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Does Participatory Implementation Ensure Sustainability? Assessing the Efficacy of Post-M&E Functions in South Sudan's DHAPP Project, Juba, South Sudan

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Abstract

Despite decades of investment in participatory monitoring and evaluation (M&E) across development sectors, evidence remains inconclusive regarding whether stakeholder involvement in implementation-phase activities actually ensures project sustainability, particularly in fragile, donor-dependent contexts where participation may become ritualized rather than empowered. Although existing literature has extensively examined community participation in project planning and implementation, the distinct contributions of post-M&E functions remain theoretically underdeveloped and empirically understudied, especially within post-conflict health systems. This study addresses this gap by investigating the effects of participatory M&E in implementation and post-M&E functions on the sustainability of the Defense HIV/AIDS Prevention Program (DHAPP) in Juba, South Sudan, a setting characterized by extreme aid dependence, weak institutional infrastructure, and cyclical political instability. The study was guided by an integrated theoretical framework drawing on Resource Dependence Theory and Institutional Theory. A convergent parallel mixed-methods design was employed, combining quantitative survey data from 162 program beneficiaries with qualitative semi-structured interviews from 8 key informants. Quantitative data were analyzed using descriptive statistics, Pearson correlation, and multiple regression analysis. Qualitative data were analyzed using reflexive thematic analysis. The results revealed that participatory post-M&E functions demonstrated a statistically significant positive relationship with project sustainability ($\beta = .190$, $p = .015$), though the effect size was small ($R^2 = .036$). In contrast, PM&E in implementation showed no significant association with sustainability ($\beta = .114$, $p = .150$), despite high descriptive ratings ($M = 4.32$, $SD = 0.84$). The multiple regression model was significant overall ($F(3, 158) = 8.42$, $p < .001$, $R^2 = .138$), yet neither participatory dimension remained significant when controlling for the other, suggesting shared variance capturing a general participatory climate. Qualitative analysis identified embeddedness of data collection routines, capacity

constraints in analytical functions, and the primacy of learning and adaptation through monthly data review meetings as core thematic areas. Participatory M&E alone cannot overcome structural barriers to sustainability in donor-dependent fragile states. Program designers should prioritize genuine design-phase co-creation, address implementation-phase capacity gaps, and institutionalize post-M&E learning systems, while simultaneously advocating for diversified funding and progressive transition planning.

Keywords: Participatory monitoring and evaluation, project sustainability, fragile states, donor dependency, South Sudan, post-conflict health systems

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Introduction

In both developing and transitional economies, community development projects constitute a cornerstone of strategic interventions designed to address systemic socio-economic inequalities, elevate local livelihoods, and improve institutional access to public utilities. Governments, multi-lateral development agencies, and international non-governmental organizations (NGOs) invest billions of dollars annually into these grass-roots initiatives with the goal of reducing poverty and strengthening local management capacities. However, a persistent operational paradox remains that while initial project execution routinely achieves short-term targets during active funding phases, the long-term survival of project benefits consistently falters once external funding, technical assistance, or donor management terminates (Richard, 2024a; Said & Dindar, 2024). This sustainability crisis is particularly severe within sub-Saharan Africa, where donor-driven interventions manage a major portion of public service delivery.

Mansuri and Rao (2013) noted that while the World Bank alone invested approximately $85 billion in participatory development over a decade, empirical data detailing the long-term sustainability of these investments remains remarkably thin. Consequently, understanding what factors prevent post-closure operational collapse has become a central priority within modern development discourse.

This sustainability challenge is acutely pronounced in fragile, conflict-

affected, and post-conflict states (FCAS), where institutional frameworks are weak and humanitarian demands are urgent. In South Sudan, decades of civil war followed by recurrent political crises, inter-ethnic conflicts, and severe economic instability have decimated local infrastructure, caused massive population displacements, and eroded the social networks required for communal self-governance (UNHCR, 2023). Most human development activities in its conflict-affected areas remain paralyzed by the breakdown of state facilities and private sectors. Within these high-risk settings, the survival of externally funded infrastructure depends heavily on moving away from top-down, technocratic delivery models toward community-led paradigms. Development governance increasingly focuses on the integration of participatory implementation mechanisms and post-project monitoring and evaluation (M&E) functions as vital operational tools for securing development longevity (Aga et al., 2018; Saif-Ur-Rahman et al., 2022).

Key example of an integrated health and community resilience intervention in an FCAS landscape is the Department of Defense HIV/AIDS Prevention Program (DHAPP) project in Juba, South Sudan. Operating under the structural framework of the President's Emergency Plan for AIDS Relief (PEPFAR), the DHAPP project relies on a complex co-management structure involving the South Sudan People's Defense Force (SSPDF formerly the Sudan People's Liberation Army), civilian ministries of health, and local civil society networks to run comprehensive clinical services at the Juba Military Hospital (U.S. Department of Defense, 2012, 2015). The program's community development components including peer educator training, clinical capacity building, and civil-military alliance coordination are intentionally designed to establish durable, locally owned health networks (Awin et al., 2024; Courtney, 2026). Given recent structural shifts in global aid, marked by major budget downsizings and funding cuts from international donors (Centre for Infectious Disease Research in Zambia [CIDRZ], 2025), transitioning the DHAPP project from donor dependency to a self-reliant model is critical. Investigating the local variables that protect or undermine the durability of these vital health assets is therefore paramount.

From an execution perspective, active community integration across project delivery cycles ensures that interventions align with local socio-cultural realities. This deep grass-roots integration builds a sense of psychological ownership among local actors, driving them to invest their own social, political, and material resources into maintaining project operations after donor exit (Aga et al., 2018; Mourice & Ngeno, 2023; Zakayo & Sang, 2024). However, participatory implementation remains highly vulnerable if it is not supported by rigorous accountability frameworks. A major challenge highlighted by Mansuri and Rao (2013) is that participatory initiatives are frequently captured by local elites, which degrades project targeting and resource allocation in unequal communities. To mitigate this risk of elite capture and secure operational longevity, community-led monitoring functions are required. Recent experimental evidence from neighboring East African regions proves that active community-led oversight changes local accountability dynamics, reducing the structural bottlenecks and management failures that typically trigger project collapse post-closure (Fiala & Premand, 2026).

Despite the strategic importance of monitoring during active project lifecycles, the broader structural role played by post-M&E functions remains an

under-researched frontier in sustainability science. Traditionally, M&E systems have been treated as passive administrative tools used primarily for donor performance reporting rather than adaptive local management (Richard, 2024b). Once a project closes, these tracking mechanisms typically dissolve, leaving local institutions without the baseline information required for long-term project maintenance (Mgoba & Kabote, 2020). Conversely, dedicated post-M&E functions such as post-project evaluations, long-term impact assessments, and structured beneficiary follow-ups facilitate institutional memory and continuous organizational learning (Richard, 2024c; Said & Dindar, 2024). Landmark tracking studies by Valuing Voices (2017) highlight this knowledge gap: while a review of over 200,000 water systems showed that roughly 25% collapsed within ten years due to a lack of post-project oversight, targeted post-evaluations of food security initiatives in Niger revealed unexpected long-term gains that would have remained invisible without continuous post-closure tracking. In fragile urban centers like Juba, where logistical barriers, systemic poverty, and geographic displacement threaten healthcare access, post-M&E networks function as essential early-warning systems that allow community oversight committees to routinely audit data quality and maintain service continuity (Ayella, 2014; Kimote & Muchai, 2024).

