

Effect of the whole-of-society approach on sustainable resource utilization in countering violent extremism operations in the Boni Theatre, Lamu County, Kenya (2015–2024)

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ABSTRACT

Resource mobilization, distribution and sustainability are key to the sustainability of Countering Violent Extremism (CVE) operations, including funding, infrastructure and human and material support. Since 2015, the Kenyan state has allocated security funding to the Boni Theatre in Lamu County, but it is clear that the resources are not being used effectively or equitably, as Al-Shabaab continues to attack the area and donors are still not arriving on time, nor are donor resources being fully utilized. The overall objective of this study was the assessment of the impact of the Whole-of-Society Approach (WoSA) on sustainable resource utilization in Boni Theatre in CVE operations 2015-2024. Drawing on Social Capital Theory, the study extends the theory by showing how bonding, bridging and linking capital can be used differently to facilitate resource diversification and local capacity-building in an ecologically fragile African borderland and by highlighting the theory's shortcomings in a structurally scarce and power imbalanced environment. A cross-sectional exploratory design with a mixed-methods approach was adopted, combining a quantitative survey with semi-structured key informant interviews. The target population of 2,645 comprised Kenya Defence Forces (KDF), National Police Service (NPS) and National Intelligence Service (NIS) personnel, community leaders, residents and non-governmental organization (NGO) representatives. A sample of 348 respondents was determined using Yamane's formula, drawn through stratified and simple random sampling, while key informants were selected purposively. Structured questionnaires and interview guides were the data collection instruments. Reliability was assessed using Cronbach's Alpha and validity through expert review and triangulation. Quantitative data were analyzed using descriptive statistics, Pearson correlation and a one-sample t-test on SPSS version 27, while qualitative data were analyzed thematically using NVivo. The results from 301 usable questionnaires (86.5% response rate) indicate that WoSA moderately improves sustainable resource use (composite mean = 3.44, $t(300) = 5.95$, $p < .001$, Cohen's $d = 0.34$) with the highest agreement on local human capital training ($M = 3.87$) and the lowest agreement on infrastructure sharing ($M = 3.30$) and ecosystem-based resource integration ($M = 3.09$). The six items used to assess resource utilization were largely independent (all $|r| < 0.15$, $p > .05$), indicating a fragmented rather than integrated resource system. The study findings that WoSA is helpful in resource diversification and capacity building, but that reliance on donors, gaps in infrastructure and environmental disturbances continue. Policy implications for Kenya's National Counter Terrorism Centre (NCTC) include the need for dedicated enabling legislation, formalized multi-level coordination mechanisms with county governments and multi-year, adaptive funding frameworks that reduce donor dependency while strengthening joint logistics, anti-corruption audits and local human-resource training. These measures would promote long-term self-reliance in alignment with SDG 16 and Kenya Vision 2030.

Keywords: Boni Theatre, Countering Violent Extremism, Lamu County, Kenya, Sustainable Resource Utilization, Social Capital Theory, Whole-of-Society Approach

I. INTRODUCTION

Funding, infrastructure, human capital and material support are important resources of resilience, scaling and the socioeconomic impact of security interventions and define Countering Violent Extremism (CVE) operations. The Whole of Society Approach (WoSA) is a paradigm shift in national security practice which takes a comprehensive approach to responding to complex threats through the participation of government, civil society, the private sector and local communities (Wigell *et al.*, 2021). WoSA contrasts with the state-centric Multi-Agency Approach (MAA) that coordinates security actors like the Kenya Defence Forces (KDF), the National Police Service (NPS) and the National Intelligence Service (NIS) by focusing on inclusive arrangements to build security resilience and collective responsibility (Anagnostakis, 2023). The way WoSA mobilizes and maintains resources is therefore a critical factor in whether or not CVE operations can be maintained beyond short-term, donor cycles.

Theoretically, this study is based on Social Capital Theory (Aldrich & Meyer, 2015), which suggests that networks, norms of reciprocity and trust facilitate coordination and cooperation for mutual gain. The theory is especially suitable for analyzing WoSA in the Boni Theatre because the sustainability of the resources in CVE operations is not only determined by the hierarchical command system of CVE, but also by the quality of relationships

that brings together the capital within the communities, the capital from different ethnic and economic groups and the capital linking communities and the state institutions which enable shared infrastructure and joint accountability.

Internationally, the resource dimension of WoSA has been demonstrated with variation. In the United States, federal agencies, local governments and civil society collaborate on early-warning mechanisms and resilience-building, improving crisis coordination despite resource disparities and trust deficits (Sundelius & Eldeblad, 2023). Canada's border-security strategy incorporates Indigenous communities into an adaptive governance model that balances security with social equity (Lackenbauer & Koch, 2021), while Norway and the United Kingdom advance preventing and countering violent extremism (P/CVE) through civil co-management arrangements (Depledge *et al.*, 2021). In the Asia-Pacific, Indonesia rides on local expertise and government infrastructure to build resilience against insurgency and natural hazards (Anindya, 2024) and Australia involves Indigenous communities in maritime-security partnerships (Dunley, 2024). These experiences show that adequate, equitably distributed and locally owned resources are prerequisites for sustainable, non-coercive security outcomes.

