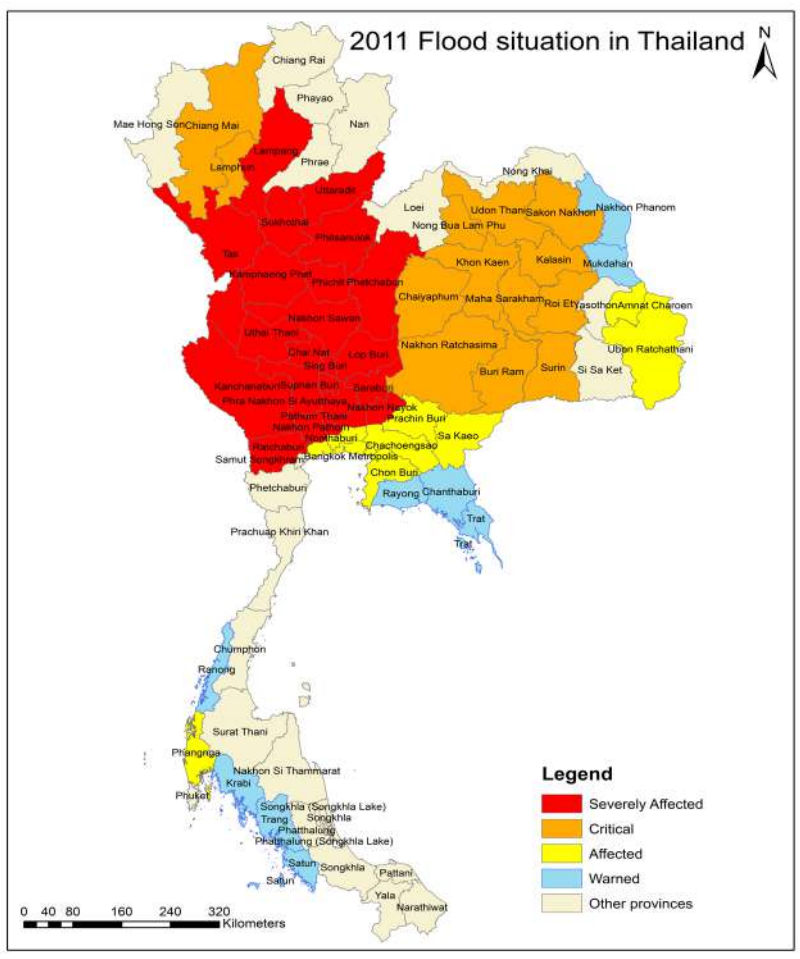


Figure 2:2011 Thailand flood map
Source: Thaiflood.com

Compared to this, Thailand's disaster framework (see Figure 4) is more defined and effective. The Prime Minister of Thailand and the cabinet head the framework. All other ministries work closely under the cabinet to ensure effective disaster management. The armed forces, provincial and district levels are at the subsequent stage of managing disasters.

Finally, the local level government offices along with the communities strive hard to manage disasters. One of the major reasons for the devastating impacts of the 2011 floods was that the intensity and magnitude was recorded beyond worst-case scenario of the government (Pathak & Ahmad, 2016). Therefore, damages and losses escalated immensely.

Figure 3: National Disaster management framework in Nigeria
Source: http://www.preventionweb.net/files/21708_nigherianationaldisastermanagementf.pdf

TVET and disaster resilience in Nigeria and Thailand

TVET is considered an essential tool for developing economies such as Nigeria as well as for fast growing economies such as Thailand. Badawi (2013) defines the concept of TVET as:

> "A comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life" (p. 284).

Disaster resilience has been gaining international attention with inclusion in development policy levels in several countries and in the United Nations. Various definitions exist to understand the concept of disaster resilience. However, the author chose the following conception of the terminology "disaster resilience" for the purpose of this study (Keating, et al., 2017.

> "The ability of a system, community or society to pursue its social, ecological and economic development objectives, while managing its disaster risk over time in a mutually reinforcing way."

TVET is regarded as a instrument that enhances national aspirations and achievements thus spurring economic development and growth. Both, the Nigerian as well as the Thai government, have been assisting and encouraging TVET programmes and policies to be adopted despite of it being considered a lower class profession (Okolocha, 2012). Both countries require skilled labour and abundant employment opportunities in order to build resilience. A TVET qualification equips the less academic-oriented and under-privileged students and improves livelihood opportunities during and after disasters.

In Thailand, vocational courses offered include industry, commerce/ business, fine arts, home economics, agriculture, fisheries, tourism and hospitality, ship building, textile and information technology and communication in 404 TVET Colleges by the Office of the Vocational Education Commission (OVEC) under the Ministry of Education (OVEC, 2017). Inclusion of TVET in the National Education Plan (2002-2016) facilitates self-employment and benefits the local communities, which is especially crucial during and after floods. In addition, several projects are carried out in collaboration with the industrial sectors for enhancing, strengthening and popularising TVET skills.

In Nigeria on the other hand, the National Board for Technical Education (NBTE) under the Ministry of Education coordinates TVET. Courses offered include agriculture, typing, bookkeeping, auto mechanics, commerce, teaching and woodwork. However, the total number of colleges is less than 200, which therefore makes it difficult to cater for the entire population (UNESCO-IBE , 2011). These colleges produce less skilled TVET graduates in view of the country's large population and geographical extent of Nigeria. As a consequence, government has been initiating several TVET programmes; yet, the challenges prevail in terms of establishing a comprehensive and effective TVET system in Nigeria.