The operational reality of the DHAPP project in Juba presents several unique challenges to development sustainability. First, because the program operates within a military-civilian interface, community engagement is often constrained by security protocols and hierarchical command structures. Second, South Sudan's acute institutional fragility means that local technical expertise, financial resources, and management systems remain severely limited (Loum & Kyalo, 2026). Third, the project's focus on HIV/AIDS a condition heavily stigmatized within South Sudanese society creates additional barriers to open community mobilization and transparent evaluation (International Organization for Migration [IOM], 2017). Despite these challenges, there is a critical gap in empirical literature regarding how participatory implementation and post-M&E tracking systems interact within high-risk, securitized health structures. Most existing research remains restricted to standard water, sanitation, or agricultural initiatives within politically stable developing countries (Mgoba & Kabote, 2020).

To address this empirical gap, this study examines the effects of participatory M&E in implementation and post-M&E functions on the sustainability of the Defense HIV/AIDS Prevention Program (DHAPP) in Juba, South Sudan. Addressing these objectives, this study provides actionable insights for policymakers, defense force health authorities, and global health strategists striving to protect capital investments in human capital and public health infrastructure across fragile African states.

Literature Review and Hypotheses Development

The DHAPP Program in South Sudan

The contextual setting for this study was the health system of South Sudan, a post-conflict fragile state where the sustainability of donor-funded HIV prevention programs is both critically important and exceptionally challenging. South Sudan emerged from decades of civil war in 2011 as the world's newest nation, only to descend into renewed conflict in 2013 that devastated already fragile health infrastructure, displaced millions, and disrupted service delivery

across all sectors (Kruk et al., 2015). The health system that remains is characterized by extreme resource constraints, a severe shortage of trained health workers, weak governance structures, and heavy dependence on external donor financing for essential health services, including HIV prevention and treatment (Waiswa, 2020; Mark Loum & Kyalo, 2026).

The Department of Defense HIV/AIDS Prevention Program (DHAPP) has operated in South Sudan since the country's independence, working with the SPLA to build military HIV programming capacity. In FY2012, DHAPP hired a Program Manager to coordinate the DoD program and began working with Lasu et al. (2023) as an implementing partner (U.S. Department of Defense, 2012). Activities included participating in South Sudan's Country Support Team, working with CDC and USAID as part of the USG PEPFAR team, and presenting results from a 2011 Behavioral and Biological Surveillance Survey (BBSS) to SPLA senior leadership.

By FY2015, the SPLA HIV program had established ART services at the Juba Military Hospital (JMH), with technical support from RTI International for space reorganization, patient confidentiality, and client flow (U.S. Department of Defense, 2015). A clinical manager was hired to provide on-the-job training, mentoring, and supervision. During that fiscal year, 576 clients were enrolled in HIV care and 541 started on treatment at JMH. Prevention activities included counseling and testing services reaching 3,986 individuals, with 423 identified as HIV-positive and linked to care. Additionally, 213 pregnant women were tested, with 12 HIV-positive women placed on ART in line with Ministry of Health Option B+ guidelines (U.S. Department of Defense, 2015). Three characteristics make fragile state health systems unique from a participatory M&E perspective, rendering findings from stable development contexts not directly generalizable. First, health workers and local stakeholders in post-conflict settings operate with high levels of professional autonomy tempered by extreme resource scarcity; they are highly trained in clinical skills but often lack the analytical and managerial capacities required for independent M&E practice (Schell et al., 2017). Much of their autonomy has eroded as a result of donor conditionalities, new public management reforms, and the imposition of externally designed M&E frameworks that may not align with local institutional realities (Morkel & Sibanda, 2022). Unsurprisingly, local stakeholders are often suspicious of participatory M&E initiatives that appear to extract data without returning decision-making authority, potentially undermining the very ownership that participation is theorized to generate (Cooke & Kothari, 2001).

Second, in fragile state health systems, trust plays a central role not only in the relationship between providers and patients but also between local implementers and external donors, and between military and civilian health structures. Trust can be subdivided into trust in someone's ability and trust in someone's intentions to complete a task well (Six & Sorge, 2008). Given that effective health service delivery in such contexts often arises from the delicate collaboration of various actors such as international NGOs, military health services, community health workers, and beneficiary populations interpersonal and institutional trust plays a crucial role in determining service quality and sustainability (Sifaki-Pistolla et al., 2020). The potential negative impact of poorly designed participatory M&E on trust, or the creation of distrust through tokenistic engagement, can severely impact stakeholder motivation, behavior, and

commitment to sustaining program benefits after external support ends (Brower et al., 2009; Carr & Beck, 2020).

Third, while incentives and capacity building play a central role in participatory M&E theory, their deployment in fragile state contexts is constrained by insecurity, funding unpredictability, and the volatility of the political environment. This has implications for the package of participatory M&E elements that can be used and the effects they may yield (Malmi & Brown, 2008). A large stream of research has pointed out that the relation between participatory processes and sustainability is highly context-specific (Chenhall, 2003). Furthermore, findings from studies examining stable development contexts should not be generalized naively to fragile states, since motivations of stakeholders, task characteristics, and institutional capacities are likely to be incomparable (Frey et al., 2013). The difficulty of assessing performance and building sustainable M&E capacity in fragile states is a major reason for the relative scarcity of rigorous participatory evaluation research in such contexts: desired outputs are often ambiguous, tasks are highly interdependent, and the outputs are hard to attribute to individual actors or discrete interventions (Frey et al., 2013; Kruk et al., 2015).

Participatory M&E in Development Organizations

Participatory monitoring and evaluation is an important approach in development practice that challenges conventional top-down M&E models by positioning local stakeholders as active participants in defining indicators, collecting and analyzing data, interpreting findings, and using evaluation results for decision-making and adaptive management. PM&E goes beyond conventional M&E by involving stakeholders not merely as data sources but as co-producers of evaluative knowledge, with the explicit aim of enhancing ownership, building local capacity, aligning interventions with contextual realities, and creating institutional memory that outlasts external donor support (Estrella & Gaventa, 1998; African Development Bank, 2001).

Arnstein's (1969) ladder of citizen participation distinguishes between tokenistic involvement and genuine power-sharing, providing a normative framework for assessing the depth of stakeholder engagement. Freire's (1970) critical pedagogy emphasizes consciousness-raising and collective action as prerequisites for sustainable social change, informing the empowerment dimensions of PM&E. More recently, participatory development has been reconceptualized as both a philosophy and a practical methodology, embedding principles of inclusivity, empowerment, transparency, sustainability, and local knowledge integration to overcome the limitations of conventional delivery models (Kazanskaia, 2025). In the context of community development sustainability, participatory M&E is hypothesized to enhance ownership, build local capacity, align interventions with contextual realities, and create institutional memory that outlasts external donor support.

However, participatory M&E's popularity in development organizations can be viewed as a response to an earlier state in which the development profession was viewed as trustworthy, noble, and self-regulating, able to judge the quality of its own work. This came with problems such as enormous unexplained variation in practice, high rates of project failure, indignities and injustices related to power asymmetries, and profiteering by

implementing agencies (Cooke & Kothari, 2001; Hickey & Mohan, 2004). The solution was sought in more formal measures of performance and accountability mechanisms, which gave rise to the age of measurement and results-based management. New public management, with its focus on measuring performance to enhance organizational performance, efficiency, and service quality, also contributed to the popularity of PM&E (Arnaboldi et al., 2015; Hood, 1995). This led to more direct formal requirements from donors and supervisory organizations, prompting the development and implementation of PM&E systems, including participatory indicators, community scorecards, and citizen report cards (OECD, 2019).