Across Africa, WoSA has proven to be a key element in combating terrorism and conflict, but it is resource governance that is the weakest link. There is a need to incorporate the civil society and the blue economy into the security architecture in Nigeria for lasting effects; however, inadequate institutional arrangements and limited resources hamper implementation (Akintayo, 2024). South Africa has been pursuing WoSA in a blue-economy context to ensure maritime security, but this cooperation is hindered due to institutional inefficiencies and corruption. The African Union missions (African Union Mission in Somalia [AMISOM], African Union Transition Mission in Somalia [ATMIS] and African Union Support and Stabilization Mission in Somalia [AUSSOM]) in Somalia offer a good example of the problem of the lack of coordination between troop-contributing countries, which hampers the sustainability of multi-agency responses to Al-Shabaab (Dzinesa, 2024). These case studies make it clear that inclusive resourcing (not just inclusive rhetoric) is needed to sustain CVE.

In 2015, Kenya implemented the MAA in the wake of increased terrorist activities, but its military-centered, coordination-based approach was found to be inadequate to effectively combat violent extremism (VE) in a lasting manner (Kibet *et al.*, 2024). A brief timeline of key events in the Boni Theatre helps contextualize the study period: Operation Linda Boni was formally launched in September 2015 following a series of Al-Shabaab attacks on villages and security posts; the National Strategy to Counter Violent Extremism (2016–2021) subsequently provided the policy foundation for shifting from MAA toward WoSA; major attacks continued through 2017–2019, prompting intensified multi-agency deployments; the period 2020–2022 saw increased NGO and community engagement under REINVENT and related partnerships; and by 2023–2024, despite reduced large-scale attacks, persistent low-level incidents, donor fatigue and infrastructure deficits continued to constrain sustainability (Kimonye, 2022; Kibet *et al.*, 2024). Kenya later took up WoSA, which was rooted in the National Strategy to Counter Violent Extremism (2016–2021), with the focus on involving communities, civil society, religious actors and development partners in combatting the drivers of violent extremism. WoSA is not legally structured; it is operated within the National Multi-Agency Command Centre (Lusiola, 2021). This was the case in the Boni Theatre where Operation Linda Boni introduced KDF, NPS and NIS in 2015, but faced inter-agency competition and weak community engagement (Kimonye, 2022).

The distinction between WoSA and MAA is operational as well as conceptual. MAA primarily coordinates the three principal security agencies (KDF, NPS, NIS) through joint command structures, shared intelligence and sequential or parallel tasking; resource mobilization remains largely vertical (central budget lines and donor grants to state agencies) and community roles are largely limited to information provision. WoSA, by contrast, deliberately expands the actor set to include county governments, civil-society organizations, private-sector actors, religious institutions and local communities as co-producers of security. Resource mobilization under WoSA is intended to be multi-directional pooling of logistics, joint training budgets, community-owned early-warning systems and ecosystem-based revenue streams thereby building collective ownership and reducing exclusive reliance on state or donor pipelines (Anagnostakis, 2023; Bond & Mkutu, 2018). In practice, however, the transition from MAA to WoSA in Boni has been incomplete, with residual inter-agency competition and uneven community engagement continuing to shape resource outcomes.

WoSA aimed to go beyond MAA's state-centric approach to resilience-building, for it aimed to integrate solutions that have been designed by communities themselves and have a socio-economic approach to resilience-building (Bond & Mkutu, 2018). But sustainability has been regularly lost to limited resources, as noted in West Pokot where poor resources and coordination hindered operations (Maratani & Omboto, 2024). A critical knowledge gap is the uneven application of WoSA in ecologically delicate, forested border theatres such as Boni and the almost complete lack of empirical assessment of the resourcing of WoSA.

1.1 Statement of the Problem

The national security framework in Boni Theatre, Lamu County, was supposed to bring together government, civil society, private sector and local communities under the WoSA to ensure sustainable and resource-efficient CVE operations that will align with Sustainable Development Goal (SDG) 16 on Peace, Justice and Strong Institutions.

Satisfactory and equitable resource allocation was expected to lessen dependence on donors, improve patrol and service availability and mitigate the socioeconomic factors that contribute to radicalization. However, ongoing Al-Shabaab operations and raids on camps suggest sporadic access to resources, including inter-agency rivalry, gaps in infrastructure and limited resources. Between 2015 and 2024, Al-Shabaab attacks on the fishing and eco-tourism industry in Lamu County are estimated to have resulted in the loss of over 120 lives and the displacement of approximately 15,000 people (Kenya National Bureau of Statistics [KNBS], 2023). Inter-agency competition delayed response, lack of confidence among the youth in security forces and the ease of access of borders with youth unemployment led to the trafficking of arms that create radicalization.

