

Moving Beyond the Ad hoc Responses in Flood Management
to a Localization Approach in Ghana

Anab Chrysogonus

(corresponding author; achrysogonus@uds.edu.gh/+233-244821024)

Department of Sustainable Development Studies,
Faculty of Sustainable Development Studies,
University for Development
Studies, BOX TL 1350, Tamale

Joseph Abazaami

(jabazaami@uds.edu.gh/+233-244990575)

Institute for Interdisciplinary Research and Consultancy Services
University for Development
Studies, BOX TL 1350, Tamale

Achanso, Sulemana Adam

(dr.aadams@uds.edu.gh/+233-249540749)

Faculty of Sustainable Development Studies,
University for Development
Studies, BOX TL 1350, Tamale

DOI//<http://dx.doi.org/10.4314/gjds.v19i2.8>

Abstract

Flooding has become one form of disaster that has become both a national and global concern. In Ghana, flooding has become a yearly ritual, displacing many community members, destroying farmlands, and cutting off communities. The state institution mandated to coordinate and manage disasters is the National Disaster Management Organisation (NADMO). However, NADMO is always overwhelmed with the level of humanitarian assistance required by flood victims annually due to limited resources. Floods management in Ghana is largely reactionary and short-term, hence the need for long-term planning. The researchers therefore used both secondary and primary data to investigate the drivers and gaps in the existing flood management approaches. The findings showed that inadequate funding, non-

enforcement of settlement and farming laws; unhealthy environmental practices and low investments in flood containment infrastructure were the drivers of the perennial floods in Ghana. The major gap identified was the over reliance on central government and development partners to finance flood preparedness, response and recovery interventions. These funding sources have always been inadequate and irregular. The study concluded with a recommendation to NADMO and other state agencies to adopt a long-term, holistic and locally driven approach to flood management in Ghana.

Key words: Disasters, Floods, Local Philanthropy, Preparedness, Response, Recovery

Introduction

Ghana remains a relatively democratic and peaceful country, having successfully conducted eight elections since 1992. Successive governments have initiated and implemented policies and programmes to reduce poverty and increase wealth. These include the Ghana Poverty Reduction Strategies (GPRS I and II), the Ghana Shared Growth and Development Agenda (GSGDA) 2010-2013, the Ghana Beyond Aid Charter and Strategy, 2019, the Ghana Covid-19 Alleviation and Revitalization of Enterprises Support (Ghana-CARES Obaatanpa Programme) 2020-2023, and the Coordinated Programme for Economic and Social Development Policies (2017-2024). The 1992 Republican Constitution of Ghana envisions a just, free, secured and inclusive country with opportunities for all citizens. But a safe and secured nation include the capacity of the state agencies to prepare, respond and recover from disasters. This has become imperative in the midst of climate change and its associated extreme events, such as floods, droughts and windstorms. The subject of disaster risk reduction has, therefore, gained local, national and global attention. At the global level, the Sustainable Development Goals (SDGs) have specific targets to deal with disasters. SDG 11.5 requires nations by 2030, to significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations. SDG 13.1 calls on nations to strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries; and SDG 13.2 admonishes countries to integrate climate change measures into local and national level policies, strategies and planning. Notwithstanding the fact that many nations have signed up to the

SDGs, an Office for the Coordination of Humanitarian Affairs (OCHA) report indicated that flooding at the beginning of the year has affected 669,000 people in West and Central Africa, including Ghana, with the combined effect of heavy rains, floods, and windstorms killing 174 people, injuring 300, displacing 69,000, and destroying 72,000 houses (OCHA, 2021). At the national level, Ghana recognizes that floods have human rights, development and national security implications and, therefore, should be addressed in a holistic and sustainable way (Ghana, Ministry of National Security, 2020). This is because all parts of the country face one form of flooding or the other. The major forms of flooding are river floods and flash floods. River flooding is essentially due to intensive rainfall and the inability of rivers to contain the water resulting in the bursting of their banks. Flash flooding in Ghana is due to heavy and sudden rainfall occurring over a short period of time and the inability of the ground to absorb the water as quickly as possible. Flooding needs agent attention in Ghana because it is the second national disaster in the country (Asumadu-sarkodie, Samuel, Phebe Asantewaa Owusu, Patrick Rufangura and Samuel Asumadu-sarkodie, 2015). The severity and impact of flooding in Ghana is expected to increase due to climate change and increasing population dynamics (Okyerere, , Yira & Dominik , 2012). In spite of the perennial occurrence of these floods, Ghana has not been very successful in flood preparedness, response and recovery. The fatalities due to floods in Northern Ghana in particular are alarmingly high and burdensome. In 1999, 300,000 people were affected by floods. Similarly, in 2007, 307,127 people were ravaged by floods resulting in the declaration of a state of emergency in Ghana and the launch of a \$25million flood emergency response campaign to provide relieve to the affected people (NADMO, 2011). In June 2015, the choked Odaw River got flooded and claimed 150 lives. Between the period 2018 and 2020, 78 people were killed by floods, 23,371 houses collapsed rendering 100,000 people homeless, and 94,379 acres of farmlands destroyed, resulting in food insecurity in Northern Ghana (Floodlist, 2018; NADMO, 2020). The irony is that the northern regions of Ghana which are already food insecure, with challenges in accessing quality and affordable education and health services rather bear the brunt of perennial floods. Before the end of 2021, NADMO recorded 12 deaths due to flooding, with 16 communities cut off from major towns in the North-East region. However, the ravaging effects of the floods were even more severe in the Upper West region. Status reports from NADMO in the region indicate that, so far, a total of 3,208 people have been affected, with 2