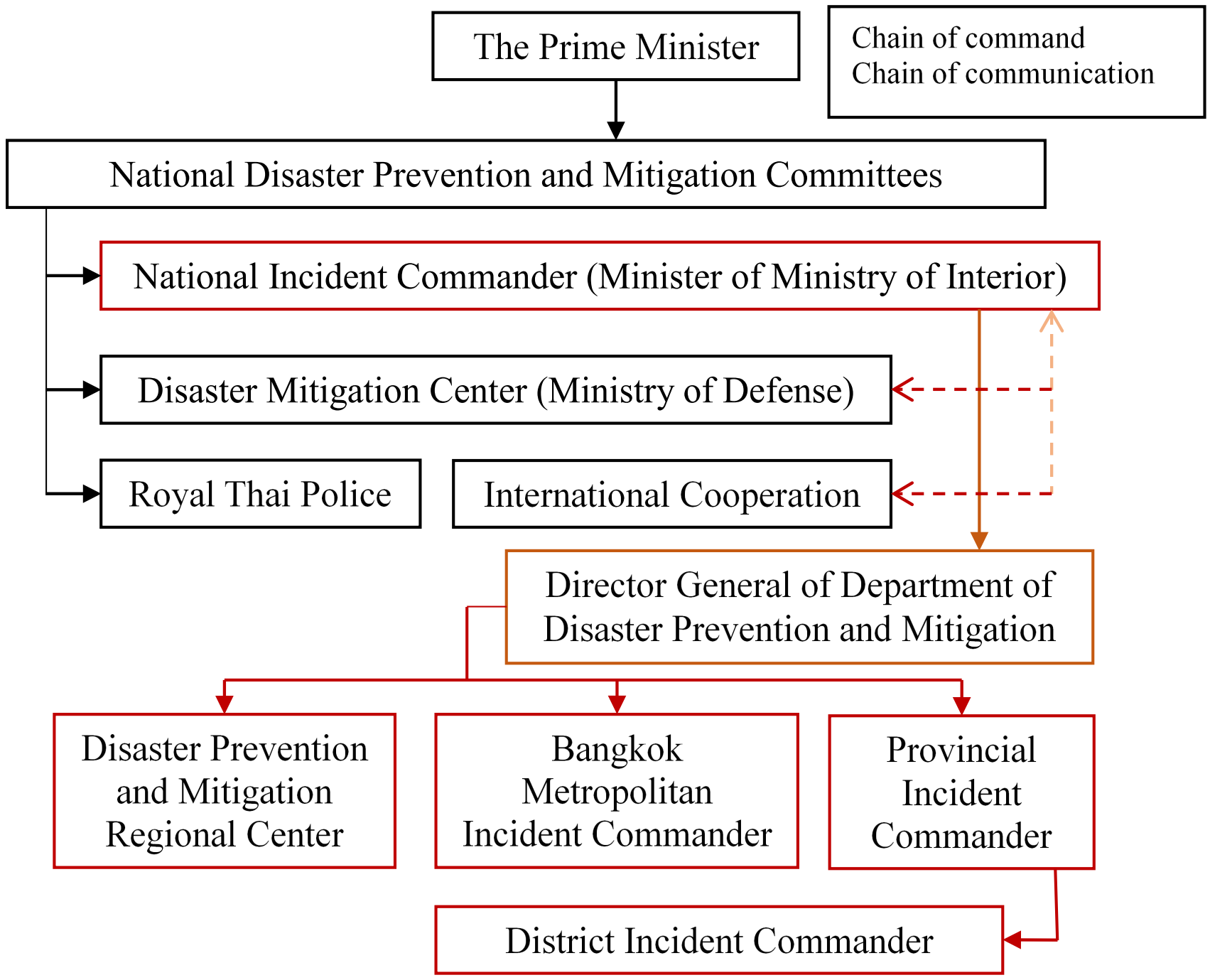
Research Methodology

The research methodology adopted for this study is a qualitative method approach making use of qualitative tools including survey questionnaires and key informant interviews. A detailed SWOT analysis was carried out to ascertain various factors influencing disaster resilience in the context of the two countries. Nigeria and Thailand were chosen to study the impact of TVET on disaster resilience due to different approaches towards disasters and varying economic and social setup.

The data collection included primary data collection among TVET employees (20 in both countries) who were effected during the devastating floods in Nigeria in 2012 and in Thailand in 2011 respectively. The respondents were selected with purposive random sampling from the list of TVET employees during the 2012 floods in Nigeria (NEMA, 2017) and the 2011 floods in Thailand (OVEC, 2017).

The questionnaire focused on attaining the experiences, hindrances and other issues faced by TVET employees during and after the floods in both countries. 12 key informant interviews were conducted with local and national level government officials as well as TVET teachers and

Figure 4: Disaster management framework in Thailand
Source: (Pimpa, 2007; Trumikaborworn, 2017)



employees. The secondary data was collected through research publications, reports, books and online resources of data related to TVET and disaster management from both countries.

Findings

The TVET institutions in both countries should focus on skilled training in various employment opportunities (Pimpa, 2007), on enhancing employability and on faster disaster recovery during and after floods. TVET enables graduates to find suitable positions faster (Raimi & Akhuemonkhan, 2014).

The employment generated during floods included temporary aquaculture in the inundated premises, waste management, sale of scrap material from inundated plant and machineries, construction of boats and sand bag dykes, drinking water bottle supply, boots and plastic overcoats and transportation from flood inundated areas to flood safe zones.

Comparative analysis was carried out from the data collected through primary and secondary sources. It was found that the overall situation in Thailand was generally more enhanced than in Nigeria in terms of TVET, disaster resilience as well as implementation and utilisation of TVET as a disaster resilience mechanism and strategy. The following table depicts the various factors related to TVET and disaster resilience illustrating their impact on both countries during floods.

The study revealed that TVET graduates benefit from numerous employment opportunities in both countries. However, Thailand was found to be more systematic and comprehensive in terms of TVET and its disaster framework. Despite drafting of disaster management and TVET planning at the national level, Nigeria still lacks adequate implementation of plans and policies. This was found prominent at the rural areas in particular. The following is a citation of an interview excerpt carried out with a Senior Officer at NEMA in Abuja,

"TVET and disaster management framework are already existing and being implemented. However, the capacities at the local level and rural areas lack in successful implementation of these plans. During the 2012 floods, it was felt that government capacities were limited and therefore require major revisions at the planning as well as human resource level."

Similarly, a quality assurance mechanism of TVET teachers and trainers was found to be absent in the Nigerian context. However, Thailand defined and implemented licensing for TVET teachers and trainers. These licenses are reviewed and renewed every five years in order to maintain the quality of faculty at the TVET schools and colleges. Nevertheless, the quality of rural faculties in Thailand has been deteriorating due to absence of resources and fewer enrolled students.

Disasters and TVET both have higher adverse effects on female gender (Reyes & Lu, 2016; Raimi & Akhuemonkhan, 2014). During the flood disasters in both Nigeria and Thailand, women suffered from a larger impact in terms of opportunities, accessibility and availability of time and resources to seek and undertake employment. This is due to the socio-economic and cultural set up in both the countries. However, Thailand experiences lower participation of female TVET graduates and employees whereas the country maintains gender balance at the educational level between male and female students. Nigeria, on the other hand, experiences gender bias in every aspect of TVET and disaster scenarios.

Moreover, Nigeria faces gender imbalance between male and female at the education level and in societal setup (Eboiyehi, et al., 2016). TVET is considered to be a low level and male dominated career in Nigeria. Therefore, opportunities for female TVET skilled graduates are limited. This poses a serious obstacle in disaster resilience, as women are more vulnerable without optimal resources during and after disasters.

Communities need to strengthen both male and female labour skills in order to achieve sustainable development and resilience from a disaster event.

Table 1: Comparative analysis of TVET factors affecting disaster resilience in Nigeria and Thailand

Comparative Factors	Nigeria	Thailand
Disaster Framework at all levels of governance	Absent at Rural and local level	Comprehensive framework existing throughout the country
TVET institutional framework	Unequal distribution of TVET institutions	Rural TVET institutions lack participation and quality training
TVET Teachers and Trainers	Lack of skilled teachers	TVET teachers require license which is to be renewed every 5 years
Gender of TVET students	Higher number of male than female students	Balance among male and female students
Social attitude towards TVET	Considered low level jobs	Popularising with higher remunerations involved
Employment generated by TVET during disasters	TVET provides employment for limited employees including wood workers and fisheries	TVET provides ample employment opportunity but lack of transportation facilities diminish its scope in rural areas
Policy level adoption for enhancing TVET	Not included in National Level planning process	TVET included in National Plans since 2002- till date
Resilience through TVET	Enhancing TVET institutional capacities is required to achieve resilience	With strengthening of rural TVET institutional framework, TVET would provide for sustainability and resilience to the vulnerable Thai communities.

On the other hand, with more opportunities and an increase in remuneration, TVET employment in Thailand is gaining recognition and popularity among young students and workers. The fact that the TVET workforce was able to earn more and consistently during the 2011 floods in Thailand, contributed to the enriching of TVET to achieve disaster resilience.

Employment generation is crucial during and after disasters to achieve resilience in societies and communities and TVET constitutes a possible solution for increased employability. The 2011 floods in Thailand provided many occupational opportunities in the area of TVET. However, In Nigeria due to its economic structure and income levels in society, the employment opportunities were limited during the 2012 floods. Two of the most popular and successful TVET skills were found to be woodwork and fishery during the Nigerian floods as means of livelihood.

The government in both countries acknowledges the fact that TVET generates more employment and therefore needs to be inculcated at the educational level. However, relevant policies and planning were found to be vague and implementation was lacking at the rural and local levels in both countries. In Thailand, the holistic national plan does provide for TVET and disaster resilience, yet it was unsuccessful during the 2011 floods as the inundation time line exceeded two months in several provinces reducing the transportation facilities and in turn diminishing accessibility to employment. Strengthening of TVET and disaster resilience among communities would significantly enrich and augment employment opportunities for both countries.