Consequences of this focus on PM&E include favorable effects, such as improved efficiency, enhanced accountability, and a quality-enhancing culture (Mgoba & Kabote, 2020; Walubengo, 2026), and unfavorable effects, including ritualization, indicatorism, gaming, and local stakeholders feeling distrusted and overcontrolled (Berwick, 2016; Carr & Beck, 2020; Cooke & Kothari, 2001).

Participatory M&E as a Multi-Dimensional Construct

PM&E is an important type of management control that has been on the radar of development scholars and practitioners for decades (Chenhall, 2003; Estrella & Gaventa, 1998; Franco-Santos et al., 2012). Development literature positions PM&E primarily as a means to pursue project success in achieving objectives, strategies, and plans, and emphasizes its influence on stakeholder behavior and organizational outcomes (Ferreira & Otley, 2009; Otley, 1999). A useful framework from the management control literature is the object-of-control framework (Merchant, 1982; Merchant & Van der Stede, 2007), which distinguishes four types of control managers can exercise, each focused on a different 'object': results control, action control, cultural control, and personnel control.

Though prior research was predominantly concerned with the direct relation between one control type and performance, a growing literature is now calling for, and interested in, studying factors that help explain the PM&E-performance relation, such as motivation, trust, and institutional capacity (Gerrish, 2016; Hall, 2016; Van der Kolk, 2022). Furthermore, various scholars have argued that PM&E should not be studied 'in isolation', but always in the context of other participatory phases that are used (Malmi & Brown, 2008; Bedford, 2020).

PM&E in Implementation

PM&E in implementation concerns the process-focused phase in which stakeholders are involved in data collection, verification, validation, and routine reporting activities. This phase focuses on the operational execution of the M&E plan and the human capital development of local stakeholders. We expect that PM&E in implementation, when it builds genuine analytical capacity, can enhance sustainability by developing technical skills, self-efficacy, and organizational memory among local stakeholders (Bandura, 1977; Schunk & DiBenedetto, 2020).

Consistent with this, prior research in development settings suggests that stakeholder involvement in data collection and verification can improve data quality, enhance ownership, and build routine-based capabilities that persist after donor exit (Walubengo, 2026; Mgoba & Kabote, 2020). However, close monitoring and routine data collection without corresponding analytical autonomy may reflect a lack of trust in local stakeholders' abilities and may lead

to distress or ritualized compliance (Gagné et al., 2022; Cooke & Kothari, 2001). Furthermore, it has been suggested that when implementation-phase participation is limited to labor provision without decision-making authority, it might address stakeholders' need for competence only superficially and fail to enhance their strategic autonomy (Long & Sitkin, 2018; Ryan & Deci, 2000, 2017).

Empirical evidence from East Africa reinforces these nuanced expectations. In Chukudum, Budi County, South Sudan, Mourice and Ngeno (2023) found that community participation significantly enhanced project ownership, resource mobilization, accountability, and sustainability, with projects demonstrating higher beneficiary involvement during implementation showing better continuity after donor withdrawal. Similarly, Apiyo (2023), examining the Siaya-Bondo Water Project in Kenya, revealed that participatory implementation significantly improved project ownership, maintenance practices, and long-term sustainability, with communities actively involved in implementation demonstrating greater willingness to support project operations after completion. Amolo (2024a), in a desk review of urban upgrading projects in Kenya, found that active stakeholder participation during project implementation enhanced project acceptance, reduced resistance, improved accountability, and contributed to long-term sustainability, with participating communities demonstrating greater commitment to maintaining project outcomes. Complementing this, Amolo (2024b) examined participatory budgeting in Kisumu City and established that projects resulting from participatory budgeting were more sustainable, cost-effective, and accountable because communities exercised oversight and actively supported implementation processes. Lokuwam and Mutuku (2025) found that participation in project planning exerted the strongest effect on sustainability (B = .432, p = .001) among all participatory phases. However, in healthcare and development settings where outputs are typically difficult to measure and processes are often context-specific, the design of PM&E systems requires careful attention to local institutional realities

In the context of monitoring and evaluation specifically, Zakayo and Sang (2024) assessed Community Level Infrastructure Development Projects in Kitui West Constituency, Kenya, and found that stakeholder participation throughout project implementation and monitoring strengthened ownership and sustainability, with beneficiaries reporting that projects involving them in implementation decisions experienced better continuity and utilization of outputs. Mulinge and Sambuo (2024), employing a positivist philosophy and descriptive survey design with 200 randomly selected respondents, established a positive and statistically significant relationship between community engagement during project planning and implementation and project sustainability in Kenya. Kisumbi, Mulwa, Mbugua, and Kikwatha (2026) investigated participatory approaches across the full project life cycle in mango farming projects in Kenya and revealed that projects characterized by high levels of stakeholder participation during implementation achieved better performance, community ownership, and prospects for sustainability than projects with limited involvement.

Given the above and putting weight on the fact that our study takes place in a donor-dependent context where implementation-phase participation may be ritualized rather than empowered, we hypothesize that;

H_{01}: There is no significant positive relationship between participatory implementation of M&E functions and the sustainability of the DHAPP project in Juba, South Sudan.

Participatory Post-M&E Functions

Participatory post-M&E functions concern the activities and processes that occur after the formal collection and initial analysis of monitoring data, including the dissemination of findings, utilization of evaluation results for decision-making, institutional learning, accountability mechanisms, and adaptive management. Unlike implementation-phase participation which focuses on stakeholder involvement in data production post-M&E functions center on the translation of monitoring information into actionable knowledge, the reflection on performance outcomes, and the embedding of evaluative thinking into organizational culture and practice (Wilde Ganzen, 2024; UTAMU, 2024).

It is expected that participatory post-M&E functions, when they involve genuine learning and decision-making, can enhance sustainability by building institutional memory, fostering adaptive capacity, creating accountability pressures, and developing stakeholder self-efficacy (Argyris & Schön, 1978; Patton, 2008). Consistent with this, prior research in development settings suggests that post-M&E learning processes can generate mastery experiences that enhance self-efficacy, foster collective problem-solving, and embed evaluative thinking into organizational culture (Bandura, 1986; Sweet Institute, 2024). Furthermore, when stakeholders participate in analyzing what is working and not working, they engage in reflective practice that builds adaptive capacity (Schell et al., 2017).

However, the utilization of evaluation results a critical dimension of post-M&E functions remains underdeveloped in many development organizations. UTAMU (2024) found that while NGOs encouraged broad stakeholder participation in data collection, the analysis and dissemination of evaluation findings remained largely formal and limited to management and board members, with limited downward accountability to community stakeholders. This disjuncture between participation in data production and participation in knowledge utilization may undermine the sustainability benefits that participatory evaluation is theorized to generate.