deaths, 269 collapsed houses, 2,951 acres of farmlands submerged under water and 84 community roads washed away, cutting them off from other communities. In Ghana, the state institution vested with the mandate to coordinate and manage disasters is the National Disaster Management Organisation (NADMO) as stipulated in the NADMO Act, 2016 (Act, 927). The functions of NADMO are implemented through a national secretariat, sixteen regional secretariats, 260 district/municipal/metropolitan secretariats and 900 zonal offices, with a total of 8,000 staff. It has over 3,500 Disaster Volunteer Groups (DVGs) formed with a total national membership of over 60,000 engaged in basic disaster management at the community level. Despite the decentralised nature of NADMO, the institution remains weak largely due to lack required resources to implement its mandate (NADMO, 2020). According to Ziem (2017), the Director-General of NADMO, Nana Agyemang-Prempeh, listed the challenges facing NADMO as lack of logistics, insufficient budgetary allocation for in-house administration and for the purchase of relief items, lack of training for staff indicating that more than 80% of the staff have no training in disaster management. NADMO's flood management strategies are generally ad hoc, and reactionary as observed by Tenga & Algbavboa (2016). Flooding approaches in Ghana revolve around rapid assessments, short-term appeal for relief support from Non-Governmental Organisation and international humanitarian agencies and supply of relief items to people affected by the floods. NADMO currently applies a top-down model which requires that resources for flood risk management come from the headquarters and central government sources. This is in spite of the fact that the country has a decentralized system of governance with dedicated common fund for locally initiated actions. As a result, emergency relief support for flood victims comprising food and non-form items, such as grains and oils, blankets, mattresses, medicines, toiletries and clothing, often arrive late, and in inadequate quantities. Most often, there are no resources for post-floods rehabilitation and reconstruction which leave the affected persons vulnerable and unable to build resilience against subsequent floods (Tenga & Algbavboa, 2016). Additionally, Ghana's flood risk management approach is centrally driven by the headquarters which is fundamentally flawed because it undermines the capacity and potential of local communities to mobilize human and material resources to prepare, respond and recover from floods. Therefore, the annual loss of human lives as a result of flood disasters is akin to assisted suicide due to the lack of pre-emptive and early response

mechanism to mitigate the impact of floods in the affected communities. The established fact is that flooding occurs annually in Ghana which is known to all relevant state actors yet they occur with anticipated devastating consequences. This is the worrying context of flooding in Ghana and the interest of the researchers to improve the understanding of local stakeholders on the drivers of flooding in their communities, identify the gaps in the existing flood management strategy and to explore alternative pathways for addressing flooding in Ghana. This research was motivated by the following objectives:

1. To deepen understanding of the drivers of flooding in Ghana.
2. To identify the gaps in the current approaches to flood management in Ghana.
3. To explore alternative frameworks for managing floods in Ghana.

In order to provide shape and structure to the research, the following questions were posed:

1. What are the main drivers of floods in Ghana?
2. What are the gaps in the existing framework for flood management in Ghana?
3. What framework will help Ghana to manage floods on a sustainable basis?

Literature review

To provide a deepened appreciation and understanding of the research subject, a number of important concepts and theories which are relevant to the research have been explained below.