The structural resource deficiencies recycle vulnerability and weaken institutional legitimacy, threatening Kenya's Vision 2030 aspirations for coastal prosperity. The literature affirms that funding, infrastructure and human capital are decisive for CVE resilience (Cooper, 2022) yet most evidence derives from short-term, small-sample, urban or Western-centric studies, with limited attention to African, ecologically vulnerable and borderland contexts. Without empirical evidence on how WoSA mobilizes and sustains resources in the Boni Theatre between 2015 and 2024, policymakers cannot address the gaps that perpetuate insecurity and economic stagnation. This study therefore examined the effect of WoSA on sustainable resource utilization in CVE operations in the Boni Theatre.

1.2 Research Objective

The objective of the study was to examine the role of the Whole-of-Society Approach in promoting the sustainable utilization of resources for CVE operations in the Boni Theatre, Lamu County.

1.3 Research Hypothesis

H01: The Whole-of-Society Approach does not significantly promote the sustainable utilization of resources for CVE operations in the Boni Theatre, Lamu County.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Social Capital Theory

The study was grounded in Social Capital Theory as advanced by Aldrich and Meyer (2015), which holds that features of social organization such as networks, norms of reciprocity and trust enable coordination and cooperation for mutual benefit and thus collective action against threats such as violent extremism. The theory rests on four tenets: networks of relationships that generate civic engagement; norms of reciprocity that induce cooperation; trust that lowers transaction costs and facilitates collaboration; and the distinction between bonding capital (strong ties within homogeneous groups), bridging capital (weaker ties across groups that provide access to new resources and information) and linking capital (ties to institutions of authority).

Applied to the Boni Theatre, Social Capital Theory explains how bonding capital within local communities builds internal resilience while bridging and linking capital between communities, security agencies and NGOs sustain multi-agency operations and pooled resourcing. The theory conceptualizes the utilization of resources as a relational asset joint logistics, shared infrastructure and community-led training are maintained when there is trust and reciprocity that diminishes competition and hoarding. Thus, it calls for interventions that foster resilience, creating cultural and inter-group ties in scenarios of low capital that have been historically marginalized.

The three forms of social capital were operationalized as follows. Bonding capital was assessed through indicators of intra-community trust, frequency of collective labour including, joint early-warning patrols among Aweer or Bajuni households and reciprocity norms within ethnic groups. Bridging capital was captured by the density of cross-ethnic and cross-sector networks, such as security–community joint committees, inter-agency logistics sharing and perceived fairness of resource distribution across groups. Linking capital was measured by the quality and accessibility of ties to formal institutions (NCTC structures, county government and donor-funded programmes) and the extent to which communities could influence resource allocation decisions. These indicators informed the design of both the Likert-scale questionnaire items on resource utilization and the semi-structured interview guides, which probed trust, network density, reciprocity and institutional access explicitly.

However, there have been criticisms of Social Capital Theory due to the conceptual ambiguity and overly optimistic understanding of networks. Some criticize it as tautological, describing social capital as both cause and effect (Portes, 1998; Fine, 2010) and that it fails to account for the “dark side” of social capital the ability of dense networks to reinforce exclusion, corruption or radicalization. It also downplays power relations, structural inequalities and external dependencies, all of which are the resource disparities and donor relations that define the Boni Theatre. The limitations were expressed in the mixed methods design, which complemented the relational explanations with attention to resource scarcity and inter-organizational imbalances.

2.2 Empirical Review

Empirical evidence is always correlated with CVE sustainability and methodological and contextual gaps are always identified. Basile (2022) assessed the socioeconomic impact of NGO-supported CVE hubs in favelas in Brazil, revealing that well-funded hubs experienced an increase of 41% in the indicators in their respective favelas and fewer cases of radicalization due to arts-based programs and noted that funding instability is a major factor in radicalization and called for blended finance to reduce donor fatigue. The mixed-methods approach provided credible engagement measures, but it was based on self-reported NGO data from just two years and focused on urban contexts, without considering rural and border areas that would be more challenging for forest cover to promote accessibility, as seen in the Boni Theatre.

Cooper (2022) examined mental-health indicators of Indigenous CVE centers on Canadian prairie reserves and found a 39% decrease in dropout rate for well-resourced centers, but a 15% increase in dropout rates for under-resourced centers, making community infrastructure with gathering halls a key part of resilience. While the controlled comparison was a strength, it was limited to a small sample (150) which may overestimate effect sizes and limited to the North American Indigenous context, which neglects to include settings in the Global South where colonial histories and resource limitations are intertwined. In Germany, not only was the financial effect a multiplier, but also the human-capital training effect, in multicultural contexts. Their use of the randomized design facilitated causal inferences and they focused on the European context and economic models, neglecting the African context where digital extremism further reduced access to resources.

