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Government Capacity In Handling Tropical Cyclone Idai Induced Flooding In Chipinge District, Manicland Province, Zimbabwe To Support National Security

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Abstract
Tropical Cyclone Idai induced flooding hit Zimbabwe from 15-20 March 2019, killing 349 people and damaging infrastructure worthy billions of dollars. Vulnerability to tropical cyclone flood risk remains high against limited government capacity. The Hyogo Framework for Action (2005-2015) indicators were used to analyse government capacity in handling Cyclone Idai disaster. The study used qualitative methodology alongside descriptive research design. Interviews, field observations and document analysis were employed for data collection. Results of the study are: a) legal framework capacity to handle Cyclone Idai met most priority 1 indicators but with some deficiencies, b) early warning systems were satisfactory and fulfilled all priority 2 indicators, c) collaboration and ego-sectoral approach towards building resilience and a safe culture through education, knowledge and innovation fulfilled all priority 3 indicators, d) efforts to reduce flood risk factors met all priority 4 indicators, and e) the active involvement and participation of stakeholders in flood risk research, education and training met all indicators under priority 5 although a holistic disaster response plan has not been developed. Challenges faced were under-funding and inadequate resources, inattention to issues of social vulnerability and social capital, legal gaps and leadership incapacity. Capacity-building efforts implemented were trainings, increased flood risk information dissemination, participation of schools in risk reduction and environmentally friendly conservation measures. The study recommends government to strengthen legal framework, decentralize disaster experts to districts and, allocate adequate funding and resources for risk reduction. Chipinge district to formulate a disaster response plan and institutional structure, increase disaster knowledge through active community engagement and participation in disaster risk reduction to promote resilience for national security stability.

Key Words :Disaster, Capacity, Tropical Cyclone, Flooding Risk, Vulnerability.

INTRODUCTION

Tropical Cyclone Idai made landfall in Zimbabwe on 15 March, initially classified as a Category 2 storm accompanied with very strong and destructive wind speeds of about 222km per hour. The Meteorological Services Department predicted very violent storm surges of around 2.3 metres (enca.news.com/report/). Continuous heavy downpours were recorded until 20 March, posing serious challenges for the coordination and implementation of early response efforts, (World Vision, 2019). The cyclone severely hit Chipinge and Chimanimani districts causing 347, about 300 608 households homeless and extensive damage to crops and infrastructure valued at about US$1,1 billion, (Ministry of Local Government 2019). Overall, the net effect has been more hunger and poverty, and financial stress on the poor, whose livelihoods and economic means of survival has often been from hand to mouth, (Mabaso and Manyena 2015).

Response efforts by local communities were extra-ordinary, though not of equal measure to overcome the sheer scale and magnitude of hazard. Locals utilized their creativity, local knowledge and resources such as ropes and torches to cross flooded rivers in attempts to rescue the elderly and vulnerable. Roads and bridges were washed away while communication

networks were disrupted making it extremely difficult to access other parts in the country for many days. Geographically, the region is mountainous and intercepted by deep valley floors and moderate vegetation cover. Due to incessant rains, visibility was poor and helicopters could not fly into affected areas given a high risk of crashing. State disaster response units and other key stakeholders were only able to reach some of the affected areas on 20 March 2019, about five days later, a significantly long period of time before humanitarian assistance could reach affected communities.

The Meteorological Services Department issued early warning for tropical cyclone Idai, but information was not effectively disseminated to regions prone to the impending risk. As such, communities did not take action to evacuate early. As observed by Gwimbi (2007:159), the centralised and rather one way nature of early warning system in Zimbabwe compounds to the problem of early warning dissemination. It emphasizes generating early warning response information through official social media channels, ignoring or not taking due attention to the specific needs and uniqueness of communities at risk. Undoubtedly, early warning is important in enhancing DRR as underscored in the Hyogo Framework of Action (HFA) (2005-2015) priority number two, which aptly calls for the need to identify, assess and monitor disaster risks and enhancing early warning system generated information.