Disasters

The definition of a disaster remains a shifting sand. This is because of its omnibus nature. According to the United States Agency for International Development (USAID) (2011), disasters can be considered and understood from various dimensions. These include the number of losses and injuries, the extent of the occurrence in terms of geography and scale, the value of losses in monetary terms, the nature of the disaster whether short or long-term and the periodicity of occurrence. This definition therefore tends to place value on the quantitative dimension of disasters. Whilst

this definition implies that flooding can occur in any geographical area of Ghana, the scope and impact could be varied requiring the intervention of both local and national level actors. From a human rights perspective, even if the disaster affects a single person, it forms a basis for local and national action. In the view of Mizutori (2020), disasters occur when communities are resource poor and unable to mobilise the needed resources to mitigate the impact due to poverty, lack of voice and limited technical capacity at the community level. This implies that access to financial and non-financial resources play a vital role in building community resilience to flooding and other forms of disasters. Therefore, inclusivity in raising awareness on flooding and the mobilisation of the required human and material resources for preventing and responding to flooding are importance strategies in disaster risk reduction. The International Federation of Red Cross (IFRC) see disasters as enormous disruptions to community activities without the ability to cope with the situation using their own resources. This implies that the communities are vulnerable when disasters strike rendering them as recipients of emergency relief from institutions outside their community. The view of the IFRC is therefore to build community resilience to mitigate the hazards that lead to disasters. This viewpoint is supported by Wooster (2020) who argued that local volunteers, local giving rather than national giving was quicker, faster, and better in providing relief support to COVID-19 patients in the United States of America during the pandemic. The argument for a local philanthropy approach to flood management in Ghana is not against mobilising resources from exogenous sources for flood management. But the over dependence on central government sources for financing flood management strategies. It is an advocacy against the expensive “flight- in” of officials from the nation’s capital, Accra, to conduct rapid assessments to establish the impact of flooding on communities. This is because it is an inefficient, time consuming and expensive approach to flooding management in Ghana. What is being canvassed is an endogenous approach which is locally driven but does not exclude the mobilisation of resources from external sources to prevent and respond to flood situations in Ghana. The United Nations International Strategy for Disaster Reduction (UNISDR) (2009) defined a disaster as “...a serious disruption of the functioning of a community or a society involving widespread human, material, or environmental losses and impacts which exceeds the ability of the affected community to cope using only its own resources.” It is important to stress that all the above definitions point to the need to build community level

capacity to mitigate, reduce and respond to floods and other forms of disasters which is lacking in the flood management strategies employed in Ghana.

The Sendai Framework for Disaster Risk Reduction

The Sendai Framework for Disaster Risk Reduction spans the period 2015-2030. The overarching aim of the framework is to substantially reduce disasters that result in the loss of lives, livelihoods, and other economic, social, physical, cultural and environmental assets. It seeks to address the gaps in successive frameworks such as the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters; the International Strategy for Disaster Reduction of 1999 and the Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action, adopted in 1994 (United Nations, 2015). The Sendai Framework for Disaster Risk Reduction has outlined four priority areas of action for international, national, and local level stakeholders involved in disaster management. These are: 1) Understanding disaster risk; 2) Strengthening disaster risk governance to manage disaster risk; 3) Investing in disaster risk reduction for resilience and 4) Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation, and reconstruction. It has been six years since the adoption of the Sendai framework yet many nations including Ghana continue to grapple with the problem of flood disasters. The framework is also based on the 10 United Nations Humanitarian Principles. This research therefore examined the extent to which the flood management stakeholders have responded to the Sendai Framework for Disaster Risk Reduction and Humanitarian Principles.

Local philanthropy

There has been the raging debate as to whether local people especially in developing countries have the resources to practice local philanthropy in mitigating and responding to disasters. This argument is partly solved by Doan (2019), who postulated that community philanthropy has been in existence and will continue to exist for eternity. It is based on solidarity, mutual support, exchange of time, resources and expertise and communal good. It is worth noting that community giving is a common feature in both rich and poor communities and cut across gender, age and creed. Local

philanthropy draws heavily from endogenous development theory, which posits that the starting point for the development of a local area or region is its resources in the form of economic, human, institutional and most importantly its culture (Vazquez-Barquero, 2002). This view is supported by Millar, Apusigah and Boonzaaijer (2012), who opined that endogenous development should be based on local peoples' own criteria of development, and should take into account the material, social and spiritual wellbeing of the people. The nexus between flooding and local development is that flooding can impede local development in various forms such as loss of lives and properties if not addressed. However, local communities have a pool of assets including local knowledge, social networks, indigenous laws, taboos and practices, and structures for leadership, accountability, human and material resource mobilization that can contribute to flood preparedness, response and recovery. However, very often these local capacities and resources are downplayed. The need to solve local problems using local solutions cannot be overemphasised. Therefore, creating spaces for communities to lead and coordinate the flood risk management agenda is a most sustainable approach to adopt in Ghana. This position is supported by the philosophy underpinning the Ghana Beyond Aid Charter (2019). In this charter, the President of the Republic of Ghana, Nana Addo Dankwa Akufo-Addo observed that:

It is time to pursue a path to prosperity and self-respect for our nation. A Ghana Beyond Aid is a prosperous and self-confident Ghana that is in charge of her economic destiny; a transformed Ghana that is prosperous enough to be beyond needing aid, and that engages competitively with the rest of the world through trade and investment (p.1).

The focus on a local philanthropy approach to solving local and national level problems has equally been acknowledged by USAID a cherished and long-term development partner of Ghana. USAID (2020) under its journey to Self-Reliance strategy defined local philanthropy as an initiative that allows local actors themselves to mobilise various forms of assets, including financial, human, or intellectual, to propel their own development in a simple and transparent way. Therefore, launching a local philanthropy campaign for flood management at the community level is thus possible. Already communal living is a common feature in many communities in Ghana expressed in various forms such as Village Savings and Loan Associations

(VSLA) and Women Self-Help Groups (WSHG). These social safety nets are akin to 'Ubuntu' in South Africa, 'Humwe' in Zimbabwe, 'Harambee' in Kenya and 'Ujamahaa' in Tanzania (Anab, 2021). A research conducted by the East African Philanthropy Network (2021), on the reasons why people are involved in local philanthropy activities showed that 40% was meant to increase the scope of social impact, 22% for personal fulfillment, 15% due to media exposure of the situation, 14% for recognition and 10% for tax rebates. Hence communities, with the right leadership and capacity development for local structures can mobilise resources from various sources including their representatives in parliament, faith-based institutions, traditional authorities, private sector, NGOs, development partners and philanthropists living in and outside their communities.

Local governance

Local governance essentially aims at creating spaces for local development. According to the African Union (2014), local governance focuses on the governance processes and institutions at the subnational level, which includes governance by and with local governments or local authorities, civil society, and other relevant actors at the local level. This means that local governance involves the interaction of various players at different levels including traditional authorities, faith-based organisations, community-based organisations, women groups, farmer-based organisations, local and international NGOs, private sector actors to mention but a few. Godwin, (2014) defined local governance, as the management of the affairs of people at the locality where they are. This definition therefore emphasises the involvement of local people themselves in carving out their development trajectory. The overarching import of local governance is to bring decision-making processes closer to the people and to promote local ownership of the development processes. In the context of Ghana, the place of local governance is stated under Article 240 of the Republic Constitution of Ghana which states that:

- (1) Ghana shall have a system of local government and administration which shall, as far as practicable, be decentralised.
- (2) The system of decentralised local government shall have the following features-

(a) Parliament shall enact appropriate laws to ensure that functions, powers, responsibilities and resources are at all times transferred from the central government to local government units in a coordinated manner.

(b) Parliament shall by law provide for the taking of such measures as are necessary to enhance the capacity of local government authorities to plan, initiate, co-ordinate, manage and execute policies in respect of all matters affecting the people within their areas, with a view to ultimately achieving localisation of those activities.

Therefore, in accordance with the constitution of Ghana, the Local Governance Act 2016, Act 936 was enacted. The Act confers executive, legislative and deliberative functions on Metropolitan, Municipal and District Assemblies (MMDAs) in Ghana. The local governance system of Ghana also includes lower-level governance structures such as Sub-Metropolitan and District Councils, Urban Councils, Town and Area Councils and Unit Committees. The functions of the MMDAs are further supported by a number of functional committees. These are the Executive Committee and a number of Sub-committees including: Development Planning, Social Services, Works, Justice and Security, and Finance and Administration. It can therefore be concluded that there are adequate and legitimate structures and platforms for mobilising and using local resources to manage floods in Ghana. This is the basis for the advocacy for a decentralized and localisation agenda for the management of floods in Ghana.