SWOT analysis

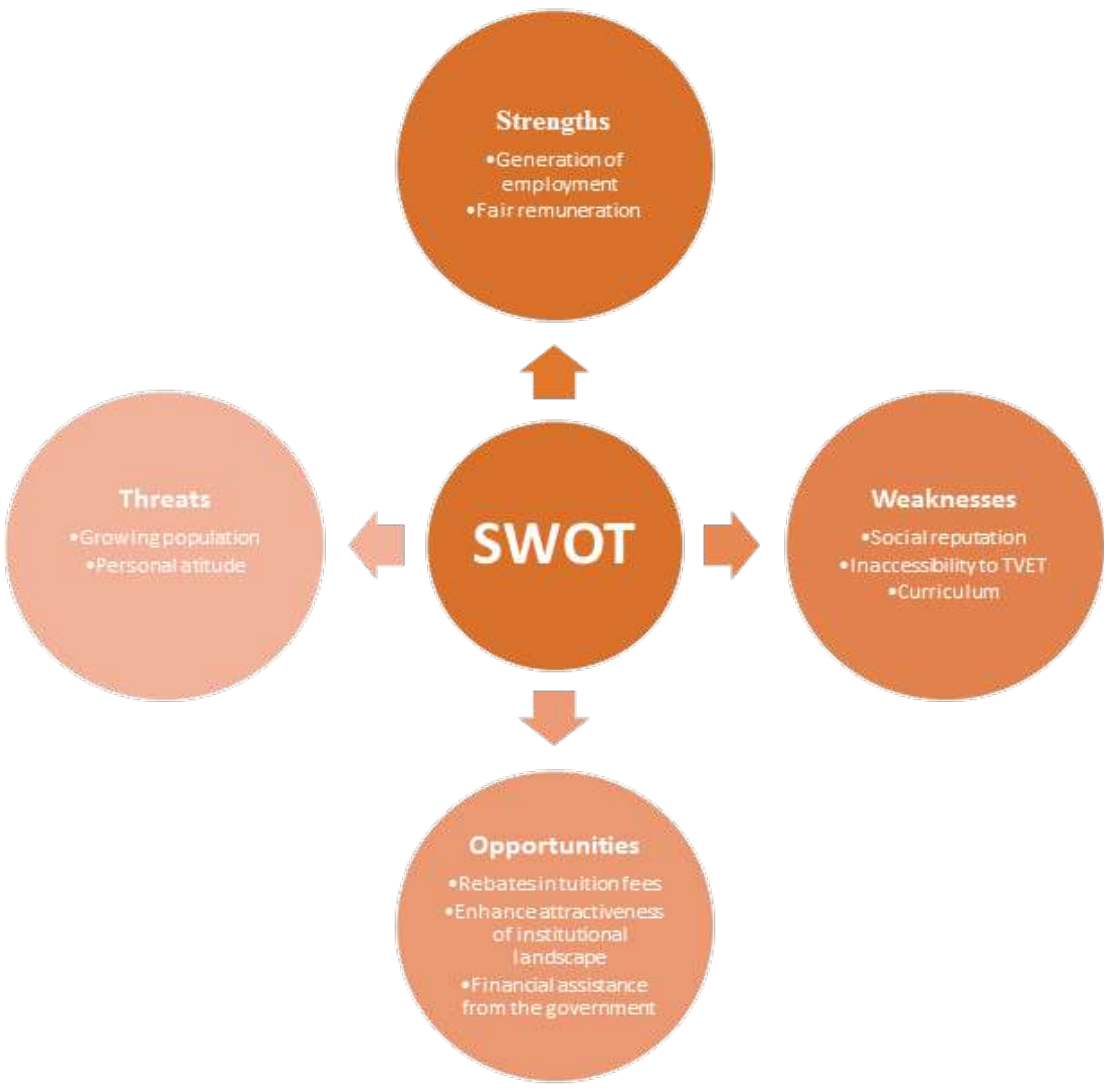
The following SWOT is aimed at better understanding and providing possible solutions to tap the available opportunities in both nations having analysed the implications of TVET during the floods in both Nigeria and Thailand.

Strengths: The main strength identified in both countries among the TVET workforce is the commitment and motivation to work hard and to earn a living. Several lorry drivers went on for more than twelve hours straight to transport flood affected people to safe zones. Apart from generation of employment for TVET workers, research indicated that the remuneration received by TVET workers during and after the floods was decent in terms of monetary values in both countries. However, due to better transportation systems in Thailand, Nigeria lagged behind in providing prompt and quick transportation of raw materials and inputs for TVET workers.

Weaknesses: Negative social implications related with TVET in both countries added to lower self-esteem among TVET graduates and employees. In addition, society perceives TVET employment as a lower class profession and leads to gender imbalance in TVET (Akhuemonkhan & Raimi, 2013). The TVET curriculum in Nigeria is found to be less advanced in terms of technology in comparison with that of Thailand. Thailand utilises its TVET curriculum as a means to adequately inculcate TVET skills at the institutional level. TVET workers in Thailand were more motivated and more self-confident than their counterparts in Nigeria. However, in rural Thailand, the TVET situation in colleges needs to be improved to generate overall growth and highly skilled TVET graduates (Choomnoon, 2011).

Opportunities: Governments could enhance capacities of TVET institutions and monitor employment opportunities during a disaster scenario. A comprehensive and up-to-date database of the countries' TVET skilled workforce would enhance and channel their adequate deployment during floods. Institutionalisation of TVET prevails in both countries; however, effective implementation is found to be lacking at the ground level. Governments should consider providing financial assistance to TVET graduates and enhancing attractiveness of the TVET institutes in order to reduce the social stigma in the society. Thailand has been successfully advertising and boosting TVET skills among their population and has thus generated more respect towards TVET employees than Nigeria.

Threats: Recurring floods disaster is one of the major threats to both countries. In terms of TVET employment, social stigma is found to be a major threat in curtailing the full exploitation of TVET skilled labour. The growing population and gender imbalance in Nigeria was observed as an additional threat towards successful TVET employment and a lack of expertise of TVET workers. Thailand, on the other hand, has more work opportunities than actual candidates for TVET-related vacancies.



TVET offers employment opportunities in times of flood disaster. The various levels of government should utilise existing employment opportunities such as building and maintenance of sand bag dykes in Thailand and wooden boats in Nigeria. Self-employment during flood disaster builds resilience among every section of the community. An interview with a flood victim who is engaged in manufacturing of sand bags in Thailand revealed the following.

"I had lots of opportunities during the 2011 floods. Sales were enormous and I had to increase the production even during the floods. I would have been miserable without my skills as there were no employment opportunities."

Nigeria is more vulnerable and less prepared in terms of floods disaster as compared to Thailand. However, more opportunities exist for TVET-related work in Nigeria. With woodwork and fisheries being very popular in Nigeria, skilled TVET graduates in the respective fields find it easier to cope during and after floods. A local level government officer in Abuja shared his view on the role of youth equipped with TVET skills in the midst of floods explaining that,

"Youth can indulge in woodwork as many people require woodworkers after the flood; similarly, fish being staple meat provides ample job opportunities for fish farmers. TVET skills in these fields help in jobs and survival of people during floods."

Disaster resilience is essential for faster recovery from disasters. The smooth transitioning of the disaster affected economy to normalcy or further growth requires TVET skills at small and medium enterprise level or self-employed businesses.

Conclusion

This paper reiterates the importance of TVET curricula upgradation and implementation of relevant policies in order to make it more responsive to market needs in both countries, Nigeria and Thailand. Governments should consider increasing participation of students in TVET programmes while raising the attractiveness of technical and vocational education offering more bursaries and rebates in tuition fees. The misconception of TVET seen as low-level work among societies needs to be addressed adequately to increase participation in such programmes and to provide more work opportunities in the event of a disaster. Awareness generation among communities is fundamental to build disaster resilience through the concept and implementation of TVET policies.