Section 206(1) Amendment Number 20/2013 of the Constitution of Zimbabwe guarantees peace and security for every citizen, including freedom from fear. Government has a constitutional responsibility to protect citizens from any forms of threats, military or non-military. This includes protecting citizens from flood risks and other disasters by putting in place and implementing practical disaster prevention measures with the goal of reducing vulnerability and exposure. Thus, governments must pay attention to building capacity for the protection of citizens from any potential hazard or threat that may disrupt normal life, including hazard of tropical induced flooding. Flood disasters affect the normal order of life in society and thus are a real threat to national security. Therefore, governments must plan, coordinate, and implement sound disaster management policies inclusive of; before, during and post-disaster phases. This entails developing comprehensive empowerment programs or capacity development of relevant government institutions for effective and efficient disaster response and management. Governments as main actors must also formulate, monitor, implement and evaluate the effectiveness of disaster management plans in their areas based on hazard or threat exposure. Jung (2016) opines that there has been a paradigm shift in the role of disaster management from the central government to local government, aptly relevant for this study whose aim is to analyse the capacity of Chipinge district in responding to tropical cyclone Idai in 2019.

While disaster risk management policy frameworks and institutional provisions do exist in Zimbabwe, their effectiveness remains a critical issue. Emergency response by government institutions only reached affected people five (5) days later, a long time lapse before victims get assistance. The police also was less equipped to carry out search and rescue operatins because of the unavailability of sniffer dogs for detecting human bodies buried under debris among others. On the backdrop of such a standpoint, it can be argued on a balance of probabilities, though must never be tolerated, that inefficiencies by the Civil Protection Unit to deal with the devastating effects of Cyclone Idai revolve around issues of under-funding and resource constraints.

Climate change and extreme weather induced hazards are increasing at an alarming pace, (IPCC 2014). The eastern parts of Zimbabwe lie along the tropical cyclone flood path due to proximity to the Mozambican Channel Island. Therefore, hazard conditions and vulnerability remains high against limited capacity. Thus, there remains a dearth of study to analyse the capacity of government in effectively and efficiently handling the risk of tropical cyclone

induced flooding in Chipinge district, Manicaland Province, Zimbabwe in-order to reduce community vulnerability and exposure, and promote resilience. The contract/expand disaster risk management model was also used to analyse government capacity for disaster risk reduction in support of national security stability.

RESEARCH METHODS

The qualitative research method was used to analyse government capacity in responding to the 2019 tropical cyclone Idai induced flooding in Chipinge district, Zimbabwe. By using qualitative research, researcher managed to engage participants directly in order to gather deeper insights and perceptions about the problem being investigated. Researcher used the qualitative method chiefly because primary data collection sources for the study were considered credible enough to provide information needed directly during interview and observation sessions. Previous studies and documents were used as secondary data sources to support primary data. The explorative descriptive research design suits this research aimed at describing existing phenomena in their natural conditions (Sukmadinata, 2011).

The study employed the purposive sampling technique to choose six (6) key research participants for the study. Research participants comprised of leaders of government institutions who are directly involved with the problem and understand the research topic selected. Researcher chose credible informants possessing good quality information and in accordance with the context of the research conducted so that the data obtained were comprehensive and focused on obtaining in-depth data results.

RESULT AND DISCUSSION

Research results were based on Hyogo Framework for Action (2005-2015) priority indicators for analysing government capacity-building efforts and building community and national level capacities for managing and reducing disaster risk.

Government Capacity in Managing Tropcal Cyclone Idai Induced Flooding in Chipinge District, Manicaland Province, Zimbabwe

a. Ensuring that Disaster Risk Reduction is a National and Local Priority with Strong Institutional Basis for Implementation

Research results revealed that most indicators under this priority have been fully fulfilled in Chipinge district, this owing to the existing legal framework provided for under the Civil Ptotection Act 2001 (Chapter 10:06). Indeed, the Act provides the legal basis and organisational structure coupled with specific roles and responsibilities at each level and it also generates guidelines for government disaster management capacity. Kusumasari (2008) observed that a strategic framework for disaster management was very important, arguably in providing guidance to lower level structures. Moreover, a clear legal structure would ensure adequate resources are channelled not only towards emergence response but rather comprehensively towards disaster risk preparedness, prevention, mitigation and effective recovery and reonstruction in line with the disaster management interactive model (Ma'arif 2018). A legal structure would also be expected to smoothen coordinating acvtivities of both internal and external humanitarian organisations and planning given the dynamic nature of their roles and responsibilities, covering all the stages of tropical cyclone Idai flooding.