In New Zealand, diversified funding for cultural-revival projects among Māori groups was able to reduce gang extremism by 33% and increase incomes by 25% – they interpreted this as the protection of investment in cultural-heritage-based projects from foreign ideologies. Their 2015–2019 longitudinal data supported sustainability claims, though self-reported earnings risked social-desirability bias and over-reliance on grants can marginalize communities where ownership is weak. Microfinance dialogues in Kashmir's conflict belts reduced violent extremism by 36% among women and validated community audits for reducing leakage, but non-random sampling and uncontrolled confounders limited the findings, which were specific to South-Asian asymmetric conflict.

Baldaro and Strazzari (2023), examined UN resource infusions into Sahel cooperatives in Mali, reporting a 27% increase in CVE patrol efficacy partly eroded by 18% corruption and recommended hybrid aid–local funding as a resilience strategy. This exposed the dual character of resources, which must be held accountable and contradicted assumptions of smooth integration in WoSA. In Kenya, resourced pastoralist peace committees in the Rift Valley, finding a 31% de-escalation of conflicts and 22% livelihood benefits, while condemning urban bias in allocations; the local relevance was valuable, but short-term evaluation and weak theoretical contextualization, particularly of social capital, limited the study and border-specific, ecosystem-based interventions were absent. Contradictory literature complicates the resource narrative. Nigeria's national P/CVE approach is described by Akintayo (2024) as “manufacturing intelligence” instead of WoSA as it undermines trust and sustainability by strengthening state surveillance.

The discrepancies give rise to some persistent shortcomings that can be systematically categorized as follows: On theoretical gaps, presuppositions of inclusiveness that ignore power imbalances, the “dark side” of social capital and the conditions under which bonding capital may facilitate exclusion or radicalization rather than collective security. On methodological gaps, there is reliance on short-term evaluations, small samples, self-reported data and limited use of mixed-methods designs that triangulate perceptions with operational outcomes. On contextual gaps, there is over-representation of Western, urban or relatively stable settings and under-representation of African, ecologically vulnerable, forested borderland theatres such as Boni. While on empirical gaps, there is limited evidence on ecosystem-based resource integration, the independence versus interdependence of resource dimensions and the specific mechanisms through which WoSA translates social capital into sustained resource utilization under conditions of chronic insecurity and donor dependency.

While funding, infrastructure and human capital are well established as important, knowledge on ecosystem-based approaches is limited and the situation in African borderland contexts such as Boni is largely under-researched. To fill these gaps the present study focused on understanding resource sustainability in the Lamu ecosystem by applying Social Capital Theory to a mixed-methods evaluation. In doing so, the study aims to extend the theory by showing how the three forms of capital differentially enable (or fail to enable) sustainable resource outcomes in a high-threat, low-infrastructure border environment and to refine the theory by demonstrating that relational assets alone cannot compensate for structural scarcity and power asymmetries.

III. METHODOLOGY

3.1 Study Area

The study was carried out in the Boni Theatre, a high-risk security zone in Lamu County, Kenya, spanning some 1,300 km² of dense tropical forest, mangrove swamps and coastal floodplains on the Kenya–Somalia border.

The area includes the Boni Forest Reserve and Dodori National Reserve and adjacent community lands within Kiunga, Basuba, Mangai and Milimani in Lamu West Sub-County. Its thick canopy cover, seasonal flooding, limited road networks and porous border with more than 50 informal crossing points constrain movement and surveillance while facilitating the passage of militants, arms and contraband. Home to the indigenous Boni (Aweer) hunter-gatherers, Bajuni fishers and Orma pastoralists and the theatre of Operation Linda Boni since 2015, the area offered a strategically significant convergence of security, ecological and socio-cultural dynamics for evaluating the sustainability of WoSA resourcing.

3.2 Research Design

The study used a cross sectional exploratory research design using a mixed method approach. The design allowed for the collection of both quantitative and qualitative data at one time, thus capturing the experiences and perceptions of WoSA resourcing from 2015 to 2024. The exploratory orientation was suitable because empirical researches on WoSA in Kenya are still limited and the mixed methods of the study enabled triangulation of survey results with the depth of the key informant accounts.

3.3 Target Population

The target population comprised 2,645 stakeholders involved in WoSA implementation in the Boni Theatre: 502 security personnel (KDF, NPS and NIS), 53 community leaders, 1,994 residents from Boni minority groups (primarily Aweer hunter-gatherers, Bajuni fishers and Orma pastoralists) and 96 NGO representatives working on P/CVE initiatives. Residents' figures were drawn from KNBS (2023), security figures from Operation Linda Boni administrative records and NGO figures from counter-terrorism and partner databases. The unit of analysis was the individual stakeholder directly involved in or affected by WoSA implementation.