Moreover, different employment opportunities need to be identified such as arising from flood waste management, aquaculture during inundation of premises, construction of sand bag dykes, boats and other preparedness equipment from floods. These require TVET skills and give work possibilities during and after major disasters thereby enhancing sustainability and resilience among communities affected by floods.

Finally, Nigerian and Thai government authorities in close partnership with the private sector should design and undertake awareness campaigns, training and workshops hence attracting more students into technical and vocational education. Furthermore, gender balance needs to be reinforced to ensure equal chances and a higher number of female participants in TVET. Communities would significantly benefit from active participation of both male and female TVET workers. Further reform and expansion of the TVET system in both countries is essential in order to provide enhanced access to such training and to achieve sustainable development and disaster-resilient communities particularly in rural areas.

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Photo: Aliyu Adekunle S/Vanguard
Flooding leaves many homeless

Building Resilience and Increased Preparedness in the midst of devastating floods in Africa

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Abstract

Managing climate or weather-related disasters such as floods is a major challenge to Africa's development, as the number and scale of disasters triggered by natural hazards is on the rise globally (UNISDR, 2016). The degree of an adverse effect depends on the vulnerability of a country and of its population as well as on the frequency, intensity and magnitude of flooding. In the different regions of Africa, the synergy of natural disasters such as flooding, rapid urbanisation linked with informal settlements, water scarcity, and climate change has emerged as a serious challenge for policy and planning. This paper therefore focuses on the importance of building resilience and increased preparedness in the midst of devastating floods in Africa. It highlights three areas of best practice in the Horn of Africa, West Africa and Southern Africa. The paper essentially argues for African governments to prioritise pre-emptive investments in flood management in order to mitigate and address the increase in the number of high-impact disasters and crises.
Keywords: Floods, Resilience, West Africa, Horn of Africa, Southern Africa.

Introduction

Managing climate or weather-related disasters such as floods is a major challenge to Africa's development, as the number and scale of disasters triggered by natural hazards is on the rise globally (UNISDR, 2016). The degree of an adverse effect depends on the vulnerability of a country and of its population as well as on the frequency, intensity and magnitude of flooding. The WorldRiskIndex clearly illustrates this causal relation and shows that out of the 15 countries with the highest vulnerability to disasters, 13 are situated on the African continent, with the Central African Republic, Eritrea and Chad ranking as the Top 3 (see Figure 1 below). Countries like Liberia (ranked 56th), Zambia (ranked 66th) and the Central African Republic (ranked 71st) have a very high level of vulnerability despite a low exposure to natural hazards (WorldRiskReport, 2016).

Floods can produce critical challenges – including loss of lives and livelihoods, destruction of vital infrastructure –, thus hindering economic growth and stability across the continent. Consequently, both developing and emerging countries would significantly benefit from investing in prevention and adaptation measures to mitigate risk by integrating Disaster Risk Reduction (DRR) into their national development policies instead of predominantly concentrating on emergency response and recovery. The following article will focus on the importance of building resilience and increased preparedness in the midst of devastating floods in Africa. It highlights three areas of best practice in the Horn of Africa, West Africa and Southern Africa. The article essentially argues for African governments to prioritise pre-emptive investments in flood management.

During the second half of 2016 and in early 2017 flood risk increased in Southern Africa, as La Niña set in, while the 2015/2016 agricultural season was the driest in 35 years as a result of the El Niño phenomenon (see graphic 2 below).

The SADC Climate Services Centre predicted that by the end of 2016 the most affected countries as a result of above average rainfall and over 70% of the population is dependent on agriculture for their livelihoods. Moreover, in the Horn of Africa region, flooding and the occurrence of landslides in parts of Ethiopia, Kenya, Uganda and Somalia have been impacting millions and displacing thousands, resulting in hundreds of deaths in 2016.

Uganda is one of the African countries most prone to disasters. West Africa has equally been struck by heavy rainfalls; causing the Gorouol River at Alcongui in Niger to reach its highest level in over fifty years, as reported by the Niger Basin Authority. In the first half of 2016, flooding along the Shabelle River in the Hiraan region temporarily displaced some 70,000 Somalians and destroyed more than 80% of crops.

In Ghana, deadly downpours caused massive flooding in the capital city and along the Cape Coast during the 2016 wet season in West Africa (Aljazeera, 2016). The increased flood risk as La Niña emerges can only intensify the challenges facing developing and emerging countries attempting to implement the seven targets and four priorities of action of the Sendai Framework for Disaster Risk Reduction 2015-2030, which was adopted by all UN Member States in March 2015, in Sendai, Japan.

Impacts of flooding on African countries

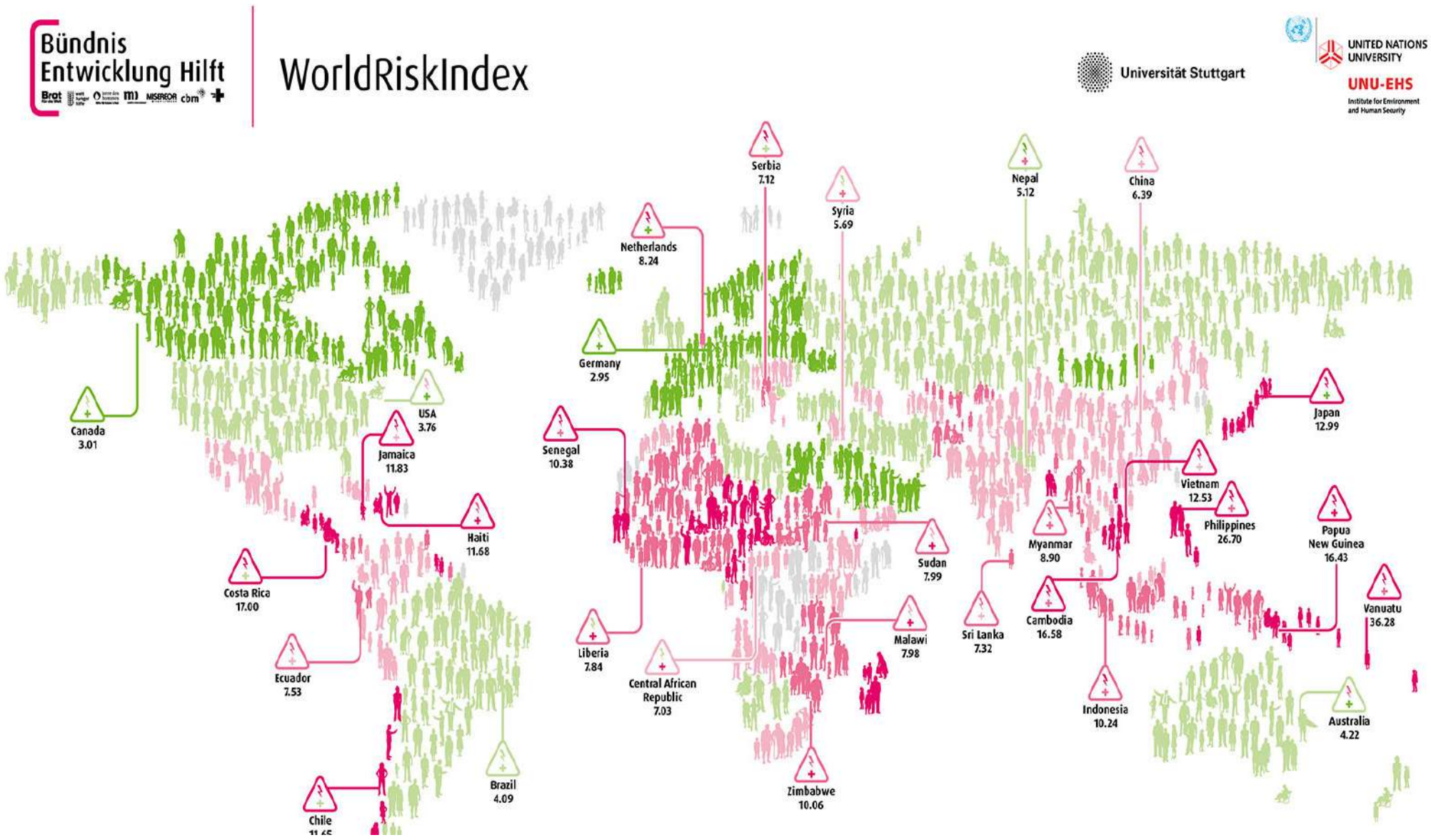
In the different regions of Africa, the synergy of natural disasters such as flooding, rapid urbanisation linked with informal settlements, water scarcity, and climate change has emerged as a serious challenge for policy and planning. There are limited sources of water available to provide clean drinking water to the entire population of Africa. Surface water sources are often highly polluted, and infrastructure to pipe water from fresh, clean sources to arid areas is associated with high costs. The United Nations estimates that Sub-Saharan Africa alone loses 40 billion hours per year collecting water. Urban areas, especially in Sub-Saharan Africa, have experienced an influx in water, which has outpaced the development of effective wastewater management systems and thus led to pollution of natural water bodies, unintentional use of wastewater in irrigated agriculture, irregular water supply and environmental concerns for aquatic life (TheWaterProject, 2016; Van Rooijen, Biggs, Smout & Drechsel, 2009). The recent devastating floods that have hit Africa hard affecting millions have caused death, destruction of livelihoods, infrastructure, property and businesses and left thousands of people displaced across the Northern, Western and Eastern regions of the continent.