Methodology

The methodology employed for this research was based on a combination of the review of secondary sources of information on disaster risk reduction and interviews with government, faith-based organisation, and community-based institutions. The researchers' also collaborated closely with a consortium of Civil Society Organisations (CSOs), including Strengthening Transparency, Accountability and Responsiveness (STAR) Ghana, Transformation of Marginal Areas (TAMA) Foundation and Tamale Ecclesiastical Province Partnership in Action (TEPPIA), which had initiated a process to engage with stakeholders to develop a roadmap for the sustainable management of floods in Northern Ghana. The researchers therefore took advantage of this process by the CSOs and co-created the concept note for the regional engagements. Through this process the researchers ensured that specific questions related to the research were incorporated into the

consultations. The memorandum of understanding between the researchers and the CSOs included the researchers serving as facilitators for three regional engagements that took place in Bolgatanga, Wa and Tamale. This further gave the researchers the opportunity to ask questions relevant to the research. In total, 200 participants across the five northern regions of Ghana participated in these forums. The participants included staff of NADMO, staff of Metropolitan, Municipal and District Assemblies (MMDAs), chiefs from Regional Houses of Chiefs, representatives of local CSOs, staff of the Ghana Red Cross, community members from flood prone communities, selected youth and women Leaders and staff from both the Water Resources Commission and Forestry Commission. The three platforms provided the researchers sufficient grounds to reflect on the subject of local philanthropy and the sustainable management of floods in Ghana. With reference to the secondary sources of data and information, the key documents reviewed and institutions consulted are summarised in Tables 1a and 1b.

Table 1a: Data collection sources

Data sources	Documents and institutions consulted	Justification
Review of relevant literature on disaster risk reduction	<ul style="list-style-type: none"> ▪ NADMO Act,2016 (Act 927); ▪ Environmental Protection Agency Act, 1994 (Act 490); ▪ Water Resources Commission Act, 1996 (Act 522); ▪ Land Use and Spatial Planning Authority Act, 2016 (Act 925); ▪ Local Government Act,2016 (Act 936); ▪ Riparian Buffer Zone Policy,2013; ▪ Water Resources Commission Act, 1996 (Act 522) ▪ Ghana National Water Policy,2007; ▪ Ghana National Climate Change Policy,2013; ▪ Ghana National Climate Change Master Plan,2015. ▪ The Sendai Framework for Disaster Risk Reduction 2015 - 2030. ▪ The UN Humanitarian Principles. 	To understand the legal and policy framework for disaster risk reduction and existing gaps in Ghana.

Source: Researcher's Flood Assessment Study, 2021

Table 1b: Data collection sources

Data sources	Documents and institutions consulted	Justification
Workshops	3 workshops were held in Bolgatanga, Tamale and Wa between May and September, 2021.	The justifications for selecting the participants from the institutions listed below were because they either had a legal mandate to prevent disasters, were already implementing climate change and humanitarian projects, or providing relief support to people impacted by floods and other disasters. The institutions included: NADMO, Environmental Protection Agency, Water Resources Commission, Ghana Meteorological Agency, 5 Regional Coordinating Councils in Northern Ghana, selected MMDAs, selected chiefs, queen mothers from Houses of Chiefs, Faith-based organisations including the Catholic Diocesan Development Offices; Muslim Council, Anglican Diocesan Development and Relief Organisation, (ADDRO), NGOs including World Vision Ghana, Catholic Relief Services, Songtaba, Pronet -North and the Ghana Red Cross Society of Ghana and the media participated in their forums.

Source: Researcher's Flood Assessment Study, 2021

Results and discussion

The findings and discussion are presented under the following sub-headings: drivers of flooding in Ghana; gaps in existing flood management approaches in Ghana and Alternative approaches to flood management in Ghana.

Drivers of flooding in Ghana

The research established that the drivers of flooding in Ghana were varied and due to both natural and human factors as presented in Table 2.