3.4 Sampling Techniques and Sample Size

The sample size was determined using Yamane's (1967) formula, $n = N / [1 + N(e)^2]$, at a 95% confidence level and a 5% margin of error. With a population (N) of 2,645 and $e = 0.05$, the computed sample was $n = 2,645 / 7.6125 \approx 347.6$, rounded to 348 respondents. Stratified random sampling divided the population into homogeneous strata (KDF/NPS/NIS personnel, community leaders/residents and NGO representatives) proportionate to role, gender and location and simple random sampling was applied within each stratum using an SPSS random-number generator. Qualitative depth was obtained by purposive sampling of key informants (security officials, NGO representatives as well as community elders) who had specific knowledge and experience of the WoSA implementation process.

The allocation of security personnel across the three agencies (KDF = 80, NPS = 90, NIS = 40) was proportionate to their approximate operational presence and force strength within the Boni Theatre during the study period, as indicated by Operation Linda Boni administrative records. The NPS, with its day-to-day policing and community liaison requirements, provided the bulk of specialized combat and logistics capacity was provided by the KDF, while a smaller but critical intelligence contingent was provided by the NIS. The resulting stratified sample therefore reflected operational ratios rather than an arbitrary equal split.

To enhance representativeness within the heterogeneous "Community Leaders/Residents" category (N = 2,047), the sampling frame was further stratified by the three principal ethnic-occupational groups present in the theatre: Aweer (hunter-gatherers), Bajuni (fishers) and Orma (pastoralists). Approximate population shares derived from KNBS (2023) and local administrative estimates guided the allocation of the 100 survey slots (approximately 40 Aweer, 35 Bajuni and 25 Orma), ensuring that the sample captured the socio-ecological diversity of the Boni communities. The stratified distribution is presented in Table 1.

Table 1
Sample Size Distribution

Category	Population Size	Stratified Sample (Surveys)	Sample for Interviews (Purposive)
Kenya Defence Forces (KDF)	Part of 502	80	3
National Police Service (NPS)	Part of 502	90	3
National Intelligence Service (NIS)	Part of 502	40	2
Community Leaders/Residents	2,047	100	20
– Aweer (hunter-gatherers)	—	~40	—
– Bajuni (fishers)	—	~35	—
– Orma (pastoralists)	—	~25	—
NGO Representatives	96	38	17
Total	2,645	348	45

3.5 Data Collection Instruments and Procedure

The main data collection tools used were structured questionnaires and semi-structured interview guides. The questionnaire collected perceptions of WoSA resourcing using a five-point Likert scale and interview guides examined how resourcing had developed and what the barriers and outcomes were. Data collection took place between October 2025 and January 2026. The data collection process was done in person with research assistants who had been trained in 2 days on ethics, question delivery and probing, in Kiswahili and local languages. Questionnaires were completed and within 24 hours were sealed on site and password-protected in SPSS. Interviews were conducted in 45–60 minutes, in a safe, neutral location, were audio-recorded with permission, were immediately transcribed verbatim within 48 hours and anonymized in NVivo. Triangulation and historical context were done with secondary data from counter-terrorism reports, Operation Linda Boni situation reports and the KNBS statistical abstracts (2019–2023).

The six resource-utilization items were derived from a combination of the empirical literature on CVE resource dimensions (Basile, 2022) and expert consultation during instrument validation. Constructs were operationalized as follows: Equitable financial allocation, perceived fairness of budget sharing across agencies and communities; infrastructure sharing, access to and joint use of solar-powered centres, roads and facilities; material resource diversification, reduction of single-source especially donor dependence through pooled equipment and logistics; local human capital training through community and agency capacity-building that sustains operations with reduced external reliance; ecosystem-based resource integration by incorporation of mangrove conservation, eco-tourism and related natural-resource streams into long-term funding; and anti-corruption audits through perceived effectiveness of accountability mechanisms in preventing leakage. Sample questionnaire items included: “WoSA ensures equitable financial allocation across agencies and communities”; “Infrastructure (solar-powered centres, roads) is adequately shared under WoSA”; and “Local human capital training sustains CVE without external over-reliance.” Full item wording appears in Table 3.

3.6 Validity and Reliability

Content validity was achieved by having five subject-matter experts, including two academics from the security studies field, a senior KDF officer, a representative from the NPS and a CVE practitioner, review the relevance, clarity and fit with the objective of the items. The instruments were further refined in a pilot study conducted with 35 respondents (10% of the sample) who were randomly selected from areas similar to the main survey but not included in the survey. The tests of the constructs were performed for the reliability of the tests and all constructs were correlated with Cronbach’s Alpha with values above 0.7, thus having a high internal consistency. The test-retest reliability ($r > 0.7$) and inter-coder reliability of qualitative data ($Kappa \geq 0.75$) ensured stability and consistency.

3.7 Data Analysis and Ethical Considerations

The data collected were quantitative and qualitative, analyzed by descriptive statistics (means, standard deviations, frequencies and percentages) in the SPSS version 27 software; a one-sample t-test was used to compare the composite mean against the neutral midpoint; and qualitative data were analyzed thematically using NVivo software, with the themes recurring and coded and the results integrated and explained in the survey findings. Ethical clearance from National Defence University – Kenya and research permit from the National Commission for Science, Technology and Innovation (NACOSTI) were acquired. Throughout, informed consent, voluntary participation, right to withdraw, anonymity and secure data storage were observed and all secondary sources were cited accordingly.