The rise in water/vector borne diseases such as cholera and Acute Watery Diarrhoea outbreaks have enormous Public Health implications and require massive alterations in the lives of those affected (WHO, 2016); an average of 100 Public Health Emergencies (PHEs) are reported every year in the continent: 78% are related to infectious diseases (amongst which 23% are related to cholera alone), 17% are climate-related and 5% are linked to other causes. This was tragically witnessed in Tanzania's struggle to contain this year's deadly cholera outbreak – the largest since 1997-1998 – that has claimed hundreds of lives and left thousands infected due to poor access to safe water and sanitation.

The aforementioned factors have long-term implications as communities with inoperative sanitation facilities, disrupted education systems, malnutrition and poverty are susceptible to secondary effects such as famine and disease outbreak.

Best practices of building resilience to flooding in Africa

Horn of Africa: Use of drones in flood mapping and flood DRR in Tanzania. The Dar Ramani Huria Project, which is Swahili for "Dar Open Map", was initiated in 2015 by a coalition comprising of the City Council of Dar es Salaam, the Tanzania Commission for Science and Technology (COSTECH), the University of Dar es Salaam, Ardhi University, and the Buni Innovation Hub in support of the World Bank's Global Facility for Disaster Reduction and Recovery and the International Red Cross and involvement of a Swiss non-profit organisation, Drone Adventures.



The initiative looks at how drones can be used in community-based flood mapping and flood DRR and disaster recovery in the most flood-prone areas of the country's capital, Dar es Salaam. Drones provide high-resolution and up-to-date imagery that is essential for the development of exposure maps of affected communities and for modelling and better managing flood risks in an African megacity such as Dar es Salaam; one of the world's fastest growing cities. Over 70% of Dares Salaam 5 million residents live in informal, unplanned settlements with inadequate infrastructure (World Bank, 2002).

In addition, heavy rainfalls twice a year result in significant flood risks. The success of this particular flood management and DRR project has led to further applications and to government funding for infrastructure improvements in vulnerable areas identified by the project. The developed maps further serve as foundational tools for improvement within all socioeconomic spheres beyond flood resilience. The use of drones could thus play a critical role in decision-making and in flood risk mitigation in the future; this is particularly important for fast-growing cities where satellite imagery often becomes out-dated within a year.

West Africa: "Live with Water" – Urban flood management project in Senegal. Involving the community is fundamental to an urban flood management project called "Vivre avec l'Eau" – "Live with Water" – funded by UKaid's BRACED programme in support of its consortium partners. It aims at building resilience to flooding for some 920,000 vulnerable Senegalese, mainly in the Eastern suburbs of Dakar, through an innovative, integrated and community-based approach combining three interlinked axes of intervention including (1) infrastructure; (2) policy; and (3) capacity building. When properly managed, annual rainy season downpours should no longer damage people's assets and livelihoods or force them to flee their homes thus turning floodwaters from foe to friend. Similar flood resilience projects need to consider various critical success factors for their implementation:

- Adopting infrastructure solutions that are economically feasible and profitable, particularly in communities;
- Strengthen links between national and community level through participatory community processes, knowledge sharing and exchange in form of e.g.collaborative expert meetings;
- Women's empowerment to guarantee equity and sustainability by involving the most vulnerable groups to hazards caused by flooding;
- Strong partnership building through vital collaboration amongst different partners and stakeholders thereby achieving synergies;
- Strategies and technologies need to be tailor-made to the respective communities' conditions;
- Effective Monitoring & Evaluation processes;
- Constant inclusive communication through e.g. community advisory boards, exchange with policymakers, and business-model approaches.

Managing flood risk in the Incomati River Basin

Southern Africa: Since 2013, the Climate Resilient Infrastructure Development Facility (CRIDF), funded by the Department for International Development (DFID) is working with both the public and private sector in the Incomati River basin in Mozambique to mobilise funds to more equitably share and manage flood risk. The initiative is responsible for successfully changing the approach of flood risk management and pro-poor climate resilience along the Incomati River. It advocates for a more equalised distribution of responsibilities among the different stakeholders when it comes to managing and reducing current and future hazards such as floods. Applying a multi-dimensional and integrated approach, CRIDF uses infrastructure to significantly improve and build climate resilience of poor small-scale farmers living in the exposed basin. This resulted in:

- Creation of a de facto basin flood management committee;
- Facilitation of enhanced cooperation between public and private actors;
- Mobilisation of significant funds;
- Roll-out of a series of strategic interventions more widely in the Southern African region including flood forecasting, modelling, dam operation framework, risk sharing strategies and economic analysis of infrastructure options;
- Ultimately, such measures strengthen the ability of communities, policy makers and planners to adapt to and cope with climate extremes.

Conclusion - African governments need to prioritise preemptive investments in flood management

African governments need to prioritise preventive investments in order to mitigate and address the increase in the number of high-impact disasters and crises such as flooding that define the continent's narrative. Moreover, governments should focus on building flood resilience as a strategic tool in linking emergency management and development. At the global policy level, resilience is now institutionally recognised through its inclusion in the Sustainable Development Goals (SDGs), the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) as well as the 2015 Paris Agreement on Climate Change and the Agenda of the 2016 World Humanitarian Summit.

Despite this emphasis in international policy, African countries are still lagging behind in terms of investment in paving the way towards flood resilience and in mainstreaming DRR into their national development policies. Robert Glasser emphasised the need for increased coherence among the post-2015 frameworks during the recently held Africa Regional Platform on DRR, stating that:

"climate change, disaster risk reduction and sustainable development all require integration and should not be addressed in silos."

The One Billion Coalition for Resilience (1BC), a global "Coalition of Coalitions" aims to improve the resilience of one billion people by 2025 (IFRC, 2015). Their mission is to build resilience by mobilising effective partnership of actors from local to global embedded in common understanding, trust, transparency, incentives, impact measurement and institutional capability. Another initiative, the Global Resilience Partnership in Africa and Asia, places a strong emphasis on connecting civil society with government and the private sector. The latter is emerging as a key player in building resilience as companies seek to reduce business risk and take advantage of wider resilience benefits.

Although different actors in the field of DRR agree that risk assessment and measuring resilience is a pre-requisite for the prioritisation of actions and investments, it needs a balanced mix of various approaches with a focus placed on people and the most vulnerable guiding them in crafting their own resilient destinies.