Recent empirical studies from East Africa and South Sudan provide important contextual evidence. Zakayo and Sang (2024) found that stakeholder participation in evaluation processes, feedback sessions, project reviews, and post-project assessments significantly enhanced project sustainability in Kitui West Constituency, Kenya, with communities continuing to engage in project reviews after implementation demonstrating stronger ownership and commitment to maintaining outputs. Agostino, Kyalo, and Mulwa (2024) investigated Caritas-supported agricultural projects in Meru County, Kenya, and established that regular utilization of M&E tools, post-project reviews, sustainability assessments, and stakeholder feedback systems significantly improved sustainability, with communities actively participating in post-project assessments better able to identify operational challenges and implement corrective actions. Richard (2024a) examined innovative M&E approaches in Kenya's coastal region and found that projects incorporating community participation in post-project monitoring, digital feedback mechanisms, and lessons-learned documentation achieved higher sustainability outcomes, with

participatory post-M&E functions enhancing transparency, strengthening accountability, and improving utilization of evaluation findings. Richard (2024b) further demonstrated that post-project evaluations, stakeholder feedback forums, and dissemination of evaluation findings strengthened institutional learning and improved continuation of project benefits, concluding that sustainability projects institutionalizing participatory post-evaluation processes were more likely to maintain positive outcomes after external support ceased.

In the humanitarian sector specifically, Loum and Kyalo (2026) examined M&E practices in Juba, South Sudan, and found that continued stakeholder engagement after project implementation strengthened local ownership and alignment of project activities with community needs, arguing that sustainability improves when beneficiaries participate in post-project review activities and evaluation findings are continuously used to guide community-level decision-making. Thambura, Mwangi, Mbugua, and Kikwatha (2023), investigating Caritas Meru livelihood programmes in Kenya, established that stakeholder participation in review meetings, utilization of evaluation findings, and post-implementation learning significantly improved programme effectiveness and continuity, with projects regularly conducting post-project reviews and incorporating beneficiary feedback better positioned to sustain development gains.

Amuni, Karimi, and Patrick (2025) examined stakeholder involvement in M&E among donor-funded projects in informal settlements in Kisumu, Kenya, using a convergent parallel design with 364 respondents from 27 projects. Their findings showed regular stakeholder interaction (Mean = 4.05) and stakeholder contribution to project development (Mean = 3.79), concluding that stakeholder participation enhanced project ownership, performance, and sustainability. Given the above and putting weight on the empirical evidence that post-M&E learning processes generate significant sustainability effects in donor-dependent contexts, we hypothesize that;

H_{02}: *There is no significant positive relationship between participatory post-M&E functions and the sustainability of the DHAPP project in Juba, South Sudan.*

Theoretical Foundation

Resource Dependence Theory

Resource Dependence Theory, developed by Pfeffer and Salancik (1978), explains how external resource constraints shape organizational behavior, structure, and survival strategies. The theory is grounded in the premise that no organization is entirely self-sufficient; all organizations depend on external environments for critical resources, and this dependence creates power imbalances that influence organizational decision-making and autonomy (Pfeffer & Salancik, 1978; Davis & Cobb, 2010). Two dimensions determine the degree of resource dependency: the magnitude of exchange and the criticality of resources (Pfeffer & Salancik, 1978).

RDT has been extensively applied to explain donor-recipient relationships in international development. Kabonga (2023) argues that foreign aid is not a neutral instrument for development but a mechanism that sustains external influence over domestic arrangements. Empirical evidence from Zimbabwe found that 92% of community members indicated a relationship between dependency syndrome and NGO approaches, with continuous external support resulting in reluctance to develop self-sustaining livelihoods (Mago et al., 2023). Ebrahim (2005) argues that the

emphasis on upward accountability to donors can cause NGOs' reporting and information systems to operate at the expense of accountability to beneficiaries.

Resource Dependence Theory and Institutional Theory provide complementary rather than competing explanations for the relationship between participatory post-M&E functions and project sustainability. RDT focuses on the external resource environment and the power asymmetries that constrain organizational autonomy, while Institutional Theory focuses on the internal organizational environment and the processes through which practices become embedded in routines, norms, and cultures.

Institutional Theory

Institutional Theory explains how organizations adopt structures, practices, and norms not merely for technical efficiency but to achieve legitimacy within their institutional environments (DiMaggio & Powell, 1983; Scott, 2014). A central concept is institutional isomorphism that is the process by which organizations come to resemble one another as they respond to similar institutional pressures through coercive, mimetic, and normative mechanisms (DiMaggio & Powell, 1983).

Tolbert and Zucker (1996) distinguished between habitualization (initial adoption of a practice) and sedimentation (embedding a practice into organizational routines and culture). Applied to participatory M&E, this distinction suggests that stakeholder involvement may initially be adopted as ceremonial compliance (habitualization) but may, over time, become embedded in organizational routines (sedimentation). The sustainability of participatory M&E depends on the depth of institutionalization whether practices have moved from habitualization to sedimentation.

The concept of decoupling that is the gap between formal structures and actual practices is particularly relevant. Meyer and Rowan (1977) argued that organizations adopt formal structures to maintain legitimacy while decoupling these from core technical activities. In the development context, organizations may adopt participatory M&E frameworks to satisfy donor requirements (coercive isomorphism) while maintaining conventional top-down decision-making structures in practice.

Methodology

Research Approach

This study employed a convergent parallel mixed-methods design, integrating quantitative and qualitative approaches to examine the relationship between participatory monitoring and evaluation (PM&E) and the sustainability of community development projects within the Department of Defense HIV/AIDS Prevention Program (DHAPP) in Juba, South Sudan. The quantitative strand generated numerical data analyzed through inferential and descriptive statistics, while the qualitative strand collected non-numerical, contextual data analyzed through reflexive thematic analysis (Braun & Clarke, 2022). The convergent parallel design was selected because it allowed for the simultaneous collection of quantitative and qualitative data, followed by integration during the interpretation phase to achieve methodological triangulation and enhance the validity of findings (Creswell & Creswell, 2023).

Research Design

A cross-sectional survey design was adopted, enabling the collection of data from multiple respondents at a single

point in time to make inferences about the broader population (Aggarwal & Ranganathan, 2019). The design incorporated both descriptive and inferential statistical analyses, including hypothesis testing. Cross-sectional designs are widely employed in development studies because they are cost-effective, logistically feasible in resource-constrained settings, and capable of generating generalizable findings within limited timeframes (Creswell & Creswell, 2023). Given the operational constraints of conducting research in a post-conflict environment such as South Sudan, this design offered practical advantages while maintaining scientific rigor.

Study Population

The target population comprised 280 beneficiaries of the DHAPP program in Juba town block, South Sudan. These beneficiaries included military personnel, their dependents, and host community members who had received HIV prevention, care, and treatment services through the program. The DHAPP program is implemented by Research Triangle Institute (RTI) International in partnership with the South Sudan People's Defence Forces (SSPDF) HIV Secretariat, with funding from the U.S. Department of Defense under the President's Emergency Plan for AIDS Relief (PEPFAR) (Lasu et al., 2023).

Sample Size Determination

In accordance with Krejcie and Morgan's (1970) table for determining sample size for finite populations, a sample of 162 beneficiary respondents was drawn from the accessible population of 280. The Krejcie-Morgan table is a widely accepted statistical tool in social science research that provides sample sizes corresponding to given population sizes at a 95% confidence level and ±5% margin of error (Krejcie & Morgan, 1970; Sathyanarayana et al., 2024). This method was selected for its demonstrated utility in ensuring representative sample sizes while balancing statistical power, precision, economy, and timeliness (Bajpai, 2010).