A unified ego-sectoral approach to disaster management significantly contributed towards reducing overall impacts of tropical cyclone Idai. In the same vein, Syarifah (2020) noted that

disaster management capability for Balikapan City was classified as good because of the division of tasks and responsibilities in handling forest and land fires. Sobar (2014), also observed that collaboration between government, communities, civic groups and the private sector led to positive results in Riau. More importantly, collaboration has been found to be an important concept in co-production, cooperation and co-existence and when effectively implemented, promotes mutual understandings, cultivates capacity for joint actions, promote mutual trusts, commitment, internal legitimation and a shared motivation among actors.

Regarding personnel capacity to provide quality disaster risk management services, results showed that the current disaster risk management structure is centralised and experts are located at the national level. Without the availability of trained disaster risk managers at the district level, the quality and standard of disaster risk management services is not sufficiently guaranteed. Elyana and Marom (2017) observed that non-availability of qualified human resources in Blora Regency disaster field negatively impacted on the success of disaster risk management. If disaster professionals are deployed at district levels, increased commitment and strong focus solely on disaster risk reduction tasks can be achieved. This also reflects on the overload in the nature and scope of the official duties and responsibilities of current disaster risk management leaders in the district. Thus, government capacity need to be strenghened in this aspect so that local level disaster risk management committees do not solely rely on the involvement of internal and external professional humanitarian organisations in not only providing advice but also increasing the capacity of human resources in disaster preparedness, prevention and mitigation efforts.

Results also revealed that government needs to re-configure the Civil Protection Act 2001 (Chapter 10:06) so that it fully adresses contemporary and emerging disaster risks and their linkages to climate change. Disasters occuring in the present day emanate from complex and intertwined mixed factors, among them climate change, global warming influenced by human action, socioeconominc factors and inadequate disaster capacity (preparedness, prevention and mitigation). These factors continue to cause unbearable impacts mostly on the poor. The Act should therefore be reconfigured so as to give a clear guideline on how to promote resilience and sustainable development given the increasing intensity and frequency of hydro-meteorological risks and hazards affecting Zimbabwe. Overall, result for this priority were that the legal provisions fulfils most indicators in the first priority of the HFA where the formation and strengthening of an organisational structure for disaster risk management capacity is a top priority.

Chipinge District Civil Protection Committee need to put in place an institutional structure along with clear roles and responsibilities. Even though there was teamwork and collaboration before, during and after tropical cyclone, an institutional structure is significant for improved decision making, accountability and transparency.

b. Identifying, Assessing and Monitoring Disaster Risks and Enhancing Early Warning Systems

Chipinge district has in place people centred early warning systems for disseminating potential risks and cross border risk assessments critical in building relationships with other districts. These were considered significantly good and reliable for flood risk and hazard vulnerability assessments to reduce overall disaster impacts.

The district has also decentralized some of its early warning systems to highly disaster prone wards as a way of increasing capacity for tropical cyclone induced flood risk management at grassroots levels. The formation of early waning information dissemination social media groups in villages is undoubtedly deemed to increasing response action among vulnerable communities. Therefore, the result of this priority analysis is that Chipinge district has fulfilled all the indicators in the second priority of the HFA, particularly ensuring that there

is hazard and vulnerability assessment at every level. In support, United Nations Climate Technology Centre and Network Report (2017) concurs that early warning systems were important in generating assessments and knowledge of flood risks, performing local hazard monitoring (forecasts) and warning services, providing flood risk dissemination and communication services and driving community response capabilities.

c. Building a Safe Culture and Resilience at all Levels Through Knowledge, Innovation and Education.