Table 2: Drivers of floods in Ghana

Drivers of flooding in Ghana	Explaining of drivers
<i>Ghana's flat topography prone to flooding</i>	The northern regions of Ghana in particular are drained by an extensive network of rivers and streams that connect to the Black and White Volta, both flowing into the Volta Lake. Whenever the region records excessive rainfall, the network of rivers and streams within the White Volta Basin normally fill up and overflow their banks, resulting in a runoff of the excess water over the flat, low-lying terrains, causing both sheet and flash floods.
<i>Unhealthy environmental practices and Climate Change Effects</i>	Unhealthy environmental practices, including tree felling for charcoal and other forms of deforestation, bush burning, over grazing, inappropriate farming methods, increasing use of agro-chemicals, and increase in emission of greenhouse gases largely from the energy sector have resulted in the increase in temperatures. The vegetative cover which serves as carbon sink to reduce temperatures and surface water runoffs is heavily depleted in Ghana leading to floods and flood disasters.
<i>Spillage of the Bagre Dam</i>	The Bagre multipurpose Hydro Dam is located on the White Volta Sub-basin in Burkina Faso. Since its construction in 1999, it has become a major source of flood disasters affecting several communities at the downstream side of the White Volta River in Northern Ghana. Annually, the Burkinabe power company, Société Nationale Burkinabe d'Electricité (SONABEL) has to spill excess water from the Bagre dam in order to maintain the dam's 235 meters' water holding capacity. The absence of large dams downstream in Ghana to contain the water has been the bane of many communities in Ghana.
<i>Poor drainage systems and hydrological engineering</i>	Poor drainage simply means constructed drains are unable to discharge the passage of water into the main river/sea at the same rate as it receives incoming water during rainfalls, resulting in overflow and flooding of communities and farmlands. Heavy rainfalls usually present a rapid inflow of water into drains and due to a myriad of factors, including blockage, clogging, poorly engineered or notfit-for-purpose drain construction, the system is not able to function as required resulting in drains under performance and floods. So the disposal of waste into drains, lack of the siltation of gutters and poor engineering designs of water channels have contributed to the flooding situation in Ghana.
<i>Non-enforcement of land use and spatial planning laws:</i>	Whilst the Ghana Land Use and Spatial Planning Act, 2016 (Act 925) provides a regulatory framework for human settlement and the siting of industrial parks and companies, the laws are abused with impunity. In Ghana people deliberately build houses across river courses resulting in flooding of neighbourhoods and market centres.
<i>Non-compliance with the Ghana Riparian Buffer Zone Policy.</i>	The adherence to the Ghana Riparian Buffer Zone Policy prescriptions will serve as carbon sinks and produce oxygen; help stabilize stream banks and prevent soil erosion; influence local climate and trap and percolate water from floods through the soils into aquifers thereby contributing to groundwater recharge. However, the research established that ecologically unfriendly activities such as mining, sand winning, logging and farming on wetlands/flood plains or floodways and along riparian banks, have reduced the ability of these natural systems to hold water thereby contributing to the annual flooding in Ghana.

Source: *Flood Assessment Study, 2021*

This finding is in tandem with the existing Sendai Framework on Disaster Risk Reduction priority 1, which recommends that the starting point for disaster management is to understand the disaster risk. This involves understanding the hazard characteristics, vulnerability, and risk exposures to the communities as the basis for effective disaster prevention, preparedness, response, and recovery strategies.

Gaps in existing flood management approaches in Ghana

First, this research established that NADMO's capacity to manage the annual floods was weak. Whilst Article 2 of the NADMO Act 2016, Act 927 requires the institution to manage disasters and similar emergencies by developing the capacity of communities to respond effectively to disasters and emergencies, it lacks the needed financial and human resources to prosecute its mandate. NADMO is unable to respond to emergencies timeously and continues to rely on central government, development partners and NGOs to respond to emergencies. According to Ziem (2017), NADMO had a staff strength of eight thousand with more than 80% of them having no training in disaster management. This is certainly inadequate for a country with a population of 30.8 million people. The institution also either lack or where they exist, had limited pieces of equipment such as medical equipment, earth moving equipment, bailey bridges, inflatable boats, out-board motors, life jackets, tractors, water tankers, water pumps, water purification plants, tents, pre-fabricated housing units, power generators, telecommunications equipment, hurricane lamps, kerosene lamps, torch lights, field kitchens, to mention but a few required to manage floods effectively in Ghana. The stakeholders at the regional consultative meetings on flooding held in Bolgatanga, Wa and Tamale in 2021 indicated that the ability of the institution to coordinate multi-stakeholder response to flood preparedness, response and recovery was weak. They indicated that the institution's capacity to undertake rapid, comprehensive assessment of flood situations and to maintain an interactive management information system for post-flood rehabilitation and reconstruction was found to be woefully inadequate. As a result, NADMO staff were constrained in employing technology for collecting rapid and comprehensive information on floods from communities and districts for aggregation at the regional and national levels for emergency response. Data was manually collected and piecemeal. There were also no horizontal linkages to institutions providing complementary services for flood victims. So, the information asymmetry compromised the quality, timeliness and accessibility of data for planning, response and reconstruction. The research also confirmed that NADMO over the years has been dragged into the quagmire of political partisanship in Ghana paying allegiance to the ruling political party of the day. Hence there is no institutional stability and direction as the leadership of the institution is determined by party political patronage and not on meritocracy. This is contrary to Humanitarian Principle 3 which require agencies in the humanitarian sector "*not be used*