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A Somalian woman hoes the arid soil as her daughters follow behind throwing seeds into the ground.
Photo credit: Reuters

Expert Interview on the Sendai Framework for Disaster Risk Reduction 2015-2030

Statements by: Dr. Audrey Cash and Dr. Bapon Fakhruddin

Dr. Audrey Cash
holds a Phd in International Development. She is a Lecturer at Christopher Newport University, US, and a Steering Committee member of ACECD, Gravitazz.

Dr. Bapon Fakhruddin
is an International DRR and hazard modeling expert, regular Adviser to the UN, and Editorial Board member for the Gravitazz quarterly publication.

1. **Gravitazz: Among the 187 countries that adopted the Sendai Framework for Disaster Risk Reduction 2015-2030 at the March 2015 UN World Conference on Disaster Risk Reduction were most of the African countries as signatories. While different regions of the world, in particular Asia and Latin America, achieved substantial progress in implementing the Hyogo Framework for Action 2005-2015, Africa made only slow progress despite it being the continent most vulnerable and least resilient to rapid and slow-onset disasters. What are the major challenges the continent faces in effectively implementing the SFDRR and how can they be overcome in the long-term in order to strengthen the region's political commitment to DRR?**

Audrey Cash: In my opinion, there is one over-arching stumbling block to the full implementation of SFDRR that of state accountability and responsibility. As a political scientist, I regard issues surrounding disaster risk management and DRR policies in terms of the level of (good) governance within any given state. Does the state "practice" good governance, generally, on a regular basis? If this is not the case, then one should not be surprised if/when international protocols such as the SFDRR are not adequately integrated at the national level. Another challenge to consider is that the act of signing on to international protocols, as in the case of the Sendai Framework, does not guarantee implementation of the guidelines through the respective government; signing does not carry any legal obligation to implement.

This is only done through the ratification process by parliament or congress. Only after a treaty or protocol has been ratified – incorporated into national law – is a state obligated to implement. This aspect often baffles members of the general public and additional confusion is triggered when the terms "ratify" and "signatory" are used interchangeably by media, without further explanation. In order to address the question of why most of the African countries have not implemented the SFDRR, one must first examine if the process of ratification has begun. Regionally, Sendai will only gain strength once every African country takes the necessary steps to incorporate its guidelines as part of the legal framework.

Bapon Fakhruddin: The recent synchronous adoption of landmark UN agreements, the Sendai Framework for Disaster Risk Reduction 2015 – 2030 (SFDRR), Sustainable Development Goals (SDGs), and COP21's Paris Climate Conference have created a rare yet significant opportunity to build more complete resilience agendas since building resilience requires action spanning from development, humanitarian, climate and disaster risk reduction areas.

This coherence will serve to strengthen existing risk fragility and resilience frameworks for multi hazard assessments, and aim to develop a dynamic, local, preventive, and adaptive urban governance system at the global, national, and local levels in Africa. The major challenges would be integration and a coordinated approach for the regional, national and local level. Key recommendations in building coherence between these agreements and agendas include:

- Raising awareness with national and sub-national governments on how the different frameworks align is critical; the relative political weight of frameworks may affect collaboration and coherence;
- Facilitating key partnerships, which help avoid duplication and maximise gains. Institutional incentives to work together may also be required to reinforce joint working across agreements;
- Instituting clear governance arrangements to ensure successful collective action and accountability;
- Developing consistent definitions, particularly on resilience and risk, which feature as common themes across all of the agreements; and ultimately
- Promoting science and technology involvement by funding national/regional research projects. The Sendai Framework specifically calls for enhanced scientific work in disaster risk and better coordination of existing networks and scientific research institutions.

2. **Gravitazz: Priority action 2 of the Sendai Framework seeks to "strengthen disaster risk governance to manage disaster risk". Effective disaster risk governance at the national, regional, and local level in Africa is a pre-requisite for successful prevention, mitigation, preparedness, response, recovery, and rehabilitation strategies. Poor governance and the substantial growth of population coupled with rapid urbanisation in Africa are major causes of an increased level of disaster risk. What principles of "good governance" are needed to achieve inclusive and sustainable DRR outcomes in Africa and to put DRR high on the political agenda as a cross-cutting development priority?**

Audrey Cash: I believe that African states must embrace the principles of accountability and responsiveness, as a matter of priority. Without these two, the prevention and mitigation of disaster risks are almost impossible. Historically, African leaders have not had a strong connection to the population that elected them. If government leaders do not feel accountable to the constituency then they will not feel compelled to produce the types of comprehensive and effective policies required for Disaster Risk Reduction and management.

Bapon Fakhruddin: Using national frameworks to empower local governments to engage in DRM, promoting an 'all-of-society' approach and establishing methods for evaluating progress are all crucial aspects in achieving inclusive and sustainable DRR outcomes in Africa. Moreover, joined up monitoring processes are needed to track progress on implementation of the different frameworks. This would also help minimise the reporting burden on countries, making data collection achievable.

3. **Gravitazz: In the past mega disasters across the world such as the 2004 Tsunami have played an instrumental role in initiating a paradigm shift from merely managing disasters i.e. emergency response to managing disaster risks. Could the El Niño-induced disaster be such a critical juncture that might initiate a paradigm shift in DRR approaches for the various regions of Africa?**

Audrey Cash: In my view, mega disasters primarily serve as a wake-up call to the general population as well as bringing to light the lack of disaster preparedness and effective response that characterises many developing countries in Africa. However, one must not limit this to the poor, developing countries of Sub-Saharan Africa. The devastation brought on by Hurricane Katrina in New Orleans, Louisiana (US), clearly demonstrates that even in the most developed countries, "pockets" of disaster unresponsiveness and under-preparedness occur.

I believe that a paradigm shift has occurred at certain levels of society, yet only on a superficial level. This is evident when one examines the rate at which Priority #4 "Build Back Better" takes place, post-disaster. In countries or regions that are regularly at risk to weather-related disasters, it has been noted that the rebuilding phase is rarely done to prevent future negative impacts – when the state bothers to design a rebuild policy. This, again, reiterates my main concern that governments must prioritise accountability and responsiveness in order to effectively manage disasters.

Bapon Fakhruddin: Slow onset disasters have always been neglected and not been paid serious attention. The phenomenon of El Niño is often regarded as sporadic and short lived as opposed to its long-time impacts. It requires a careful case to be made and in some countries a champion with influence to give it more consideration.

4. **Gravitazz: As one of the key priority challenges in implementing Disaster Risk Reduction strategies and policies, inadequate financing mechanisms have been frequently listed in this context particularly at the local and community level in Africa. In your opinion, what solution pathways can be pursued to overcome this impediment and how can African countries better leverage on the Sendai Framework?**

Audrey Cash: Financing needs to originate from within. As long as African countries continue to heavily rely on outside funding for national policies, inadequate financing mechanisms will remain constant. This speaks to one of the key aspects of good governance: accountability. African governments must be willing to cultivate a tangible relationship with their constituents, based on accountability. One of the most straightforward ways to achieve this is through taxation.

Governments should begin to finance state programmes through fair and equitable taxation, which directly benefits the population, such as by strengthening roads and other infrastructure, and by funding rebuilding programmes post-disaster, implementing anti-climate change policies, etc. On the other hand this does not imply that African governments should not accept emergency assistance from international donors or technical assistance, however, these should be used to strengthen domestic emergency preparedness and response policies, in order to mitigate unequal financing mechanisms. Through that approach African countries would be able to effectively implement the Sendai Framework and over the long-term.

Bapon Fakhruddin: As a continent Africa is very strong. Africa therefore needs to encourage every country to adopt risk financing. It can complement and stimulate risk reduction.

