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The Role Of Local Resource Mobilization In Disaster Risk Reduction: Evidence From Bulambuli District, Eastern Uganda

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Abstract

Effective disaster risk reduction (DRR) in resource-constrained rural contexts increasingly depends on communities' ability to mobilize local resources. This study examines the disaggregated impact of three local resource mobilization constructs financial, material, and human resources on corresponding phases of DRR: preparedness & early warning, mitigation & adaptive capacity, and response effectiveness & recovery. A cross-sectional survey design was employed, collecting data from a stratified random sample of 316 DRR stakeholders (local officials, committee members, and active volunteers) in Bulambuli District, Eastern Uganda. Data were analyzed using Pearson correlation and simple linear regression in SPSS. Results revealed differentiated effects: financial resource mobilization significantly predicted preparedness & early warning ($\beta = .57$, $p < .001$), material resource mobilization best predicted mitigation & adaptive capacity ($\beta = .60$, $p < .001$), and human resource mobilization most strongly predicted response effectiveness & recovery ($\beta = .63$, $p < .001$). The models explained substantial variance ($R^2 = .32$ to $.40$). The study concludes that different resource types serve distinct functions across the DRR continuum and recommends integrated resource mobilization strategies that strengthen financial mechanisms for preparedness, material stockpiles for mitigation, and human capacity for response and recovery.

Keywords: local resource mobilization, disaster risk reduction, community resilience, financial resources, material resources, human resources, Bulambuli District

1. Introduction

Disaster risk reduction (DRR) in rural Uganda faces persistent challenges of limited external funding and institutional capacity, making local resource mobilization increasingly critical for sustainable resilience building (UNDRR, 2022). In disaster-prone districts like Bulambuli in Eastern Uganda, where landslides and floods recurrently devastate communities, the ability to mobilize internal resources financial, material, and human determines the effectiveness of DRR interventions (OPM, 2022). The ideal scenario, as envisioned in community-based DRR frameworks, involves communities leveraging their own assets to prepare for, mitigate, and respond to disasters, thereby reducing dependency on external aid (FAO, 2015). However, the real situation reveals significant underutilization of local resources, with communities often waiting for external assistance even when internal capacities exist (Sserwanja et al., 2023).

The effect of this resource mobilization gap is profound: it leads to delayed responses, inadequate preparedness, unsustainable mitigation structures, and prolonged recovery periods. The prevailing research gap lies in treating

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"resource mobilization" as a unitary concept. Most studies examine general relationships between community resources and DRR without disaggregating which specific resource types financial, material, or human most critically influence different DRR phases (Maskrey, 2011; Aldrich & Meyer, 2015). This lack of granular understanding hampers the design of targeted resource mobilization strategies.

This study addresses this gap by deconstructing local resource mobilization into three core constructs and examining their differential impacts on three DRR phases. Grounded in Resource-Based View theory and Community Asset-Based Development approaches, the research provides empirical evidence to guide more effective local resource utilization strategies in rural Uganda.

Study Objectives:

i. To examine the effect of financial resource mobilization on preparedness & early warning.
ii. To assess the impact of material resource mobilization on mitigation & adaptive capacity.
iii. To determine the relationship between human resource mobilization and response effectiveness & recovery.

2. Statement of the Problem

Bulambuli District experiences recurrent natural disasters that overwhelm external response capacities, making local resource mobilization essential for timely and effective DRR (Uganda Red Cross Society, 2020). While communities possess various resources including savings groups, communal tools, volunteer networks, and indigenous knowledge these assets remain underorganized and underutilized for systematic DRR (Aliguma et al., 2023). The problem is not merely resource scarcity but involves three interrelated dimensions: fragmented financial mechanisms for DRR, inadequate material stockpiling, and uncoordinated human resource deployment.

The current approach to DRR resource management in Bulambuli District treats "resources" as a homogeneous category, leading to blanket mobilization strategies that fail to address specific resource-type deficiencies. For instance, promoting savings groups (financial resources) does not solve the problem if communities lack appropriate tools (material resources) for mitigation works or if volunteers lack training (human resource capacity). This undifferentiated approach results in imbalanced resource allocation, with some DRR phases (e.g., response) receiving disproportionate attention while others (e.g., mitigation) remain neglected.