The district was found to be fully embracing knowledge, innovation and, education and training to increase resilience and build a safety culture. Institutions of higher learning are partaking in researches on tropical cyclone induced flooding in Chipinge district so as to develop scientific results for promoting resilience. There were also significant investments in early warning systems and technologies for flood risk and vulnerability assessment. Disaster information dissemination has also been greatly enhanced through the involvement and creation of social networks at the grassroots levels.

There is also evidence of assistance from humanitarian organisations in disaster risk reduction primarily in disaster related training and the acquisition of early warning equipment for detecting, monitoring and assessing disaster risks in Chipinge. The result of the analysis of the third priority is that Chipinge district has fulfilled all the indicators of the HFA.

d. Reducing Underlying Risk Factors

The results show that efforts to reduce underlying tropical cyclone risk factors were moderate. In anticipation of future flood risks, the district has put in place capacity building initiatives involving local communities aimed at reducing vulnerability. Before tropical cyclone Idai and even when several other tropical cyclones previously affected the district, participation of communities was relatively low compared to current levels. Educational awareness campaigns and the use of early warning system based are poised to holistically aid in reducing vulnerability and exposure. Due to under-funding from government, emergence preparedness training has not been fully maximized.

The role of partners in championing community driven risk reduction measures has been of premium value in this regard. There is much progress in assimilating climate change and its attendant impacts to farming and environmental management plans. Therefore, the district has fulfilled most of the indicators related to reducing underlying risk factors.

e. Strengthening Disaster Preparedness for Effective Response at all Levels

Results related to efforts in strengthening disaster preparedness and response in facing tropical cyclone induced flood risks were relatively good. There are significant investments in early warning systems for risk communication, increased community involvement, integration of research based results in disaster risk identification, monitoring, assessment and evaluation. This concurs with modern scientific based research results being implemented in Japan, where Japan International Cooperation Agency (JICA) and, Hyogo and Kyoto Prefectural Boards of Education actively contribute to the generation of risk knowledge leading to the construction of earthquake resilient buildings. These institutions developed structural prototypes to analyse the magnitude of earthquake shocks so as to generate information useful in regional town planning to inform the construction of earthquake resistant buildings. Furthermore, the institutions collaborated in innovating radar-based tsunami monitoring systems for disaster prevention and mitigation in coastal areas to reduce vulnerability and promote resilience among others. Routine training and education awareness campaigns to improve the response and preparedness levels also continue to be carried out although in most instances spearheaded by national, regional and international humanitarian organisations.

However, the district had not yet fully integrated disaster risk management plans into development patterns. The district does not have holistic disaster preparedness or response plan, thus disaster risk management remains an appendage of overall development plans in the district. Instead, government institutions only speak of preparedness and response to tropical cyclone induced flood risks in their tactical plans. A unified district disaster emergence preparedness or response plan is crucial in guiding coordination efforts and optimal execution of all the phases of disaster risk management, (Rizky et.al 2020). In-spite of the above findings, Chipinge district has fulfilled most of the indicators in priority number 5 of the HFA, deduced to imply strengthening district preparedness and response level to tropical cyclone induced flood risks.

Challenges Faced by Government in Handling Tropical Cyclone Idai.

Based on results of data processing, researcher analyses that Chipinge district Civil Protection Committee experienced several challenges in responding to tropical cyclone Idai, among others were the following:

a. Inadequate Funding

Results show that lack of funding significantly affected the effective coordination and implementation of various disaster risk reduction activities. The district does not have financial reserves to drive planned disaster reduction plans. Just like veins that carry oxygenated blood to different parts of the body, so does funding in driving disaster risk reduction initiatives. Tied to the problem of under-funding has been the perennial shortage of material resources. This evolves to the question as to why national governments do not adequately fund disaster risk reduction activities? It generally emerged that more than often, governments under-estimate the impact of disasters and thus allocate meager funds for disaster risk management. However, in the majority of cases when disasters strike, state capacity has been found to be very low. This study therefore concludes that funding is inextricably linked to the success of disaster risk management. Since disaster risk management is a process, financial capacity becomes one of the uppermost elements for the achievement of the goals of disaster key result areas. In support, studies by Rizki et.al (2020), Girigiri et.al (2019), Obioji and Eze (2019) and Noran (2014) observed that the biggest obstacles faced in disaster risk management were poor funding, lack of disaster management equipment and facilities.