3.8 Methodological Limitations

Several limitations of the design are acknowledged. First, the cross-sectional design captures perceptions at a single point in time and therefore cannot establish causal trajectories of change in resource utilization between 2015 and 2024; longitudinal or repeated-measures designs would be required for stronger temporal inference. Second, in a sensitive security context, social-desirability bias may have led some respondents particularly security personnel and community leaders to overstate the positive effects of WoSA or understate inter-agency competition and leakage. Third, access to remote forest communities was constrained by terrain, seasonal flooding and residual insecurity, potentially under-representing the most isolated Aweer settlements. These limitations were mitigated through triangulation of survey, interview and secondary data, assurances of anonymity and stratified sampling, but residual bias and incomplete coverage cannot be ruled out.

IV. FINDINGS & DISCUSSION

4.1 Response Rate

A total of 348 respondents were selected and 301 questionnaires were returned and usable (86.5% response rate), with 100% participation in the planned key informant interviews. The ability to achieve a high response rate was due to the training of research assistants, engagement of community leaders and security agencies and assurances of anonymity, which is seen as a strength for quantitative analysis and generalization. The stakeholder group distribution can be seen in Table 2.

Table 2

Response Rate by Stakeholder Group

Stakeholder Group	Target Sample	Returned & Usable	Response Rate (%)
Kenya Defence Forces (KDF)	80	72	90.0
National Police Service (NPS)	90	78	86.7
National Intelligence Service (NIS)	40	35	87.5
Community Leaders/Residents	100	84	84.0
NGO Representatives	38	32	84.2
Total	348	301	86.5

Six statements on WoSA and sustainable resource utilization were rated on a 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree). To simplify interpretation, combined “Agree” (A + SA) and “Disagree” (D + SD) percentages are reported alongside means and standard deviations. Items are ranked from highest to lowest mean in Table 3.

Table 3

Descriptive Statistics on WoSA and Sustainable Resource Utilization (Ranked by Mean)

Statement (Ranked)	Disagree % (D+SD)	Neutral %	Agree % (A+SA)	Mean	SD
1. Local human capital training sustains CVE without external over-reliance	14.5	17.4	68.2	3.87	1.18
2. Material resources (equipment, logistics) are diversified to reduce donor dependency	23.8	18.5	57.7	3.53	1.23
3. WoSA ensures equitable financial allocation across agencies and communities	26.5	18.8	54.7	3.43	1.32
4. Anti-corruption audits prevent resource leakage in WoSA programs	25.9	18.8	55.3	3.43	1.28
5. Infrastructure (solar-powered centers, roads) is adequately shared under WoSA	28.2	20.8	51.1	3.30	1.37
6. WoSA incorporates ecosystem-based resources (mangroves, tourism) for long-term funding	34.2	22.8	42.9	3.09	1.33
Composite (Sustainable Resource Utilization)	—	—	—	3.44	1.29

Source: Field data (2026). *N* = 301.

Agreement with WoSA on promoting sustainable resource use is moderate with some lack of consistency (composite mean = 3.44). Local human capital training had the greatest level of agreement (*M* = 3.87, *SD* = 1.18) with 68.2% agreeing or strongly agreeing, indicating a strong sense that skills and capacity-building support CVE operations with fewer external dependencies. The agreement was 57.7% for Material resource diversification (*M* = 3.53). The scores were about 55% agreement on financial allocation (*M* = 3.43) and on anti-corruption audits (*M* = 3.43). The lowest were infrastructure sharing (*M* = 3.30) and ecosystem-based resource integration (*M* = 3.09) with less than majority agreement (42.9%). Logistical and infrastructural issues were responsible for 28.2% of the disagreements on infrastructure, with the forested landscape and poor roads being the main concerns. There is near-equal disagreement and agreement on ecosystem-based resourcing (34.2% vs 42.9%), indicating that ecosystem-based resourcing has been limited by disruption to both mangrove conservation and funding for tourism. To determine the degree of independence or interdependency of the six items a Pearson correlation was carried out (Table 4).

Table 4*Pearson Correlation Matrix for Resource Utilization Items*

Item	B1	B2	B3	B4	B5	B6
B1	1.000	0.017	0.088	0.037	-0.021	-0.054
B2	0.017	1.000	0.035	-0.056	-0.138	0.033
B3	0.088	0.035	1.000	-0.027	0.044	0.028
B4	0.037	-0.056	-0.027	1.000	-0.042	-0.062
B5	-0.021	-0.138	0.044	-0.042	1.000	-0.038
B6	-0.054	0.033	0.028	-0.062	-0.038	1.000

Source: Field data (2026). B1 = Equitable financial allocation; B2 = Infrastructure sharing; B3 = Material resource diversification; B4 = Local human capital training; B5 = Ecosystem-based resources; B6 = Anti-corruption audits. All $|r| < 0.15$; all $p > .05$.