to further a particular political or religious standpoint” (Sphere Association, 2018, p.6). Second, the study found that Ghana had no long term and holistic strategy for flood management. The section on disasters in the country’s existing medium term development plan for the period 2017-2024 focused more on disaster prevention and mitigation, but with no clear budgetary provision for post-disaster recovery interventions. This was captured in the document as follows: “Over the medium term, policy interventions will aim at promoting proactive planning for disaster prevention and mitigation” p.82. The existing short-term and medium-term approaches have not addressed the issue of flooding comprehensively. These plans do not have strategies for dealing with issues related to all the aspects of the flood risk management value chain but contains partial solutions to the problem. Third, the study also found out that national, regional and district disaster management plans were available in Ghana but were not implemented due to financial constraints. Whilst the NADMO Act, has a provision for the establishment of a *National Disaster Management Fund*, this fund was, yet to be established. Also, whilst the MMDAs were required to fund disaster activities with up to 3% of their MMDA Common Fund, this was not the case in reality. It was therefore not surprising that flood management at the MMDAs was ad hoc and uncoordinated. Fourth, the study identified a lacuna with respect to local resource mobilisation mechanisms for raking in in-kind and financial resources for flood management. The findings showed that the statutory 3% disaster fund under the District Assembly Common Fund was hardly used for disaster related issues. Hence the ad hoc fundraising activities continued on annual basis. This finding shows that the *UN Humanitarian Principle 6* which call on states to “... to build disaster response on local capacities” (Sphere Association, 2018, p.6) was not adhered to since local structures including the Districts Assemblies, traditional authorities and faith-based organisations capacity to mobilise resources for disaster management was found to be low. Fifth, the study revealed the inability of successive governments to develop and implement long term solutions for flood management, including the completion of earmarked flood containment infrastructure in Ghana. The Odaw river basin construction initiative under the \$ 200 million World Bank Greater Accra Resilient and Integrated Development Project was billed to start in December, 2021 according to the Minister of Works and Housing, Mr Francis Asenso-Boaky (peacefmonline.com) but some respondents were skeptical about the commencement date of the project. Also, in November, 2019 the President of the Republic of Ghana cut the sod

for the commencement of the \$993 million Pwalugu Multi-purpose Dam. The completion of this project was envisaged to address the flooding issues associated with the spillage of the Bagre dam, hold water for irrigation and hydropower generation. However, the delay in securing funding to complete this project was noted as a source of concern to many Ghanaians especially those living within the White and Black Volta water basins in Northern Ghana.

Alternative approach to flood management in Ghana

Based on the feedback provided from the various participants who participated in the research, it can be concluded that the current approaches to flood management were exogenously focused and driven. They were associated with the assessment of flood disasters by external persons outside the flooding areas and followed with appeals for financial and non-financial support for the victims. The research attributed the inability of NADMO and collaborators to manage floods effectively and efficiently to the ad hoc, fire-fighting, piecemeal, short-term, uncoordinated and top-down strategies used. The research showed that the current approaches used in managing floods in Ghana were not sustainable and therefore needed a re-think. The alternative proposition from respondents was for the adoption of a holistic, well-coordinated, long-term and locally driven approach to flood risk management in Ghana. The views of the respondents are articulated in the flood localization framework (FIF) in Figure 1. The FIF is made up of six components. These include: (1) the problem; (2) the domains of change; (3) the strategies for change (4) the institutions to engender the required change (5) the desired outcomes (6) the beneficiaries of change.

