

Assessing the Impact of Strategies of Defence Forces on Disaster Preparedness: A Case of Peoples' Defence Forces, Uganda

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ABSTRACT

Natural disasters, including floods, landslides, mudslides, earthquakes, and famine, persistently impact both developed and developing nations, presenting severe threats to human security through loss of life and livelihoods. In Uganda, the Uganda People's Defence Forces (UPDF) are constitutionally mandated to support civilian authorities during emergencies. However, assessments indicated that the UPDF's response to disasters often falls short of community and stakeholder expectations regarding skills and effectiveness. The purpose of the study was to assess the impact of the strategies of Defence Forces on disaster preparedness, a case of UPDF. Employing descriptive design and a mixed-methods approach, the study utilized both quantitative and qualitative methods to gather data from 59 professionals in the field of disaster management. Qualitative data was analysed using descriptive statistics, while quantitative data was thematically analysed. The findings revealed that 32.3% of respondents identified inadequate training, knowledge and skills among UPDF officers in disaster response. Additionally, a significant portion of respondents highlighted inappropriate allocation of resources for disaster preparedness, with only 6% agreeing that budget allocations are sufficient. Furthermore, 58.8% of participants expressed cautious optimism regarding the UPDF's future readiness to handle disasters, though the researcher advocates for this percentage to exceed 75%. The study recommended capacity building, improved remuneration, and better equipment to elevate UPDF's preparedness. Lastly, only 26.5% of respondents rated the UPDF's knowledge base in risk management and disaster preparedness as satisfactory, underscoring the need for significant improvements. The researcher urges authorities and stakeholders to address these deficiencies and bolster disaster preparedness efforts.

Keywords: Disaster preparedness, defence forces, strategies, mechanisms and civil-military cooperation

INTRODUCTION

Disaster preparedness are measures taken prior to an event to lessen or help to mitigate and eliminate the severity of disasters by preparing the community or people through development of emergency plans for response and recovery (Rañeses et al., 2018).

Disaster preparedness is a critical component of national security, particularly as nations face escalating natural and man-made crises. Natural disasters that include, but not limited to tsunamis, floods, earthquakes, cyclones, oil spill, pandemics, drought, and landslides do claim an estimated 45,000 people every year, worldwide (Ritchie, Rosado, & Roser, 2022).

Globally, both natural and man-made disasters, have had profound consequences worldwide, resulting into significant loss of life, injuries, and economic disruption. Some of the most catastrophic disasters in recent history include the Ethiopian famine and drought of 1983–1985, the 2004 Indian Ocean earthquake and tsunami, Cyclone Nargis in Myanmar of 2008, and the 2014–2016 Ebola outbreak in Guinea, Sierra Leone, and Liberia. Additionally, the devastating wildfires in south-eastern Australia in September 2019 and March 2020 burned approximately 46 million acres of forests, marking a significant environmental disaster, as reported by the Centre for Disaster Philanthropy. Collectively, these global events have contributed to a death toll exceeding 200,000 during these periods (Wales et al., 2021).

In Africa, some of the notable natural disasters to have occurred over the years include 2017's three days of intense rainfall that led to severe flooding and mudslides in Sierra Leone, resulting in over 1,000 deaths and many more missing. Similarly, the devastating drought that affected Kenya and other East African nations in 2011, volcanic eruption in Eritrea in 2011 and most recent 2011 flooding in Southern Africa, (Adjei-Mantey & Adusah-Poku, 2019).

In Uganda 2010, severe flooding along the Manafwa River and landslides in the Bududa District of the Mt. Elgon region displaced over 5,000 people and claimed over 400 lives. The most recent disasters include floods and landslides in Bududa 2018; Covid-19 of 2020/2021; Locust's invasion of 2022; Ebola, 2011/23; Kiteezi landfill collapse of 2024 among others. The primary impacts of these disasters included loss of life, injuries, damage to infrastructure, farmland, livestock, and property, as well as disruptions to businesses. Consequently, the affected communities experience compromised sanitation systems, disrupted education, malnutrition, poverty, famine and disease outbreaks as secondary effects such disasters (Osuret, Mayega, et al., 2016).