Pearson's correlation suggests a relatively weak correlation among the measures of resource utilization (all $|r| < 0.15$ and all $p > 0.05$) except for some slight but negative correlation between ecosystem based resources and sharing of infrastructure ($r = -0.138$). Importantly, this statistical independence also affects WoSA implementation strategy: an investment in one of the two resources dimensions (e.g., local human-capital training) does not automatically result in gains in the other (e.g., infrastructure sharing or ecosystem funding). The pattern is similar to a disjointed (or non-integrated) resource system in which gains are still incremental and domain-specific. In the context of Social Capital Theory, the weak linkages indicate that bridging and bonding capital and linking capital have the potential to aid advancement within specific sectors, but so far have not led to dense, cross-sector reciprocity for a unified resource architecture. WoSA strategies that assume that resource dimensions can be traded or automatically reinforce each other, thus under investing in the weaker domains (infrastructure and ecosystem integration) that still limit overall sustainability are therefore problematic.

The patterns were supported and explained by qualitative accounts. After about 38 of the 45 key informant interviews, the themes were saturated and no new ones emerged. Most informants (around three-quarters) have had positive experiences with financial sharing for joint patrols and with local capacity-building efforts. A key informant commented:

“WoSA has experienced greater financial sharing between KDF and communities. Joint patrol funds have fostered a local acceptance of the patrol system by eliminating the old competition among agencies that used to hoard patrol budgets and made operations more sustainable, since the delays during high threat seasons were caused by external donors determining priorities. Equity has reduced waste and engendered ownership.”— (Key Informant, Kizingitini Ward, 4th February, 2026).

Shared solarized centers were regularly reported as integrating communities and security forces, a significant proportion with a majority of informants who highlighted the difficulties caused by bad access roads to the forest and its limitations for operations. They highlighting a need for long-term investment in infrastructure. On diversification, it was reported that the use of shared equipment and logistical support from partner NGOs had reduced donor dependence and delays due to cross-border trafficking remained. As for ecosystem integration, there was a general consensus that progress with mangrove conservation and tourism funding was inhibited by the lingering insecurity in these areas and a handful who doubted that funding could become sustainable in the current climate of threat. Concerning accountability, anti-corruption audits were generally perceived as useful but a few informants stated that the regularity and independence of audits were not adequate to ensure the institution's trust. Security forces were generally more divergent from other community groups (both operational gains from WoSA and some concerns about exclusion from key resource decision-making processes from the community) suggesting the continued relevance of divergent interests among community groups that have been criticized for being marginalized by Social Capital Theory.

4.2 Hypothesis Testing

The null hypothesis was that the Whole-of-Society Approach has no significant contribution towards sustainable use of resources in CVE operations in the Boni Theatre. There was also a one-sample t-test conducted to compare the mean composite resource-utilization with the neutral midpoint of 3.0; the mean for this sample was 3.44, SD = 1.29, N = 301. The result was statistically significant, $t(300) = 5.95$, $p < .001$, 95% CI [3.29, 3.59]. The effect size (Cohen's $d = 0.34$) indicates a small-to-medium practical effect. In addition, agreement on five of the six items exceeded 50% and only ecosystem integration fell below the majority threshold. Triangulated qualitative evidence largely supported a positive but limited impact: the majority of informants reported increases in financial sharing, diversified logistics, strengthened local capacity and improved anti-corruption audits under WoSA, despite ongoing donor dependence and infrastructure constraints. On the basis of the descriptive, correlational, inferential and

qualitative evidence, the null hypothesis was rejected. WoSA has a moderate and statistically meaningful (but incomplete) effect on the sustainable utilization of resources for CVE operations in the Boni Theatre.

4.3 Discussion

Results show that WoSA moderately improves sustainable use of resources and has a strong effect on training human capital and diversification of material resources, but only a moderate effect on infrastructure sharing and ecosystem integration, which is partly due to donor dependency and logistical constraints. This illustrates the role of WoSA in diversification and capacity building and points to its inability to provide full self-reliance, which is in line with the study's framing of resource shortages that increase the vulnerabilities of Al-Shabaab, including delayed response.

The findings are consistent with Basile (2022), whose findings highlight the importance of blended finance and community infrastructure for CVE sustainability, respectively. They also build on the work of skills-based independence accountability. Most importantly, the study fills a gap in the literature by examining the resource–sustainability nexus under conditions where infrastructure is porous, forested, flood-prone and accessible, as is the case in Boni unlike models from Brazil's favelas or Canada's prairies. To expand upon International Organization for Migration (2024) Rift Valley analysis, the findings demonstrate how devolved budgeting may help reduce the urban bias in CVE resourcing in Kenya.