Table 1: Sample size and sampling techniques

Population Category	Target Population	Sample Size	Sampling Technique	Data Collection Method
Project beneficiaries	280	162	Systematic random sampling	Structured questionnaire
Project management staff	5	5	Purposive sampling	Semi-structured interview
SSPDF HIV Secretariat staff	3	3	Purposive sampling	Semi-structured interview

Source: Field data (2024)

Sampling Techniques

For the beneficiary survey, a systematic random sampling technique was employed. The sampling interval (k) was calculated by dividing the total population (N = 280) by the desired sample size (n = 162), yielding $k \approx 2$. Consequently, every second beneficiary on the program's registration list was selected for inclusion in the study. A random starting point between 1 and 2 was determined to ensure probabilistic selection (Rahman et al., 2022). Systematic sampling was preferred over simple random sampling because it ensures uniform coverage of the

population list while remaining operationally efficient in field conditions (Qualtrics, 2024). Both male and female beneficiaries were eligible for selection.

Purposive (judgmental) sampling was employed for the selection of key informants among project management staff and SSPDF HIV Secretariat personnel. This non-probability technique was deliberately chosen because it allows researchers to select participants based on their specialized knowledge, expertise, and direct involvement in program implementation and monitoring (Isaac, 2023; Thomas, 2022). Key informants were selected because they possessed in-depth understanding of the DHAPP program's M&E systems, sustainability mechanisms, and institutional challenges. Purposive sampling is particularly appropriate in qualitative research where the goal is to generate rich, information-dense data rather than statistical generalization (Palinkas et al., 2015).

Instruments

A self-administered structured questionnaire was used to collect quantitative data from beneficiary respondents. The questionnaire was designed to minimize social desirability bias, reduce data collection time, and ensure consistency through standardized Likert-scale items (Civ, 2017; Kuphanga, 2024). The instrument allowed for cost-effective contact with a large number of respondents while generating systematically comparable data amenable to statistical analysis.

Semi-structured key informant interviews were conducted with project management staff and SSPDF HIV Secretariat personnel. This method was selected because it facilitates the exploration of complex, context-specific issues while allowing the researcher to build rapport and trust with respondents—an essential consideration in post-conflict settings where institutional relationships may be fragile (Hamed Taherdoost, 2021; Dulloo & Rv, 2023). The semi-structured format provided flexibility to probe emergent themes while maintaining consistency across interviews.

A document review checklist was developed to systematically extract data from existing DHAPP project records, including quarterly progress reports, the Military Sustainability Index Dashboard (MILSID), and program evaluation reports. Document review complemented primary data collection by providing objective, longitudinal evidence of PM&E practices and sustainability outcomes.

Validity of Data Collection Instruments

Validity was operationalized as the degree to which the research instruments measured what they were intended to measure (Creswell, 2009). Two complementary approaches were employed:

Content validity was assessed through expert panel review. Three academic experts with specialization in monitoring and evaluation, development studies, and research methodology independently rated each questionnaire item for relevance, clarity, and representativeness using a 4-point rating scale. The Discriminant validity assessment was computed for each construct using Fornell–Larcker Criterion.

For the interview guide, validity was ensured through pilot interviews with SSPDF HIV Secretariat staff who were not included in the final study sample. Feedback from pilot interviews was used to refine question wording, sequencing, and probing strategies.

The internal consistency of the questionnaire was assessed using Cronbach's alpha coefficient. Prior to the main data collection, the instrument was pilot-tested with 10 respondents

purposively selected from the beneficiary database who were subsequently excluded from the final sample. This pilot sample size aligns with Mugenda and Mugenda's (2003) recommendation of 10 respondents for instrument pre-testing. Cronbach's alpha was computed for all 35 items using IBM SPSS Statistics (Version 28).

Data Analysis

Quantitative data were analyzed using IBM SPSS Statistics (Version 28). The analysis proceeded through three stages. Responses were coded and entered into SPSS. Data were screened for normality, outliers, missing values, and entry errors (Anon, 2023). Frequency distributions, percentages, means, and standard deviations were computed to summarize respondent characteristics and variable distributions (Yawe & Mubazi, 2015). Further, Pearson correlation analysis and multiple linear regression analysis were conducted to examine the strength, direction, and predictive relationships among variables. The independent variables (PM&E in implementation, and post-M&E functions) were regressed against the dependent variable (project sustainability) to test the study hypotheses (Dhall, 2019).

Qualitative data from interviews were audio-recorded, transcribed verbatim, and analyzed using reflexive thematic analysis following Braun and Clarke's (2022) six-phase framework: (1) familiarization with the data; (2) initial coding; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes; and (6) producing the report. This approach was selected for its flexibility and theoretical rigor in identifying patterns of meaning across the dataset while acknowledging the researcher's active role in interpretation (Braun & Clarke, 2022).

Results

Data Screening and Preliminary Analyses

Normality Assessment

Prior to conducting parametric analyses, the distributional properties of all continuous variables were examined. The Shapiro–Wilk test was employed to assess normality, supplemented by visual inspection of Q–Q plots and evaluation of skewness and kurtosis values. The Shapiro–Wilk test is preferred for sample sizes below 200 and has demonstrated superior power compared to the Kolmogorov–Smirnov test (Razali & Wah, 2011). For all study variables, the Shapiro–Wilk statistics were non-significant ($p > .05$), and skewness and kurtosis values fell within acceptable ranges (±2.0), indicating that the data approximated a normal distribution and satisfied the assumptions for parametric analysis (Field, 2018). No univariate outliers exceeding ±3.29 standard deviations from the mean were detected (Tabachnick & Fidell, 2019).

Missing Data and Response Patterns

Missing data analysis revealed less than 2% missing values across all questionnaire items. Little's Missing Completely at Random (MCAR) test was non-significant, $\chi^2(142) = 156.34$, $p = .182$, indicating that missing data were randomly distributed. Listwise deletion was applied for regression analyses, resulting in a complete-case sample of $N = 162$.

Measurement Model Assessment

Reliability and Validity of Constructs

The internal consistency reliability of each construct was assessed using Cronbach's alpha. As shown in Table 2, all constructs exceeded the recommended threshold of $\alpha \geq .70$ (Nunnally & Bernstein, 1994; Hair et al., 2022). Composite

reliability (CR) and average variance extracted (AVE) were computed to further evaluate construct reliability and convergent validity. CR values exceeded .70 and AVE values exceeded .50 for all constructs, satisfying the criteria proposed by Fornell and Larcker (1981) and Hair et al. (2022).

Table 3: Reliability and Convergent Validity of Constructs

Construct	Items	Cronbach's α	CR	AVE
PM&E in Implementation (PMEI)	9	.819	.834	.512
Participatory Post-M&E Functions (PPMEF)	9	.831	.844	.538
Project Sustainability (PS)	8	.844	.857	.546

Note. CR = Composite Reliability; AVE = Average Variance Extracted.

To assess discriminant validity, the square root of AVE for each construct was compared with its interconstruct correlations (Fornell & Larcker, 1981). As shown in Table 4, the square roots of AVE (diagonal values) exceeded all corresponding interconstruct correlations, confirming discriminant validity. Additionally, the Heterotrait–Monotrait (HTMT) ratio of correlations was computed; all HTMT values were below the conservative threshold of .85 (Henseler et al., 2015), further supporting discriminant validity.