Military forces, with their logistical capacity, manpower, and rapid deployment capabilities, play an increasingly central role in disaster management (Alexander, 2013).

Military involvement in disaster preparedness is increasingly recognized as crucial in minimizing the impact of disasters, especially in developing countries with limited civilian resources (Haddow, G. & Bullock, 2006).

In Uganda, the UPDF under Uganda Constitution (Act 209) and the National Disaster Preparedness Policy formulated in 1999, and later revised in 2013 is mandated to mitigate risks, enhance preparedness, and coordinate effective responses through the Office of the Prime Minister.

In an effort to improve preparedness, the UPDF established the Engineering Brigade, deployed officers at the National Emergency Coordination and Operations Centre (NECCO), and formed the Uganda Rapid Development and Capability Centre (URDCC). Despite these initiatives, the UPDF's disaster preparedness and response remain inadequate. Scholars such as Munyua (2018) have raised concerns about the UPDF's lack of specialized knowledge, limited mobilization capacity, and absence of a structured disaster response unit. Furthermore, the Guardian Newspaper (2022) reported that the UPDF's response to the Mbale floods in August 2022 was hindered by a lack of early warning mechanisms and timely intervention, leading to unnecessary fatalities.

These inconsistencies highlighted the need to investigate the underlying factors that hinder the UPDF's disaster preparedness and response effectiveness. The unresolved questions remained on institutional capacity, resource allocation, inter-agency coordination, and policy implementation. Addressing these issues is crucial for aligning the UPDF's efforts with national disaster management objectives and enhancing Uganda's overall resilience to disasters.

The study sought to assess the impact of the strategies employed by the Uganda People's Defence Forces of Uganda on disaster preparedness. Specifically, the study seeks to examine the effectiveness of these strategies in mitigating disasters, enhancing response capabilities, and ensuring resilience in affected communities. The fact that this scientific study produced dependable results that would serve as the foundation for future evidence-based preparedness strategies makes it acceptable to say that the goal was achieved. Without a doubt, this study adds to the body of knowledge by exploring the underlying factors that hindered UPDF disasters management strategies and directly directing accountable institutions to correct the management gaps to improve UPDF's disaster readiness.

METHODOLOGY

The study was conducted in Uganda, a country found in the Eastern part of Africa. The country is bordered to the east by Kenya, the north by South Sudan, the west by the Democratic Republic of the Congo, the south-west by Rwanda, and to the south by Tanzania. The study area selected was Kampala Central; this was because all the primary respondents are ideally situated in Kampala.

The study utilized a descriptive research design to evaluate the impact of defence forces strategies on disaster preparedness deployed by the UPDF. A mixed-methods approach was employed to integrate both quantitative and qualitative data, ensuring a comprehensive analysis of the subject.

Using Krejcie and Morgan's (1970) sample determination formula, the study targeted a sample of 52 professionals in the field of disaster management. However, a total of 59 respondents were successfully reached and engaged in person. These included officers from the UPDF, the Uganda Red Cross Society (URCS), and the Office of the Prime Minister (OPM). Each group provided unique insights: UPDF officials highlighted operational challenges, URCS representatives discussed logistical constraints, and OPM officials elaborated on policy implementation. A summary of the target population is presented in Table 1.

Strata	Targeted Population
UPDF officers	10
UPDF /strategic level	08
UPDF officers at OPM	10
OPM officers	10
OPM officers/strategic level	03
URCS officers	15
URCS officers/strategic level	03
Total	59

Table 1: Target Population for the Questionnaire respondents

Source: Author (2024)

The study employed purposive sampling, selecting participants based on specific characteristics, expertise, or roles relevant to the research objectives. Additionally, qualitative key informant sampling was used to explore participants' perceptions of disaster management.