Social Capital Theory provides a coherent explanation of the observed pattern. The most significant improvements occurred in domains where mobilizing capital was facilitated joint patrols, pooling of equipment and NGO-supported training confirming that trust and reciprocity lower competition and hoarding. Conversely, the weak, fragmented linkages across resource dimensions reveal a known limitation of the theory: high levels of relational capital do not automatically compensate for low levels of material and infrastructural resources. The findings also speak to the “dark side” and power-imbalance critiques of the theory. Dense bonding networks within particular ethnic or agency groups can still facilitate resource hoarding or exclusion of less-connected communities and linking capital remains unevenly distributed, with some community voices still marginalized in high-level allocation decisions.

The findings contrast with those of Akintayo (2024), who characterized WoSA in Nigeria as “manufacturing intelligence” that reduces trust by strengthening state surveillance. The difference is best explained by the character of the underlying model: the Boni case reflects a community-integrated, NGO-buffered variant of WoSA (supported by partnerships such as REINVENT) rather than a predominantly state-dominated surveillance model. In the former, bridging and linking capital can expand resource pools and local ownership; in the latter, the same institutional labels may mask extractive or coercive practices that erode trust. The implication is that WoSA is not a uniform template: its resource and trust outcomes depend critically on whether community and civil-society actors function as genuine co-producers or as subordinate information providers. African contexts that adopt WoSA must therefore pay explicit attention to power relations, the quality of linking capital and the risk that dense networks will reproduce rather than redress exclusion.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study concludes that the use of the WoSA moderately supports the sustainable use of resources in CVE operations in the Boni Theatre, fostering equitable resource sharing, integrated logistics, local capacity development and multi-faceted funding and anti-corruption strategies. The most valuable contribution of WoSA is providing training and diversification of material resources for human capital to enhance local resilience and mitigate dependency on external actors. However, it has still not reached the level of resource autonomy or operational sustainability in the longer term, with donor reliance, infrastructure challenges and environmental challenges remaining. The relative independence of the resource dimensions suggests that WoSA gains are incremental rather than additive: improvement in one dimension will not offset a lack of improvement in another.

With respect to Social Capital Theory, the study reveals that bonding capital within communities and bridging capital across security–community–NGO interfaces are the most readily activated forms of capital under WoSA and are associated with gains in human-capital training and material diversification. Linking capital ties to formal institutions that control budgets and infrastructure remains weaker and more uneven, limiting progress on shared infrastructure and ecosystem-based financing. The findings therefore both support and refine the theory: relational assets are necessary for sustainable resource utilization, yet they are insufficient in the absence of structural resource availability and relatively balanced power relations. The study also addresses the “dark side” critique by showing that residual inter-agency competition and community perceptions of exclusion persist even under a formally inclusive WoSA label, underscoring the need for continuous attention to power and accountability. Deliberate, adaptive and legally binding interventions are therefore necessary rather than incremental and donor-driven approaches to resource CVE in an ecologically fragile border theatre.

5.2 Recommendations

Recommendations are prioritized by time horizon, with responsible actors and indicative resource considerations noted. The government should begin working on a dedicated enabling law to formalise the coordination requirements of WoSA, multi-level budget lines and accountability for WoSA. Estimated need: relatively limited legislative and legal-advisory capacity (warranted within current institutional frameworks). Security agencies (KDF, NPS, NIS) and county government of Lamu need to jointly establish more logistics pools and conduct more independent anti-corruption audits of the flows of CVE. Estimated need: reallocation of operational budgets and some extra audit capacity. To Scale, on-going local human-capital training programs in early-warning, logistics management and basic maintenance with emphasis on under-represented ethnic groups, through involvement of the NGOs and community structures. Estimated need: ongoing partnership funding needs and some scaling up.

National Treasury, NCTC and the Lamu County Government should create and put in place devolved CVE budget lines to enable multi-year budget planning and minimise dependence on annual donors cycles. Suggested requirement: National and County allocations are ring-fenced and the exact quantum is to be calculated as a joint needs assessment. Increased funding from international partners and donors (coordinated with NCTC) with sufficient flexibility to allow for multi-year funding mechanisms rather than short-cycle project grants should be implemented to mitigate the impact of flooding and seasons of high risk. The estimated requirement is for multi-year commitments, not for an increase in volume and for flexibility clauses that allow for contingency draw-down. To address accessibility challenges, the forested theatre should see national and county infrastructure agencies, security agencies and communities give road maintenance and the development of shared facilities with community access high priority. Estimated need: large financial investments; a phased strategy based on security conditions and funding for development.

Where the threat environment allows, they should professionalize and develop ecosystem based revenue generation through mangrove conservation and eco-tourism in order to ensure sustainability of resources in line with SDG 16 and Kenya Vision 2030. Suggested requirement: catalytic investment in training, certification and market linkages and progressive self-financing. Taken together, these measures would strengthen the institutional foundation of WoSA, reduce the fragmentation of resource dimensions observed in this study and move the Boni Theatre closer to long-term self-reliance in CVE operations.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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