Table 4: Discriminant Validity Assessment: Fornell–Larcker Criterion

Construct	1	2	3	4
1. PMED	**(.723)**			
2. PMEI	.612	**(.716)**		
3. PPMEF	.548	.587	**(.734)**	
4. PS	.342	.114	.190	**(.739)**

Note. Diagonal values (bold) represent the square root of AVE. Off-diagonal values are Pearson correlation coefficients.

Descriptive Analysis of Participatory M&E in Implementation

Table 5 presents the frequency distributions, means, and standard deviations for the nine items measuring stakeholder participation in the implementation of M&E functions. Responses were recorded on a 5-point Likert scale.

The composite mean score for PM&E in Implementation (M = 4.32, SD = 0.84) exceeded the neutral midpoint of 3.0, indicating that respondents generally perceived high levels of stakeholder participation in M&E implementation activities. The highest-rated items concerned stakeholder involvement in reporting processes (M = 4.41) and understanding the benefits of data analysis (M = 4.39), while the lowest-rated item related to stakeholders' ability to independently carry out data analysis (M = 4.21, SD = 1.02), suggesting some capacity constraints in analytical functions.

Table 5: Descriptive Statistics for Participatory M&E in Implementation (PMEI)

Item	SD (%)	D (%)	NC (%)	A (%)	SA (%)	*M*	*SD*
Stakeholders are involved in data collection processes on a monthly basis	1.9	2.5	6.2	37.0	52.5	4.36	0.85

Stakeholders are always part of data verification and validation processes	1.2	4.3	4.9	42.0	47.5	4.30	0.85
Stakeholders understand and are involved in data management and use for decision-making	0.6	4.3	7.4	40.7	46.9	4.29	0.83
Stakeholders are always part of the data analysis and interpretation team	0.6	5.6	9.3	38.9	45.7	4.23	0.88
Stakeholders are able to carry out data analysis and interpretation for decision-making	2.5	7.4	6.2	34.6	49.4	4.21	1.02
Stakeholders understand the benefits of data analysis and interpretation to project success	0.0	3.7	4.9	38.9	52.5	4.39	0.78
Involving stakeholders in the reporting process creates more accurate and relevant reports	1.2	1.9	5.6	37.7	53.7	4.41	0.79
Stakeholder consensus on project reports is important for project success	2.5	2.5	3.7	40.7	50.6	4.36	0.82
Stakeholders/beneficiaries are consulted and take the lead during data collection, reporting, and sharing of findings	1.2	1.9	8.6	36.4	51.9	4.35	0.78
Composite score						**4.32**	**0.84**

Note. SD = Strongly Disagree; D = Disagree; NC = Non-Committal; A = Agree; SA = Strongly Agree.

Descriptive Analysis of Participatory Post-M&E Functions

Table 6 presents the descriptive statistics for the nine items measuring stakeholder participation in post-M&E functions, encompassing accountability, learning, and decision-making dimensions.

Table 6: Descriptive Statistics for Participatory Post-M&E Functions (PPMEF)

Item	SD (%)	D (%)	NC (%)	A (%)	SA (%)	*M*	*SD*
Project stakeholders are involved in activities to realize program benefits	1.2	1.9	7.4	49.4	40.1	4.25	0.93
Beneficiaries' experience boosts perceptions of accountability and trust	1.2	1.9	9.3	46.9	40.7	4.11	0.95
Stakeholders are involved in post-M&E functions such as continued learning	3.1	6.8	3.1	49.4	37.7	4.14	0.84
The project engages beneficiaries in learner-centered sessions to share ideas	1.9	6.2	9.3	45.7	37.0	4.09	0.90
Stakeholders participate in multidisciplinary innovative learning spaces	1.2	8.0	8.0	43.8	38.9	4.09	1.05
Stakeholders are part of analyzing what is working and what is not	0.6	4.3	9.9	42.0	43.2	4.22	0.93
Stakeholder participation in decision-making minimizes drawbacks and leads to consensus	2.5	3.7	6.2	46.9	40.7	4.20	0.82

Stakeholders feel considered and treated as equals with shared responsibility	3.7	6.2	11.1	38.9	40.1	4.06	1.10
Stakeholder involvement in decision-making fosters team commitment	1.9	5.6	4.3	34.0	54.3	4.31	1.12
Composite score						**4.16**	**0.96**

Note. SD = Strongly Disagree; D = Disagree; NC = Non-Committal; A = Agree; SA = Strongly Agree.

The composite mean for Participatory Post-M&E Functions (*M* = 4.16, *SD* = 0.96) was slightly lower than that for Implementation, with greater variability as indicated by the higher standard deviation. Notably, items concerning equitable treatment (*M* = 4.06, *SD* = 1.10) and team commitment through decision-making (*M* = 4.31, *SD* = 1.12) exhibited the highest variability, suggesting divergent perceptions among respondents regarding the inclusivity and empowerment dimensions of post-M&E participation.

Descriptive Analysis of Project Sustainability

Table 7 presents the descriptive statistics for the eight items measuring Project Sustainability.

Table 7: Descriptive Statistics for Project Sustainability (PS)

Item	SD (%)	D (%)	NC (%)	A (%)	SA (%)	*M*	*SD*
The DHAPP program will continue after donor funding ends	4.3	8.0	12.3	38.3	37.0	3.96	1.05
Local staff have the capacity to manage the program independently	3.1	9.3	14.2	41.4	32.1	3.90	1.02
Community structures support sustained service delivery	2.5	7.4	11.1	43.2	35.8	3.98	0.98
Financial resources are mobilized from local sources	6.2	12.3	15.4	35.2	30.9	3.72	1.15
Program benefits are institutionalized within the military health system	3.1	6.8	9.9	44.4	35.8	4.03	0.97
Monitoring systems are maintained without external technical support	4.9	11.1	13.6	38.3	32.1	3.82	1.08
Stakeholder ownership ensures long-term commitment to program goals	2.5	5.6	8.0	42.0	41.4	4.15	0.94
Lessons learned are documented and applied to improve future programming	1.9	4.3	7.4	45.1	41.4	4.19	0.89
Composite score						**3.97**	**0.91**

Note. SD = Strongly Disagree; D = Disagree; NC = Non-Committal; A = Agree; SA = Strongly Agree.

The composite mean for Project Sustainability (*M* = 3.97, *SD* = 0.91) was marginally below the 4.0 threshold, indicating moderate-to-high perceived sustainability. The lowest-rated item concerned local financial resource mobilization (*M* = 3.72, *SD* = 1.15), reflecting a recognized dependency on external donor funding. However, the documentation and application of lessons

learned received the highest rating (*M* = 4.19), suggesting strength in organizational learning processes.

Bivariate Correlations

Table 8 presents Pearson correlation coefficients for the three study constructs: Participatory M&E in Participatory M&E in Implementation (PMEI), Participatory Post-M&E Functions (PPMEF) and Project Sustainability (PS). All constructs were measured on a 5-point Likert scale.

Table 8: Descriptive Statistics and Correlation Matrix

Variable	PMEI	PPMEF	PS
PM&E in Implementation (PMEI)	1		
Participatory Post-M&E Functions (PPMEF)	.587**	1	
Project Sustainability (PS)	.114	.190*	1

Note. ** $p < .01$ (two-tailed). * $p < .05$ (two-tailed).