List of Acronyms

AIT	Asian Institute of Technology
BA	Bachelor
BRACED	Building Resilience and Adaptation to Climate Extremes and Disasters
CCA	Climate Change Adaptation
Ces	Complex Emergencies
COSTECH	Commission for Science and Technology
CRED	Centre for Research on the Epidemiology of Disasters
CRIDF	Climate Resilient Infrastructure Development Facility
DFID	Department for International Development
DIMA	Disaster Management Network
DoDMA	Department of Disaster Management Affairs
DPMM	Disaster Preparedness, Mitigation and Management
DRF	Disaster Recovery Framework
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DRU	Disaster Response Units
EA	Eastern Africa
EAC	East African Community
GFDRR	Global Facility for Disaster Reduction and Recovery
GHA	Greater Horn of Africa
GIS	Geographic Information System
IDMC	Internal Displacement Monitoring Center
IDPs	Internally Displaced Persons
IFRC	International Federation of Red Cross
IGAD	Intergovernmental Authority on Development
IPCC	Intergovernmental Panel on Climate Change
IVETA	International Vocational Education and Training Association
LEMA	Local Emergency Management Authority
MFERP	Malawi Floods Emergency Recovery Project
NBTE	National Board for Technical Education
NDRF	National Disaster Recovery Framework
NEMA	National Emergency Management Agency
NGO	Non-Governmental Organisation
NPOs	Non-profit Organisations
OCHA	Office for the Coordination of Humanitarian Affairs
OVEC	Office of the Vocational Education Commission
PDNA	Post Disaster Needs Assessment
PHEs	Public Health Emergencies
SADC	Southern African Development Community
SD	Sustainable Development
SDGs	Sustainable Development Goals
SEMA	State Emergency Management Agency
SFDRR	Sendai Framework for Disaster Risk Reduction 2015-2030
SWOT	Strengths, Weaknesses, Opportunities and Threats
TVET	Technical and Vocational Education and Training
UAB	Autonomous University of Barcelona
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNESCO-	IBE United Nations Educational, Scientific and Cultural Organisation International Bureau of Education
UNESCO-UNEVOC	United Nations Educational, Scientific and Cultural Organisation International Centre for Technical and Vocational Education and Training
UNHCR	United Nations High Commissioner for Refugees
UNISDR	United Nations International Strategy for Disaster Reduction
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
VOA	Voice Of America
WHO	World Health Organisation

Editorial Board Members of the Gravitazz quarterly publication

Prof. Dr. Ali Ardalan

Prof. Dr. Ali Ardalan is a Senior Fellow and Visiting Scientist at Harvard Humanitarian Initiative, Harvard School of Public Health U.S.A. He is dedicated to improving the DRR science-policy dialogue at global levels and has thus extensively contributed to highlighting "health" during the development of the Sendai Framework. He further provided expert knowledge in finalising the SFDRR's targets and terminology.

He serves as a member of the Asia Science, Technology and Academia Advisory Group (ASTAAG) of UNISDR, chairs the Department of Health in Emergencies and Disasters at Tehran University of Medical Sciences, and has been working as an Adviser to WHO and UNFPA on health emergency planning and risk assessment. As a member of the Global Board of the Global Network of Civil Society Organisations for Disaster Reduction (GNDR) he represents Central Asia. Prof. Ali served as an Adviser to the Deputy Minister of Iran's health system where he founded the Disaster Risk Management Office and institutionalised DRM into the national primary health care system. He established the first health disaster PhD programme and related academic centres in Iran and MENA region. His interest lies in bridging the experiences of DRR science and technology between the two continents of Africa and Asia; for the past four years Prof. Ardalan has been supervising PhD candidates from Africa and published various scholarly articles on DRR in an African context.

Dr. Bapon Shm Fakhruddin

is an international Disaster Risk Reduction and hazard modeling expert who is a regular Adviser to the United Nations on Natural Hazards and Climate Change. Bapon joined Tonkin + Taylor, New Zealand's leading environmental and engineering consultancy, in 2015 and continues to work with the UNDP in Samoa as Chief Technical Adviser.

During his career, Bapon has helped to design major international natural hazard early warning systems for floods, cyclone and tsunami to save life and property damage. His most high profile work has been developing multi-hazard warning systems including a Tsunami Warning System for Indian Ocean countries following the deadliest one in history - the 2004 Boxing Day Tsunami that took more than 230,000 lives in 14 countries. To date, Bapon has developed multi hazard warning systems for 25 countries including: Thailand, Cambodia, Bangladesh, Indonesia, Sri Lanka, Maldives and Samoa. Bapon is currently overseeing the implementation of a major DRR series of systems for Samoa and New Zealand.

Thandeka Dlamini-Simelane

is a PhD candidate in Medical Anthropology at University of Amsterdam and holds a Master's in Development Studies from Nelson Mandela Metropolitan University in Swaziland. As the World Bank Project Lead she is responsible for the project management of an impact evaluation study that aims at assessing the effectiveness of cash transfers on adolescent girls and young women (AGYW) to reduce their risk for HIV infection in Swaziland.

Prior to that she worked as a social science researcher in a consortium of six international partners where she carried out extensive field research on national HIV response programmes in Southern Africa. Past working stations in the region included her employment as Access-to-Medicines Analyst with Clinton Health Access Initiative, as an Emergency Officer – Child Protection and DRR Coordination with the United Nations Children's Fund (UNICEF) and as Monitoring and Evaluation Officer with United Nations World Food Programme (UNWFP). Thandeka has published extensively in peer-reviewed journals and presented research findings in international conferences and symposia.

Consolate Nakyagaba

is currently pursuing her Masters of Business Administration at Heriot Watt University in the UK and is a Certified Risk Manager as well as a Chartered Certified Accountant (ACCA) who holds a BA in Social Administration and Economics from Makerere University in Uganda. Consolate possesses over 12 years of experience in enterprise risk management, disaster risk management, risk and vulnerability assessments, emergency planning and response as well as Climate Change Adaptation (CCA) and mitigation attained from working with both the private and the public sector.s She also championed climate adaptation and risk assessment as part of the project team that coordinated the development of the 'Kampala Climate Change Action Strategy'. Currently, she is the component head for the European Union project 'Implementing the Sustainable Energy and Climate Action Plan for Kampala City' and Project Lead for the initiative 'Making cities resilient and sustainable' as part of the implementation of the SFDRR 2015 – 2030, a joint project by Kampala Capital City Authority and UNISDR.

Dr. Jorge Diaz

holds a Bachelor degree in Architecture in Peru, and his Master and Doctoral degrees in Mexico. He has lived and worked in five countries and is currently an International Senior Consultant worldwide. Since 1986 he has led consultancy, research and training activities in more than ten countries,both in developing and developed countries including Peru, Mexico, Chile, Ecuador,Argentina, Canada, Switzerland, South Africa, UK, and Poland. The scope of projects include climate change, Disaster Risk Reduction (DRR) and resilience, involuntary re-settlement, sustainable transport planning, and urban planning within various sectors such as NGO, CSO, International Charity Organisations and Local Government Institutions.

Francis Nkoka

is an irrigation, water resources management and disaster risk management expert with over 11 years work experience in Southern Africa and vast knowledge in socio-technical and political aspects of irrigation and infrastructure development projects. He holds an MSc in Agricultural Development from the University of Copenhagen and an MSc in International Land and Water Management, Irrigation and Water Engineering from Wageningen University. Francis undertook additional training in the field of disaster risk and environmental assessment, mitigation, DRM/DRR, emergency management and preparedness, proposal development, statistics for climate, community scorecard, and PRA. In 2011 he joined the World Bank in Malawi as their Senior Disaster Risk Management Specialist. Prior to that he worked as Agriculture Manager for Save the Children and as Technical Coordinator for Care International.

Dr. Mary Antonette Beroya-Eitner

is the founding president and lead scientist of EarthThink Inc. She is a research fellow at the University of the Philippines Center for Integrative Development Studies (UP CIDS) and the Centre International de Formation des Autorités et Leaders (CIFAL Philippines) under the United Nations Institute for Training and Research (UNITAR), and a subject matter expert of the Earthquake and Megacities Initiative (EMI).