A total of 45 questionnaires were distributed, achieving a 76% response rate. For interviews, 14 participants were initially targeted, and 9 interviews were successfully conducted, yielding a 64% response rate. Compared to Fincham's (2008) recommended minimum response rate of 60%, the study's questionnaire response rate was considered above average, falling within the "good to very good" range.

To ensure consistency and reliability in data collection, standardized questionnaires were used. This approach enabled the comparison of responses across different contexts, enhancing the validity and reliability of the findings (Krosnick, 2017).

Quantitative data were analyzed using descriptive statistics in SPSS, with results presented in tables, charts, and graphs. A thematic analysis of the qualitative data revealed important trends and themes, offering a thorough grasp of Uganda's readiness for disasters.

The welfare, rights, and confidentiality of participants were prioritized throughout the study. Participation was entirely voluntary, and individuals had the right to withdraw at any stage without facing negative consequences.

During the recruitment process, the researcher emphasized the voluntary nature of participation and ensured that respondents were fully informed about their rights. Confidentiality was strictly maintained, and personal information was not disclosed without explicit consent.

RESULTS

The demographic analysis indicated that most respondents (67.6%) were male, while 32.4% were female. The age distribution predominantly comprised mid-career professionals aged 40–50 years (50%), reflecting a workforce with substantial experience.

Additionally, a significant portion of respondents held postgraduate degrees (47%), while 41% possessed undergraduate qualifications. This reflects a well-educated workforce with varying levels of academic attainment, which might have shaped their views on emergency preparedness and response.

Effectiveness of the strategies of disaster preparedness by UPDF

Participants were asked to assess their level of agreement with statements regarding the effectiveness of disaster preparedness strategies employed by the UPDF. The findings are presented as follows:

i) Individual components under effectiveness of strategies

It is evident from the Table 2 that for statements 2, 3, and 7, over 70% of the respondents answered in the affirmative [Agree + Strongly agree]. In statement 2 for example, 70.6% of the respondents unanimously agreed that disaster policies were in place. In addition, statement 3 has it that 82.4% of the respondents agreed that guidelines for disaster preparedness were well-defined within the UPDF.

Conversely, for statements 4, 5, and 8, less than 50% of respondents answered in affirmative. The responses to statement 5 suggest that in general UPDF’s strategies are ineffective in reducing disaster risk. The inadequacies in UPDF’s ranks in as far as preparedness to handle disaster-related occurrences was reaffirmed with a look at statement 4, where there was a relatively small proportion i.e. 47% of respondents agreeing with the statement that “Resources (human, equipment, logistics and ICT) are appropriately allocated for disaster preparedness”. This also influences the Effectiveness of strategies of disaster preparedness.

Table 2: Individual components under effectiveness of strategies

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
1. Adequately trained to handle natural & man-made disasters	2 (5.9%)	4 (11.8%)	5 (14.7%)	19 (55.9%)	4 (11.8%)
2. Policies for disasters are in place	2 (5.9%)	4 (11.8%)	5 (14.7%)	17 (50%)	7 (20.6%)
3. Guidelines for disaster preparedness well-defined			6 (17.6%)	26 (76.5%)	2 (5.9%)
4. Resources (human, equipment, logistics and ICT) are appropriately allocated for disaster preparedness		13 (38.2%)	5 (14.7%)	13 (38.2%)	3 (8.8%)
5. UPDF’s strategies are effective towards disaster risk reduction		4 (11.8%)	17 (50%)	11 (32.4%)	2 (5.9%)
6. Standard operating procedures during disaster response are followed		4 (11.8%)	17 (50%)	11 (32.4%)	2 (5.9%)