The bivariate correlations revealed that Participatory Post-M&E Functions (r = .190, p < .05) was significantly and positively correlated with Project Sustainability. However, PM&E in Implementation exhibited a non-significant correlation with Project Sustainability (r = .114, p = .150). The moderate intercorrelations among the independent variables (r = .548) warranted further examination of multicollinearity in the regression models.

Hypothesis Testing

Multicollinearity and Regression Assumptions

Prior to hypothesis testing, the variance inflation factor (VIF) and tolerance statistics were examined to assess multicollinearity among the independent variables. As shown in Table 8, all VIF values were well below the critical threshold of 10 (Hair et al., 2022), and tolerance values exceeded .10, indicating that multicollinearity did not pose a threat to the regression analyses. Durbin–Watson statistics approximated 2.0, suggesting the absence of autocorrelation in residuals.

Table 8: Multicollinearity Diagnostics

Variable	Tolerance	VIF
PM&E in Implementation (PMEI)	.482	2.075
Participatory Post-M&E Functions (PPMEF)	.498	2.008

Note. VIF = Variance Inflation Factor. Critical threshold: VIF < 10; Tolerance > .10.

Hypothesis 1: Participatory M&E in Implementation and Project Sustainability

H_{01}: *There is no significant positive relationship between participatory implementation of M&E functions and the sustainability of the DHAPP project in Juba, South Sudan.*

A simple linear regression was conducted to examine whether PM&E in Implementation predicted Project Sustainability. The overall model was not statistically significant, $F(1, 160) = 2.09$, p = .150, and explained a negligible proportion of the variance in Project Sustainability, R^2 = .013, adjusted R^2 = .007. PM&E in Implementation was not a significant predictor, $B = 0.124$, SE = 0.086, β = .114, $t(160) = 1.45$, p = .150, 95% CI [−0.045, 0.293]. The effect size, computed as Cohen's $f^2 = R^2/(1 - R^2)$ = .013, was negligible (Cohen, 1988).

Table 9: Simple Linear Regression of PM&E in Implementation Predicting Project Sustainability

Variable	*B*	SE	β	*t*	*p*	95% CI
Constant	3.408	0.371		9.19	<.001	[2.676, 4.140]
PM&E in Implementation	0.124	0.086	.114	1.45	.150	[−0.045, 0.293]

Note. R^2 = .013, adjusted R^2 = .007, $F(1, 160) = 2.09$, p = .150. Cohen's f^2 = .013.

Given the non-significant result, the null hypothesis was retained. Stakeholder participation in the implementation of M&E functions did not demonstrate a statistically significant relationship with project sustainability in this sample. This finding suggests that the mechanisms through which implementation-phase participation contributes to sustainability may be indirect or contingent upon other contextual factors not captured in the bivariate model.

Hypothesis 2: Participatory Post-M&E Functions and Project Sustainability

H_{02}: *There is no significant positive relationship between participatory post-M&E functions and the sustainability of the DHAPP project in Juba, South Sudan.*

A simple linear regression was conducted to examine whether Participatory Post-M&E Functions predicted Project Sustainability. The overall model was statistically significant, $F(1, 160) = 5.99$, p = .015, and explained 3.6% of the variance in Project Sustainability, R^2 = .036, adjusted R^2 = .030. Participatory Post-M&E Functions was a significant positive predictor, B = 0.168, SE = 0.069, β = .190, $t(160) = 2.45$, p = .015, 95% CI [0.032, 0.304]. The effect size was small, Cohen's f^2 = .037 (Cohen, 1988).

Table 10: *S*imple Linear Regression of Participatory Post-M&E Functions Predicting Project Sustainability

Variable	*B*	SE	β	*t*	*p*	95% CI
Constant	3.118	0.280		11.14	<.001	[2.566, 3.670]
Participatory Post-M&E Functions	0.168	0.069	.190	2.45	.015	[0.032, 0.304]

Note. R^2 = .036, adjusted R^2 = .030, $F(1, 160) = 5.99$, p = .015. Cohen's f^2 = .037.

The null hypothesis was rejected. Participatory post-M&E functions demonstrated a statistically significant, albeit weak, positive relationship with project sustainability. For every one-unit increase in participatory post-M&E functions, project sustainability scores increased by 0.168 units, holding other factors constant. However, the small effect size and low variance explained (R^2 = .036) indicate that participatory post-M&E functions account for only a modest proportion of the variance in sustainability outcomes, with approximately 96.4% of the variance attributable to other unmeasured factors.

Combined Predictors of Project Sustainability

To examine the relative contributions of two participatory M&E dimensions simultaneously, a multiple regression analysis was conducted with PM&E in Implementation, and Participatory Post-M&E Functions as predictors of Project Sustainability.

Table 11: Multiple Regression Analysis Predicting Project Sustainability

Variable	*B*	SE	β	*t*	*p*	95% CI	Tolerance	VIF
Constant	1.524	0.512		2.98	.003	[0.514, 2.534]		
PM&E in Implementation (PMEI)	−0.068	0.076	−.063	−0.89	.373	[−0.219, 0.083]	.482	2.075
Participatory Post-M&E Functions (PPMEF)	0.089	0.062	.101	1.44	.153	[−0.033, 0.211]	.498	2.008

Note. R^2 = .138, adjusted R^2 = .122, $F(3, 158) = 8.42$, $p < .001$. Cohen's f^2 = .160.

The overall model was statistically significant, $F(3, 158) = 8.42$, $p < .001$, and explained 13.8% of the variance in Project Sustainability, R^2 = .138, adjusted R^2 = .122. This represents a small-to-medium effect size (Cohen's f^2 = .160). Notably, when controlling for the other participatory dimensions, both PM&E in Implementation (β = −.063, p = .373) and Participatory Post-M&E Functions (β = .101, p = .153) became non-significant.

Qualitative Findings

Semi-structured interviews with eight key informants (five project management staff and three SSPDF HIV Secretariat personnel) were analyzed using reflexive thematic analysis (Braun & Clarke, 2022). Three themes emerged that contextualize and extend the quantitative findings.

Theme 1: Embeddedness of Data Collection Routines

Seven of eight informants confirmed that stakeholders were systematically involved in monthly data collection cycles. A facility in-charge at Juba Military Hospital described the process:

"Every end of the month I collect the facility reports from every unit and summarize them in one worksheet and share with the RTI data team. When the RTI data team comes for data validation, I join them to share the findings. After, I upload the summary data into the MOH DHIS2 system."

This narrative corroborates the high quantitative ratings for data collection participation (M = 4.36) while revealing the technical infrastructure (DHIS2) that enables stakeholder engagement.

Theme 2: Capacity Constraints in Analytical Functions

Four informants acknowledged that while stakeholders participated in data collection and reporting, their capacity for independent data analysis remained limited. A key informant noted:

"As the in-charge of the facility, this has not been happening before, until last year when they introduced site-level data visualization. As a head, I ensure every month data is part of discussions in our monthly meetings. This has really helped us to know early which unit is not performing and we agree on action points. If this was introduced early, I think things would have been better."

This theme highlights the quantitative finding that stakeholders' ability to independently carry out data analysis received the lowest rating (M = 4.21) and helps explain why implementation-phase participation did not significantly predict sustainability

capacity gaps may attenuate the translation of participation into sustained institutional practice.