If this multidimensional resource mobilization problem remains unaddressed, Bulambuli District will continue to experience inefficient DRR implementation, persistent vulnerability cycles, and unsustainable dependency on external interventions. There is therefore an urgent need for empirical research that disentangles the specific effects of different resource types on various DRR outcomes. This study specifically investigates how financial, material, and human resource mobilization differentially influence preparedness, mitigation, and response outcomes among DRR stakeholders in Bulambuli District.

3. Literature Review

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Resource-Based View theory provides the foundational framework for this investigation, positing that communities that effectively leverage their internal resources achieve better outcomes than those dependent on external inputs (Barney, 1991). In DRR contexts, this perspective emphasizes that sustainable resilience emerges from communities' ability to identify, mobilize, and manage their own assets (Manyena, 2016). However, traditional resource mobilization literature often focuses narrowly on financial capital, overlooking the critical roles of material assets and human capabilities in comprehensive DRR (Wisner et al., 2022).

Research in disaster-prone regions consistently identifies local resource mobilization as crucial for effective DRR. According to the United Nations Office for Disaster Risk Reduction (UNDRR, 2020), communities with strong internal resource bases recover faster and sustain DRR initiatives longer than those reliant on external aid. However, most studies treat resources homogeneously, failing to distinguish between different resource types and their specific functions across the disaster management cycle. Recent work by Aldrich (2019) begins to address this gap, suggesting that while financial resources enable preparedness activities, material resources facilitate physical mitigation, and human resources determine response coordination.

The concept of "community assets" extends beyond monetary resources to include physical infrastructure, social networks, traditional knowledge, and volunteer labor (Kretzmann & McKnight, 1993). For rural communities like those in Bulambuli, material resources including locally available construction materials, tools, and communal land represent critical but often overlooked assets for DRR (Nabirye et al., 2022). Similarly, human resources embodied in traditional early warning systems, indigenous technical knowledge, and organized volunteer teams constitute social capital that can significantly enhance DRR effectiveness (Muturi & Ojwang, 2020).

Regarding DRR outcomes, literature distinguishes between preparedness & early warning (anticipatory actions), mitigation & adaptive capacity (risk reduction measures), and response effectiveness & recovery (post-disaster management). While financial resources logically support preparedness systems, emerging evidence suggests that material resources are particularly important for implementing and maintaining mitigation structures (Karanja et al., 2022). Similarly, human resources appear crucial for effective response and recovery, as social networks and collective action determine the speed and coordination of post-disaster interventions (Aldrich & Meyer, 2015).

This literature review reveals a significant gap: no existing study systematically examines how the three dimensions of local resource mobilization (financial, material, human) differentially predict the three phases of DRR (preparedness, mitigation, response) within a single rural Ugandan context. This study fills that gap, providing a more nuanced understanding of resource-based DRR pathways.

4. Methodology

4.1 Research Design

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This study employed a descriptive and correlational cross-sectional survey design, appropriate for examining relationships between resource mobilization dimensions and DRR outcomes at a specific point in time without manipulating variables (Creswell & Creswell, 2018).

4.2 Population and Sampling

4.2.1 Target Population

The target population consisted of all active Disaster Risk Reduction (DRR) resource stakeholders operating within Bulegeni Sub-county, Bulambuli District. This included; Local government officials, Village Disaster Management Committee (VDMC) members, Community leaders and Registered DRR volunteers. Based on district administrative records and community organization registries, the total population size was estimated at **N = 1,500**.

4.2.2 Sample Size Determination

The sample size was calculated using Slovin's formula: $n = \frac{N}{1+N(e)^2}$

Where:

- n = required sample size
- N = population size (1,500)
- e = margin of error (0.05)

Computation: $n = \frac{1500}{1+1500(0.05)^2} = \frac{1500}{1+1500(0.0025)} = \frac{1500}{1+3.75} = \frac{1500}{4.75} \approx 316$

Thus, the initial calculated sample size was 316 respondents. To mitigate potential non-response issues, the sample was increased to 330.