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
7. UPDF responds to emergency situations on call or request			1 (2.9%)	13 (38.2%)	20 (58.8%)
8. The ability to assess disaster vulnerability is satisfactory		10 (29.4%)	8 (23.5%)	13 (38.2%)	3 (8.8%)
9. The level of preparedness to respond to future disasters is effective	2 (5.9%)	8 (23.5%)	4 (11.8%)	15 (44.1%)	5 (14.7%)

Source: Author (2024)

ii) Level of preparedness to respond to future disasters is effective

Figure 1 below, 58.8% (Agree 44.1 + strongly agree 14.7) of our study participants did exhibit some optimism that in future times, UPDF will be more than ready to face and handle disasters head-on given their current effective level of preparedness to handle future disasters. The implication is that the remaining 41.2% are pessimistic about UPDF’s level of preparedness to handle disasters and this unpreparedness helped the researcher to achieve objective one and get an answer for research question one.

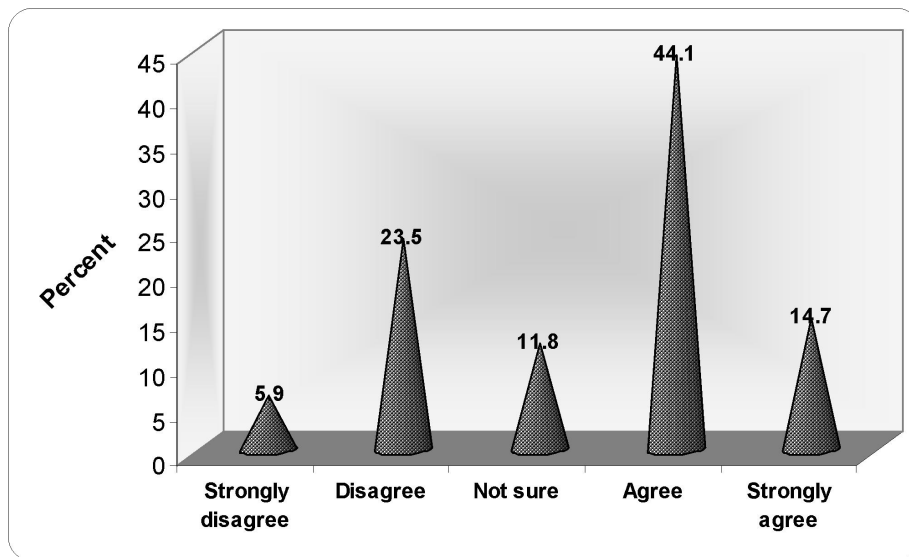


Figure 1: Level of preparedness to respond to future disasters is effective

iii) Zero order correlation analysis

From Table 3 below a significant positive correlation between disaster preparedness and the effectiveness of strategies in the UPDF. This is represented by a p value of 0.000 ($r = 0.677$). Therefore, there is a relationship between effectiveness of strategies and disaster preparedness. This implies that robust and effective measures can enhance overall disaster preparedness within the UPDF.

Table 3: Zero order correlation analysis

Effectiveness Measures	Mechanisms Strengthening	Multi-agency collab'n	Disaster Preparedness
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Effectiveness Measures	Pearson Correlation	1	.803**	.422*	.677**
	Sig. (2-tailed)		0.000	0.013	0.000
	N	34	34	34	34
Mechanisms Strengthening	Pearson Correlation	.803**	1	.442**	.714**
	Sig. (2-tailed)	0.000		0.009	0.000
	N	34	34	34	34
Multi-agency collaboration	Pearson Correlation	.422*	.442**	1	.852**
	Sig. (2-tailed)	0.013	0.009		0.000
	N	34	34	34	34
Disaster Preparedness	Pearson Correlation	.677**	.714**	.852**	1
	Sig. (2-tailed)	0.000	0.000	0.000	
	N	34	34	34	34
** . Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Source: Author (2024)

iv) Effective strategies employed by UPDF

The majority of respondents agreed that the UPDF is adequately trained to manage both natural and man-made disasters (67.8%), disaster policies are in place (70.6%), guidelines for disaster preparedness are well-defined (81%), and the UPDF responds promptly to emergency situations upon request (97%). These findings reflect strengths in the strategies employed.