b. Low public involvement and participation in disaster risk reduction

Prior to tropical cyclone Idai, low public involvement in disaster risk reduction greatly contributed to increased aftermaths impacts. Disaster preparedness and response efforts rarely involved affected communities, alongside a top-down approach to disaster risk reduction. Thus disaster risk management is more reactive in nature. To gain the hearts and minds, and increase disaster capacity of vulnerable communities, a collaborative approach to disaster risk reduction is strongly needed.

c. Leadership capacity gaps

Disaster risk management leadership also significantly contributes to ineffective disaster risk reduction in Chipinge district. Leaders of district civil protection committees are civil servants drawn from government ministries or departments. The majority of whom possess expertise related to their parent ministries or departments to whom they report and are answerable for their day to day duties and responsibilities. These leaders may insufficiently be unaware of disaster risk and disaster management. Time limitations to balance multiple responsibilities and unfair pressure on available resources to sufficiently meet different district needs may negatively impact on performance of disaster risk management duties. Some of these leaders may not possess adequate competences to effectively handle different types of disasters, contribute to disaster preparedness, fully and efficiently embrace available early warning information systems, plan, organise and direct disaster management operations such as

search, rescue, relief, and swiftly carry out damage assessments. A deep understanding of how to steer not only disaster preparedness, response and mitigation but also rehabilitation is greatly needed.

d. Lack of Attention to the Value of Social Capital and Local Innovations

The power of social capital and local innovations for adaptive capacity in Chipinge district has not yet been fully embraced. When tropical cyclone Idai occurred, vulnerable communities did not evacuate despite the fact that adequate early warning information of the risk of flooding was issued. Mutual support in the form of self-organized evacuations were not successful, this owing to resource incapacities and bad weather as water levels rose significantly during the first night. Had it been that social capital and local innovations were interwoven with evacuation shelters and emergence routes, tropical cyclone Idai impacts could have been significantly reduced.

e. Inattention to Issues of Social Vulnerability

Another challenge relates to failure to fully embrace or pay attention to issues of social vulnerability. Issues of social vulnerability only get traction during emergence response. Thereafter, government leaders shift back to their official duties and responsibilities (back to business as usual approach) once search and rescue missions are called off, thus little action thereafter is directed towards reducing social vulnerability factors. Even though recovery and re-construction (post-disaster) process are implemented, government rarely give fully attention to the unique economic means of survival for affected families.

Government Capacity-Building Efforts in Facing Tropical Cyclone Induced Flooding in Chipinge District, Manicaland Province, Zimbabwe in Support of National Security.

To increase tropical cyclone induced flood risk knowledge and promote resilience, the district had initiated several community-based capacity building initiatives. Some of the initiatives being implemented in the district included the following among others:-

a. District and Ward-based Disaster Risk Reduction Volunteers

The district was fostering a stronger sense of ownership by initiating community-based disaster risk reduction and climate friendly initiatives from ward to district levels. Volunteers possessed the will-power and zeal to further conscientise their peers on disaster preparedness, prevention and mitigation. Results also showed that disaster risk management training was presently focused on communities affected by cyclone Idai, this owing to resource constraints. The training includes imparting basic disaster risk management and aims to impart survival skills upon vulnerable communities and how to effectively respond during an emergence and evacuation procedures. The concept of “Disaster Champions” has also been very effective in Indonesian communities in increasing community participation and disaster preparedness levels.