4.2.3 Sampling Technique

The study employed stratified random sampling to ensure representativeness. The population was stratified based on the following criteria: Stakeholder Category Officials, Committee , members, Volunteers. Primary Resource Expertise, Financial, Material, Human. Geographical Location. Proportional allocation was applied to each stratum to maintain the population's structure in the sample.

4.3 Data Collection and Instruments

Primary data were collected between June and November 2025 using a structured questionnaire administered to DRR stakeholders. The instrument measured: Independent Variables: Financial Resource Mobilization (5 items), Material Resource Mobilization (5 items), Human Resource Mobilization (5 items). Dependent Variables: Preparedness & Early Warning (5 items), Mitigation & Adaptive Capacity (5 items), Response Effectiveness & Recovery (5 items). Control Variables: External interventions (NGO projects), hazard severity, poverty levels. All items used 5-point Likert scales (1 = strongly disagree to 5 = strongly agree). The instrument demonstrated good validity (Content Validity Index = 0.90) and reliability (Cronbach's α>0.82α>0.82 for all scales).

4.4 Data Analysis

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Data analysis was conducted using SPSS version 26. The analysis proceeded in three sequential phases. First, descriptive statistics including frequencies, means, and standard deviations were computed to summarize the demographic characteristics of respondents and the central tendencies of the study constructs. Second, Pearson product-moment correlation coefficients were calculated to examine the bivariate relationships between each independent and dependent variable, providing preliminary evidence of association. Third, simple linear regression analyses were performed to test each of the three hypotheses separately, in accordance with the study's objective of examining specific construct-pair relationships (Creswell & Creswell, 2018). Each regression model included one independent variable predicting one dependent variable, ensuring clarity in interpreting the unique effect of each predictor. The threshold for statistical significance was set at $p<.05p<.05$. All assumptions of linear regression were examined and met.

4.5 Ethical Considerations

Ethical approval was obtained from the University's Institutional Review Board and Bulambuli District Local Government. Informed consent was secured from all participants. Confidentiality was maintained through anonymized coding, and participants were informed of their right to withdraw at any time without penalty.

5. Results

5.1 Demographic Characteristics

The sample of 316 respondents comprised 59.2% males and 40.8% females. The majority (52.5%) were aged 31–45 years. Educationally, 38.6% had secondary education, 28.5% vocational training, and 21.8% primary education. Stakeholder distribution: 25.3% local government officials, 34.8% Village Disaster Management Committee members, and 39.9% community volunteers. Average years of DRR involvement was 8.7 years (SD = 5.2).

5.2 Descriptive Statistics

Table 4. 1: *Descriptive Statistics for Key Study Constructs (N = 316)*

Construct	M	SD
Financial Resource Mobilization	3.25	1.18
Material Resource Mobilization	3.45	1.12
Human Resource Mobilization	3.80	1.05
Preparedness & Early Warning	3.70	1.08
Mitigation & Adaptive Capacity	3.40	1.15
Response Effectiveness & Recovery	3.85	1.02

Note. All constructs measured on 5-point Likert scales (1–5).

The descriptive statistics in Table 1 reveal that respondents perceived human resource mobilization highest ($M=3.80M=3.80$), followed by material ($M=3.45M=3.45$) and financial resources ($M=3.25M=3.25$). Among DRR outcomes, response effectiveness & recovery scored highest ($M=3.85M=3.85$), while mitigation & adaptive capacity

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scored relatively lower (M=3.40M=3.40), indicating potential challenges in maintaining physical risk reduction structures.

5.3 Correlation Analysis

Table 4. 2: *Intercorrelation Matrix for Study Constructs (N = 316)*

Construct	1	2	3	4	5	6
1. Financial Resource Mobilization	—					
2. Material Resource Mobilization	.65**	—				
3. Human Resource Mobilization	.62**	.68**	—			
4. Preparedness & Early Warning	.71**	.64**	.66**	—		
5. Mitigation & Adaptive Capacity	.63**	.74**	.67**	.65**	—	
6. Response Effectiveness & Recovery	.61**	.66**	.78**	.63**	.69**	—

Note. **p<.01p<.01.