However, fewer than 60% of respondents agreed with statements regarding the appropriate allocation of resources—including human capital, equipment, logistics, and ICT—for disaster preparedness (47%). Additionally, concerns were raised about the effectiveness of the UPDF’s strategies in disaster risk reduction (38.3%), adherence to standard operating procedures during disaster response (38.3%), the ability to assess disaster vulnerability (47%), and the overall preparedness to respond to future disasters (58.8%). These responses highlight critical gaps in the effectiveness of the UPDF’s disaster preparedness strategies. This is corroborated by key informants' perspectives, with one respondent highlighting that:

“It is now that it is becoming clearer and clearer that disasters are a form of threat which cannot be confronted in a traditional way. So, we are yet to see ourselves developing fully-fledged outfits. Yes, we have both our combat engineering units and the civil engineering units which are doing a good job, but I think as we go ahead with professionalization, we should have more robust, maybe brigades and other units, surely to respond to disasters” (Respondent, KII01, 2024)”.

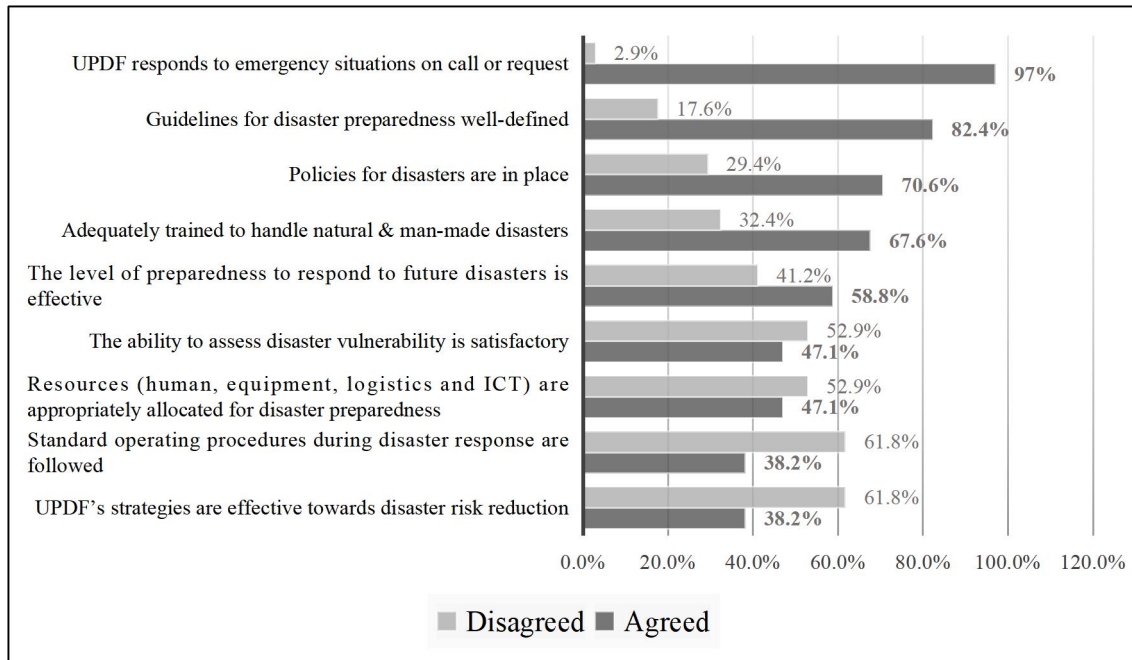


Figure 2: Effectiveness of strategies employed by the UPDF

DISCUSSIONS

The findings of this study provided valuable understandings into the effectiveness of disaster preparedness strategies employed by the UPDF. The results indicate a mixed level of preparedness, with notable strengths and areas for improvement.