Dr. Beroya-Eitner holds a Bachelor and Master degree in Geology from the University of the Philippines and a PhD in Engineering Geology from the University of Hong Kong. She also joined the Elite International Masters Study Programme in Global Change Ecology at the University of Bayreuth where she obtained her second Master degree. More recently, she was a JSPS (Japan Society for the Promotion of Science) Postdoctoral Research Fellow at the United Nations University - Institute for the Advanced Study of Sustainability (UNU-IAS) and Tokyo University. Dr. Beroya-Eitner has worked in different countries including the Philippines, Hong Kong, Germany, Japan, and USA, with different sectors such as government, NGOs, international organisations, academia, and private consultancies. Her specialisation includes hazard and vulnerability assessment (earthquake, landslide and flooding), Disaster Risk Reduction (DRR), Climate Change Adaptation (CCA), urban resilience, socio-ecological system, ecosystem services and green infrastructure.

Kehinde Balogun

Kehinde's overarching professional goal is to promote humanity and solidarity through the use of insurance to manage disaster risks in the face of climate change impacts. She holds a Bachelor's Degree in Business Management from the National University of Lesotho (NUL) and a Master's Degree in Disaster Risk Management from the Disaster Risk Management Training and Education Centre at the University of the Free State (UFS-DiMTEC).

Kehinde's zeal to help vulnerable people and communities led her to work as a researcher and volunteer for causes such as HIV/AIDS, youth capacity development and Disaster Risk Reduction (DRR). At the Institute for Environment and Human Security of the United Nations University (UNU-EHS), Kehinde works on topics such as DRR and Climate Change Adaptation (CCA), and is an expert on slow-onset losses and damages and their impacts on vulnerable populations. In this capacity she provides inputs and submissions to the United Nations Framework Convention on Climate Change (UNFCCC) policy discussions. Through her engagement at the Munich Climate Insurance Initiative she presents and contributes to various international events that focus on the nexus between disaster risk management and CCA through the value of insurance.

Oyundi Nehondo Thomas

is a disaster risk management expert and has extensively contributed to scaling-up and deepening strategic and operational mainstreaming of DRR/DRM and resilience building along the humanitarian-development continuum at all levels in developing countries. He holds an MSc in Disaster Risk Management and Sustainable Development from Masinde Muliro University of Science and Technology Kenya, a Post-Graduate Diploma in Education, and a BSc in Environmental Physics and Mathematics.Oyundi gained extensive international work experience while working as Regional Project Coordinator and Resilience/DRR Adviser for UNISDR's Regional Office for Africa; as Technical Adviser of the STREAM Consortium on DRR, early warning, emergencies and livelihoods for ACTED's Kenya and Somalia programmes; as Emergency Specialist at UNICEF; Head of Department – Emergencies, Food Security, Livelihoods and DRR at ACF-USA Kenya; as Humanitarian Policy and Advocacy Officer at Oxfam; and as DRR specialist for the International Rescue Committee and the International Federation of the Red Cross. Since 2008 he has been engaged in international consultancies for different organisations including World Relief, UNDP, UNWOMEN, Oxfam, Helpage International, the Red Cross, and Solidarités International.

Highlights of the Gravitazz Institute 2017

The Gravitazz Institute for Disaster Reduction and Emergency Management embarked upon the organisation's fifth year of existence with a new mood of invigoration to strengthen its management planning and strong commitment to place Disaster Risk Reduction (DRR) high on the development agenda and government policies in Africa. Gravitazz' five-year Strategic Plan 2017 – 2022 was finally adopted in early January 2017 and provides a solid foundation for its institutional objectives and major activities to be achieved in 2017 bearing in mind the broader goals contained in this strategic document.

During the first quarter of 2017, Gravitazz successfully launched its **Training Institute**, offering both short training courses and national certificates and diplomas in the broader field of DRR. In April 2017 the Gravitazz Institute hosted a **short training course on Disaster Risk Management in Johannesburg, South Africa**, which was attended by senior UN and government officials from Malawi and Eritrea.

The institute is in the process of implementing similar courses for Francophone Africa. Moreover, the idea of partnerships with private colleges in South Africa has finally become a reality and the Gravitazz Institute is proud to announce that starting from June 2017 it will be offering national certificates and diplomas in partnership with the Gauteng City College. Gravitazz is also currently exploring similar opportunities with other colleges and higher education institutions in the area of DRR.

In addition, Gravitazz was actively involved in DRR stakeholder engagement and knowledge sharing activities. In this context and in line with the Gravitazz' vision of achieving **"A Disaster-Prepared African Continent"**, the Executive Director attended the African Risk Capacity (ARC) Technical Committee Meeting held in Ivory Coast as well as the Berlin high-level event on Climate Risk Insurance in March representing the African Perspective on the effectiveness of risk transfer instruments to increase countries' resilience. These events constituted an excellent opportunity to further share and grow technical expertise in the domain of DRR and to engage in fruitful dialogue with practitioners and government officials in Africa and beyond its continental borders.

Moreover, one of the key activities of the **Gravitazz Foundation (GCI)** in 2017 evolves around the organisation and planning of the **First Africa Conference on Economic Costs of Disasters: the Role of the Private Sector (ACECD 2017) to be held on 23-25 October 2017 in Johannesburg, South Africa.** In view of making it a successful event, Gravitazz has thoroughly selected and appointed distinguished professionals for the Conference Steering Committee and has brought to the table important strategic local partners such as **the Gauteng Province Department of Cooperative Governance and Traditional Affairs (COGTA) and the Gauteng Provincial Disaster Management Centre (PDMC).** The Conference was endorsed by Malawi, Nigeria, Swaziland and Tanzania.

It is also remarkable that in April 2017 "DIMA Connect" – Gravitazz' core initiative and DRR networking platform - reached 250 members and continues to grow further while serving its special purpose of bringing together experts from all over Africa who are passionate about disaster management.

Lastly, as part of Gravitazz' continuous efforts to accomplish its strategic objectives and to successfully manage its organisational demands, the institute significantly increased its diverse and multi-cultural workforce welcoming on board **Mr. Maurice Kande, Academic Coordinator** responsible for the Gravitazz Training Institute, **Ms. Irene Sikhakhane, Administration Officer** as well as **Ms. Chloé Girard** and **Ms. Katarzyna Zdunczyk** joining as Research and Programme Development Assistants.

Further Reading on Disaster Risk Reduction

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About the Artist: Zanele M'Cwabeni

Zanele was born and raised in Canada, yet she holds strong roots in Africa as her mother hails from Zimbabwe while her father is from South Africa. As an artist she started experimenting with different mediums during 2010-2013 while she was pursuing her Master's degree in Disaster and Emergency Management. Beyond question, creating this art piece exhibits the artist's interest in the subject of natural disasters, and specifically the impacts it has on women and children.

Zanele's Masters thesis aimed to stress the importance of actively involving women in the different stages of disaster management, as they constitute one of the most vulnerable groups among the communities. It would provide women with the education and know-how to protect themselves and their community in the event of a disaster, thereby evading the possibility of having properties and livelihood completely destroyed or severely damaged in the future. Decision-makers must address women's vulnerability and strive to eradicate it. This would ensure sustainable development for women now and in the future.

The art therefore seeks to conclude that it would be in decision-makers best interest to closely work with women, consider their capabilities and aid them in achieving mitigation measures that can better prepare them for disasters.

Explanation of Artwork

Title: 'Displacement'

Material: Created using pastel, to depict sand and dust. A portrayal of cave painting, which illustrates a mother and her young son traversing the lands, and crossing borders, to escape the threats caused by natural disasters. Studies have shown that gender dimensions are often ignored during natural disasters. As a result women bear the brunt especially in developing countries, since their needs and capacities are often overlooked during the different stages of disasters.

For more information visit Zanele's instagram @Zanelemcwabeni.