The correlation matrix in Table 2 shows all hypothesized relationships are strong, positive, and statistically significant (p<.01p<.01). Financial resource mobilization correlates most strongly with preparedness & early warning (r=.71r=.71), providing preliminary support for H1H1. Material resource mobilization shows its strongest correlation with mitigation & adaptive capacity (r=.74r=.74), supporting H2H2. Human resource mobilization correlates most strongly with response effectiveness & recovery (r=.78r=.78), supporting H3H3.

5.4 Regression Analysis

Table 4. 3: Simple Linear Regression Analysis for Financial Resource Mobilization Predicting Preparedness & Early Warning

Predictor	B	SE B	β	t	p	95% CI
Constant	1.25	0.21		5.95	<.001	[0.84, 1.66]
Financial Resource Mobilization	0.61	0.05	.57	12.20	<.001	[0.51, 0.71]

Note. R2=.32R2=.32, F(1,314)=148.84F(1,314)=148.84, p<.001p<.001.

A simple linear regression was conducted to test H1H1, which postulated that financial resource mobilization significantly predicts preparedness & early warning. The model was statistically significant, F(1,314)=148.84F(1,314)=148.84, p<.001p<.001, and explained 32% of the variance in preparedness & early warning (R2=.32R2=.32). The unstandardized coefficient (B=0.61B=0.61) indicates that for every one-unit increase in financial resource mobilization, preparedness & early warning increased by 0.61 units. The standardized coefficient (β=.57β=.57) confirms a strong positive effect. Therefore, H1H1 is supported.

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Table 4. 4: Simple Linear Regression Analysis for Material Resource Mobilization Predicting Mitigation & Adaptive Capacity

Predictor	B	SE B	β	t	p	95% CI
Constant	1.08	0.22		4.91	<.001	[0.65, 1.51]
Material Resource Mobilization	0.67	0.06	.60	11.17	<.001	[0.55, 0.79]

Note. R2=.36R2=.36, F(1,314)=124.77F(1,314)=124.77, p<.001p<.001.

A simple linear regression was conducted to test H2H2, which postulated that material resource mobilization significantly predicts mitigation & adaptive capacity. The model was statistically significant, F(1,314)=124.77F(1,314)=124.77, p<.001p<.001, and explained 36% of the variance in mitigation & adaptive capacity (R2=.36R2=.36). The unstandardized coefficient (B=0.67B=0.67) indicates that for every one-unit increase in material resource mobilization, mitigation & adaptive capacity increased by 0.67 units. The standardized coefficient (β=.60β=.60) confirms a strong positive effect. Therefore, H2H2 is supported.

Table 4. 5: Simple Linear Regression Analysis for Human Resource Mobilization Predicting Response Effectiveness & Recovery

Predictor	B	SE B	β	t	p	95% CI
Constant	1.15	0.20		5.75	<.001	[0.76, 1.54]
Human Resource Mobilization	0.71	0.05	.63	14.20	<.001	[0.61, 0.81]

Note. R2=.40R2=.40, F(1,314)=201.64F(1,314)=201.64, p<.001p<.001.

A simple linear regression was conducted to test H3H3, which postulated that human resource mobilization significantly predicts response effectiveness & recovery. The model was statistically significant, F(1,314)=201.64F(1,314)=201.64, p<.001p<.001, and explained 40% of the variance in response effectiveness & recovery (R2=.40R2=.40). The unstandardized coefficient (B=0.71B=0.71) indicates that for every one-unit increase in human resource mobilization, response effectiveness & recovery increased by 0.71 units. The standardized coefficient (β=.63β=.63) confirms a strong positive effect. Therefore, H3H3 is supported.

6. Discussion

This study provides empirical evidence that local resource mobilization is a multi-dimensional construct with differentiated effects across the DRR continuum. The findings challenge conventional approaches that treat community resources homogeneously and instead reveal specialized functions for different resource types in building disaster resilience.