A significant majority of respondents affirmed that disaster management policies are in place (70.6%) and that guidelines for disaster preparedness are well-defined (82.4%). These findings suggest that foundational frameworks and procedural clarity exist within UPDF, which aligns with global best practices, such as those advocated by FEMA's Comprehensive Emergency Management (CEM) theory and the Sendai Framework for Disaster Risk Reduction (2005-2025). Furthermore, over half of the participants (97%) agreed that UPDF demonstrates responsiveness to emergency situations upon request, highlighting its ability to address immediate disaster response needs.

Despite these advantages, the allocation of resources and training deficiencies were the main issues. While 67.7% of respondents agreed that UPDF officers are adequately trained to handle disasters, 32.3% highlighted deficiencies in skills, knowledge, and access to relevant technologies. Similarly, only 47% of participants felt that resources, including personnel, equipment, and ICT tools, were appropriately allocated for disaster preparedness. These inadequacies underscore the vitality of continuous investment in capacity building, echoing findings from Achmad (2021) and Tolulope et al. (2020), who stressed the critical role of training and technology in effective disaster management.

Another key area of concern was the effectiveness of UPDF's strategies in reducing disaster risk, with only 38.3% of respondents expressing confidence in this aspect. This finding suggests that UPDF's strategies fall short of the holistic and multi-dimensional approach advocated by global frameworks. The lack of a fully institutionalized disaster

response unit further exacerbates these challenges, as highlighted by key informant feedback advocating for the professionalization and establishment of dedicated disaster management units.

The correlation analysis revealed significant positive relationships between disaster preparedness and strategy effectiveness ($r = 0.68$, $p = 0.000$). These findings reinforce the importance of robust strategies, efficient systems, and collaborative efforts in enhancing disaster preparedness. This concurs with prior studies by Tkachuk et al. (2018) and Kihila (2018), which highlighted the role of regulatory frameworks and inter-agency coordination in disaster management.

The study contributes new knowledge by identifying key operational challenges, logistical constraints, and policy gaps that affect disaster preparedness in Uganda. These findings can inform policy recommendations, improve inter-agency coordination, and enhance the strategic preparedness framework for future disaster response efforts. Ultimately, this research serves as a reference point for policymakers, disaster management professionals, and scholars seeking to strengthen Uganda's disaster resilience through defence force interventions.

CONCLUSION

This study evaluated the effectiveness of disaster preparedness strategies within the UPDF, identifying areas of strength and highlighting opportunities for improvement. The research revealed that while the UPDF has made significant progress in disaster preparedness, substantial gaps remain. Key findings included inadequacies in training, resource allocation, and strategic frameworks, which hinder the UPDF's ability to meet the demands of increasingly complex disasters. Only a small percentage of respondents acknowledged that training and resources were adequate, indicating the need for focused capacity-building and resource allocation.

Aligning the UPDF's disaster preparedness framework with both the Resource-Based View (RBV) and Comprehensive Emergency Management (CEM) theories is critical. These approaches advocate for robust investment in internal resources, including human capacity, equipment, and logistical support, to strengthen institutional preparedness and resilience. In conclusion, UPDF has made progress in disaster preparedness, significant gaps remain in training, resource allocation, and strategic effectiveness. Addressing these gaps through continuous capacity building, resource optimization, and adherence to global best practices will be critical in enhancing UPDF's disaster preparedness and response capabilities. These efforts should be complemented by strengthening multi-agency collaboration and establishing dedicated disaster management units to ensure comprehensive and sustainable disaster resilience.

ABOUT AUTHOR

Nakidhuli Stella Sarah is a Master of Arts in Crisis Response and Disaster Management student at the National Defence University Kenya (NDU – K). This academic paper is based on the findings and recommendations of the first objective of her master's thesis on "Assessing the Impact of Strategies of Defence Forces on Disaster Preparedness: A Case of Uganda Peoples' Defence Forces - Uganda".

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