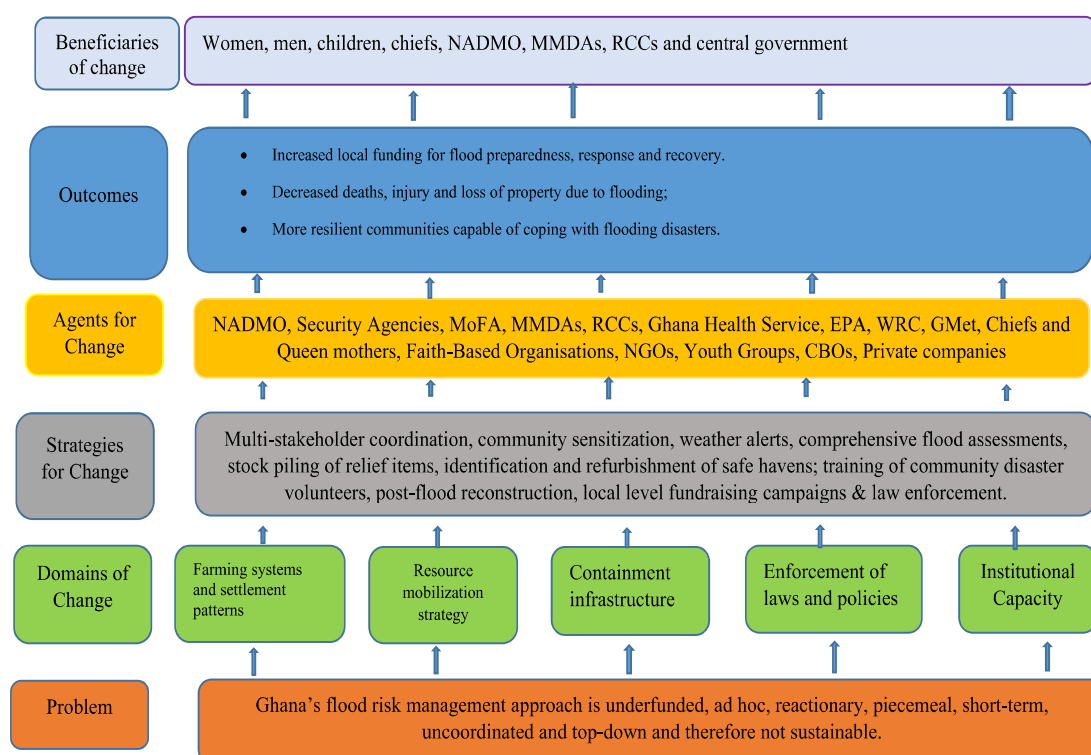


Figure 1: Flood Localisation Framework

A key component of the FLF is resource mobilisation. This includes identifying the sources of flood management resources and strengthening the capacity of local institutions to manage such resources. The researched revealed that there were many sources of local funding raising opportunities for financing flood management interventions. These include in-kind and financial contributions. In-kind contributions from community members could be in the form of volunteer time, facilities such as warehouses for stockpiling relief items and donation of food and other relief items for flood preparedness. Financial resources required for managing floods could be mobilised from individuals through the use of on-line contributions and direct appeals. Funds can also be raised for flood management from events such as community festivals and musical shows and corporate sources such as local and multinational companies working in the communities. This model also required building the capacity of NADMO and humanitarian NGOs to manage and account for all resources raised for the management of floods in Ghana. The expertise required by local institutions to manage the resources galvanized for flood management could be provided by financial institutions and NGOs.

Contribution to knowledge in flood management in Ghana

This piece of research has made a unique contribution to knowledge in flood management for practitioners involve in disaster risk reduction in Ghana. It has provided a framework for flood management known as the Flood Localisation Framework which provides a holistic and bottom-up framework for flood management. Therefore, practitioners in the flood management value chain such as NADMO, MMDAs, the Inter-Agency Working Group on Disasters, Faith-Based Organisation, Ghana Red Cross Society, NGOs, community leaders, academics and Disaster Volunteers will find it useful guide for mobilising resources and strengthening the capacities of the required structures to prevent, prepare, response to flooding and to ensure communities affected by floods recover, are rehabilitated, and reconstructed in Ghana.

Conclusions and Recommendations

Conclusions

The study concluded that flooding in Ghana was caused by both human and natural factors. A key point to note is that unhealthy human practices have contributed to global warming, increasing temperatures and the associated extreme climate change events including flooding. The study further concluded that the ad hoc, uncoordinated and short-term approaches to flood management in Ghana has accounted for the increasing fatalities associated with flooding such as the loss of lives and properties. Also, the findings clearly established the need to adopt a long term, well-coordinated and locally driven approach to manage the perennial flooding occurrences. The findings established that resource constrained was a major impediment to the effective management of floods in Ghana. In this respect a local resource mobilization approach was recommended. This include building the capacity of local-based institutions to raise funds and manage them efficiently and effectively for flood management.

Recommendations

A major recommendation from the study is for NADMO to strengthen its capacity at the district and community levels through effective collaboration with all the relevant agencies. This includes its capacity to raise and manage local resources for managing floods rather than the current headquarters driven response to flood management in Ghana. This will ensure that local

level NADMO structures and MMDAs have a sustainable source of funding for flood preparedness, response and recovery. Based on the findings of the study, it is equally recommended that specific strategies including: sharing of weather information; sensitization of community members in flood prone communities; enforcement of settlement and farming laws; improving flood assessments; investments in green technologies, execution of flood containment infrastructure and alternative livelihoods for internally displaced persons due to floods should be prioritized by NADMO, the MMDAs, NGOs and other stakeholders.

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