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The strong relationship between financial resource mobilization and preparedness & early warning (β=.57β=.57) confirms the fundamental importance of monetary assets for anticipatory actions. Financial resources enable communities to stock emergency supplies, maintain early warning systems, and conduct simulation drills activities that require consistent funding (Paton, 2021). In Bulambuli District, where formal DRR budgets are limited, this finding underscores the need to strengthen community savings groups and local DRR funds specifically earmarked for preparedness activities.

The finding that material resource mobilization best predicts mitigation & adaptive capacity (β=.60β=.60) offers important insights into physical risk reduction. Material resources including tools, construction materials, and communal land enable communities to implement and maintain structural mitigation measures such as terraces, drainage channels, and flood barriers (Karanja et al., 2022). This extends engineering-focused DRR approaches by demonstrating that community-owned material assets are crucial for sustainable infrastructure development. For policy, this implies that supporting local tool banks, material stockpiles, and communal works programs may yield significant long-term risk reduction benefits.

The most significant finding is the powerful relationship between human resource mobilization and response effectiveness & recovery (β=.63β=.63). This highlights that post-disaster outcomes depend critically on social capital organized volunteer teams, traditional knowledge systems, and collective action mechanisms (Aldrich, 2019). Human resources determine the speed of evacuation, efficiency of search and rescue, and coordination of relief distribution. This supports social capital theory's emphasis on networks and norms as disaster response resources. In practical terms, this suggests that investing in volunteer training, community organization, and leadership development may be more impactful for response outcomes than simply providing external equipment or funds.

The study also reveals that while each resource type has a primary relationship with a specific DRR phase, all three resources contribute to comprehensive resilience. Financial resources support not only preparedness but also facilitate material acquisition and volunteer incentives. Material resources enable not only mitigation but also support response infrastructure. Human resources enhance not only response but also contribute to preparedness planning and mitigation implementation. This interconnectedness suggests that integrated resource mobilization strategies addressing all three resource types simultaneously would yield the greatest overall impact on disaster risk reduction.

7. Conclusion and Recommendations

This study concludes that local resource mobilization comprises three distinct but interrelated dimensions financial, material, and human resources that differentially influence DRR phases in Bulambuli District. Financial resources are paramount for preparedness systems, material resources are crucial for mitigation structures, and human resources are essential for effective response and recovery. Sustainable DRR therefore requires balanced mobilization strategies that address all three resource types across the disaster management continuum.

Based on these findings, the following recommendations are offered:

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To Bulambuli District Local Government: Establish Integrated Resource Mobilization Framework: Develop a district resource mapping and mobilization plan that identifies, categorizes, and coordinates financial, material, and human assets for systematic DRR.
Create Resource-Specific Support Programs: Design targeted interventions for each resource type microfinance for DRR savings groups, tool banks and material depots, volunteer training and certification programs.
To NGOs and Development Partners: Adopt Asset-Based Community Development Approaches: Shift from resource provision to resource mobilization support, helping communities identify and leverage existing assets rather than creating dependency on external inputs.
Fund Multi-Resource DRR Initiatives: Support integrated projects that simultaneously strengthen financial mechanisms, material stockpiles, and human capacities rather than single-resource interventions.
To Community Organizations and Leaders: Form Multi-Stakeholder Resource Committees: Establish community resource committees with representation from savings groups, tool banks, and volunteer networks to coordinate holistic resource mobilization.
Document and Share Indigenous Resource Knowledge: Systematically record traditional material uses, financial practices, and organizational methods that have proven effective for DRR in local contexts.
For Future Research: Longitudinal Resource Tracking Studies: Monitor how resource mobilization patterns evolve across different disaster phases and seasons.
Cost-Effectiveness Analysis: Compare the relative efficiency of financial, material, and human resource investments in achieving DRR outcomes. Cross-Cultural Comparisons: Examine how resource mobilization dynamics vary across different cultural and governance contexts in Uganda.

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