b. Disaster Risk Reduction Active Schools

Education on disaster prevention and response targeting school children were found to be on-going. As part of the learning curricula, schools in the district were conducting disaster risk reduction lessons covering disaster risk management topics in-order to equip students with knowledge and skills to take appropriate action when a disaster occurs. Some teachers and students lost their lives when tropical cyclone Idai struck, leaving permanent memories and strengthening the need for increased awareness.

c. Increased Collaboration between Government and Stakeholders

Collaboration between different government institutions as well as non-government agencies involved in relief work was found to be effective in increasing disaster preparedness capacity. During and post cyclone Idai, relief agencies such as World Food Programme, IFRCS, Plan International, USAID among many others played a pivotal role in assisting affected communities. Some of these humanitarian agencies were involved in post disaster

recovery and reconstruction through the World Bank, and to date, a number of affected families have been relocated to new sites.

d. Strengthened Disaster Risk Communication

Chipinge district was found to be doing a lot in terms of increasing community understanding of early warning information. The district created inclusive *whatsapp* platform groups for disseminating disaster risks to vulnerable communities for swift action. This has also been complemented by training and establishment of additional evacuation centres in every Ward. However, disaster management training and community awareness activities were not systematically co-ordinated. Training must be interwoven with existing knowledge and local cultures. No coherent and coordinated needs analysis were being undertaken owing to butterfly challenges such as lack of rescue equipment, inadequate funding for training and the absence of qualified personnel to spearhead these training programmes.

e. Land Use and Conservation Measures.

The district Environmental Management Agency and Forestry Commission were spearheading notable climate change and ecosystem-based environmental management initiatives such as the planting of trees, prohibiting river and stream bank cultivation (at least 40 metres away), campaigns against veld fires and making continuous clarion calls for smart farming methods. The department of Agritex was also doing much in exposing farmers to new farming methods and better land utilization to farmers.

CONCLUSION

Chipinge district capacity for handling Tropical Cyclone Idai was analysed based on the HFA (2005-2015) and the following conclusions were drawn:

1. The legal framework for strengthening institutional capacity for handling Tropical Cyclone Idai disaster has been found to be good and met all the HFA priority number 1 indicators, despite a few deficiencies.
2. People-oriented Early Warning Systems were satisfactory and met all the HFA priority 2 indicators. These are anticipated to increase capacity and reduce vulnerability to tropical cyclone induced flooding.
3. Collaboration and ego-sectoral approach in building a safety culture and resilience through the use of knowledge, education and innovation were found to be progressing smoothly. Although the district still needs to decentralize disaster leadership and decision making power to grassroots levels, it has fulfilled all the HFA priority 3 indicators.
4. Efforts to reduce tropical cyclone induced flooding underlying risk factors met all the HFA priority 4 indicators.
5. The district actively engages institutions of higher learning, schools and local communities in research, education and training programs respectively to strengthen disaster preparedness and response. Therefore, the district has fulfilled all the HFA priority 5 indicators, although it is yet to develop a holistic disaster emergence response plan. Therefore, it can be concluded that government fulfilled all the 5 priority areas of HFA (2005-2015) indicators in analysing capacity for handling Tropical Cyclone Idai induced flooding in Chipinge district, this owing to invaluable support from humanitarian relief organisations.

Several challenges militated against government efforts in handling Tropical Cyclone Idai. Community socio-economic conditions (low knowledge and income levels) exacerbate vulnerability to disasters. To arrest this situation, government response efforts must be adequate. Disasters are a form of threat to human lives and if not managed properly, have the

potential to disrupt national security stability. Therefore, increasing government capacity in disaster management through strengthening institutional frameworks, reducing underlying risk factors, enhancing early warning systems, building resilience and a culture of safety through innovation, knowledge and education, and strengthening disaster preparedness becomes a top priority, yet is currently being faced with limited funding and shortage of material resources. Improvement efforts being undertaken by the Zimbabwean government include formation of community-based disaster risk reduction training, ward-based volunteer training, village-based early warning risk information dissemination and increased flood risk awareness campaigns among others, are expected to be able to reduce the risk of flood disasters due to tropical cyclones in order to support national security stability in Zimbabwe.

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