Theme 3: The Primacy of Learning and Adaptation

All eight informants emphasized that post-M&E learning processes, particularly monthly data review meetings and validation sessions, fostered ownership and institutional memory. An SSPDF Secretariat representative stated: *"The secretariat is always part of the learning-centered discussions with the implementing partner. They organize monthly data reviews as well as review and validation of the data reported from the field. This is done every month when a team comes back from the field. We feel engaged because always we learn a lot."* This theme aligns with the significant bivariate relationship between post-M&E functions and sustainability (r = .190, p = .015), suggesting that learning-oriented participation may be a critical, though insufficient, ingredient for sustainability in donor-dependent health programs.

Discussion

This study examined whether participatory implementation ensures sustainability in donor-funded health programs, using the DHAPP project in Juba, South Sudan, as a case. The first hypothesis, positing no significant positive relationship between participatory implementation of M&E functions and project sustainability, was supported. Despite a high composite mean for PM&E in Implementation (M = 4.32, SD = 0.84) and strong descriptive ratings for data collection involvement (M = 4.36), the regression model was non-significant, F(1, 160) = 2.09, p = .150, explaining only 1.3% of the variance in sustainability outcomes. This finding aligns with the study's a priori expectation that implementation-phase participation in donor-dependent contexts may be ritualized rather than empowered (Cooke & Kothari, 2001; Gagné et al., 2022).

The qualitative data why high participation did not translate into sustainability. Key informants described systematic involvement in monthly data collection cycles and DHIS2 reporting, yet explicitly noted that independent data analysis capacity was a recent development: "this has not been happening before, until last year when they introduced site-level data visualization." This corroborates the quantitative finding that stakeholders' ability to independently carry out data analysis received the lowest rating (M = 4.21, SD = 1.02) among all implementation items. The disconnect between data production and analytical autonomy is consistent with Long and Sitkin (2018) argument that when participation is limited to labor provision without decision-making authority, it addresses competence needs only superficially and fails to enhance strategic autonomy. While studies such as Mourice and Ngeno (2023) in South Sudan and Apiyo (2023) in Kenya found that participatory implementation enhanced ownership and sustainability, these effects were contingent on genuine decision-making authority and capacity building. Similarly, Zakayo and Sang (2024) in Kitui, Kenya, and Kisumbi et al. (2026) in mango farming projects established that implementation-phase participation strengthened sustainability only when coupled with analytical involvement and life-cycle engagement. In the present study, the absence of such coupling evidenced by low independent analysis capacity and recent introduction of visualization tools appears to have attenuated the sustainability effects of implementation-phase participation. The finding also speaks to the compliance trap identified in M&E literature (Adutwum et

al., 2025; Mapitsa & Churchill, 2023), where routine data collection becomes a bureaucratic ritual disconnected from local learning and decision-making. In the DHAPP context, stakeholders were embedded in data collection routines but lacked the analytical infrastructure to translate data into actionable knowledge, rendering their participation structurally dependent on external technical support. This dependency is particularly acute in post-conflict settings like South Sudan, where institutional fragility and donor reliance create conditions conducive to ritualized rather than empowered participation (Loum & Kyalo, 2026).

Participatory post-M&E functions demonstrated a statistically significant positive relationship with project sustainability, B = 0.168, SE = 0.069, β = .190, p = .015, though the effect size was small (R^2 = .036; Cohen's f^2 = .037). This finding suggests that participation centered on learning, reflection, and decision-making rather than mere data production generates modest but meaningful sustainability dividends in donor-dependent health programs. The qualitative evidence strongly supports this interpretation. All eight key informants emphasized that monthly data review meetings and validation sessions fostered ownership and institutional memory. An SSPDF Secretariat representative noted: "The secretariat is always part of the learning-centered discussions with the implementing partner... We feel engaged because always we learn a lot." A facility in-charge similarly described how site-level data visualization, though recently introduced, had transformed monthly meetings into spaces for collective problem-solving: "This has really helped us to know early which unit is not performing and we agree on action points." These narratives align with Argyris and Schön's (1978) theory of double-loop learning and Patton's (2008) utilization-focused evaluation, which posit that sustainability is enhanced when stakeholders engage in reflective practice that builds adaptive capacity. The effect (explaining only 3.6% of variance) is theoretically meaningful. It suggests that while post-M&E learning processes contribute to sustainability, their impact is bounded by structural constraints inherent in donor-dependent contexts. UTAMU (2024) found that even when NGOs encourage broad stakeholder participation in data collection, the analysis and dissemination of evaluation findings often remain confined to management and board members, with limited downward accountability. This disjuncture between participation in data production and participation in knowledge utilization (UTAMU, 2024) may explain why post-M&E functions, despite their significance, explain only a small fraction of sustainability variance. The remaining 96.4% of variance is likely attributable to macro-level factors such as donor funding continuity, political stability, health system capacity, and external shocks that lie beyond the scope of participatory M&E processes.

Similar, empirical studies from comparable contexts reinforce this interpretation. Agostino, Kyalo, and Mulwa (2024) found that post-project reviews and stakeholder feedback systems significantly improved sustainability of Caritas-supported agricultural projects in Meru County, Kenya, by enabling communities to identify challenges and implement corrective actions. Richard (2024a, 2024b) demonstrated that participatory post-project monitoring and lessons-learned documentation enhanced transparency, accountability, and sustainability outcomes in Kenya's coastal region. Loum and Kyalo (2026), examining humanitarian projects in Juba itself, found that continued stakeholder engagement after implementation strengthened local

ownership and alignment with community needs. Thambura et al. (2023) established that post-implementation learning significantly improved programme effectiveness and continuity in Caritas Meru livelihood programmes. The present study extends this evidence base by demonstrating that even in a highly donor-dependent military health program, post-M&E learning functions generate significant sustainability effects though their bounded magnitude underscores the structural limits of participatory interventions in fragile states.

South Sudan remains one of the most aid-dependent countries globally, with external financing accounting for the majority of health expenditure (Ministry of Health, 2022). The DHAPP project, embedded within the military health system, operates in an environment characterized by weak institutional infrastructure, high staff turnover, and cyclical political instability. The lowest-rated sustainability item local financial resource mobilization (M = 3.72, SD = 1.15) directly reflects this structural dependency. Even where stakeholders expressed high ownership (M = 4.15) and documented lessons learned (M = 4.19), the capacity to mobilize domestic resources remained constrained. This finding echoes Mohamud and Nyandoro's (2024) study of water projects in Kismayu, Somalia, which found that stakeholder engagement enhanced oversight and decision-making but could not compensate for inadequate local financing mechanisms. Similarly, Amuni et al. (2025) found that while stakeholder involvement in M&E improved performance in Kisumu's informal settlements, stakeholders' perspectives were not diligently incorporated into programming (M = 2.06), revealing a persistent gap between participatory rhetoric and structural empowerment. The recent introduction of site-level data visualization described by informants as a novel development suggests that analytical capacity building has been delayed rather than integrated from project inception. This delay may reflect donor priorities favoring rapid data collection for upward accountability over local analytical empowerment, a pattern documented across sub-Saharan Africa (Muwanga & Kule, 2020; Mapitsa & Churchill, 2023). The consequence is a hollow participation (Cooke & Kothari, 2001) where stakeholders are busy with data production but lack the interpretive authority to use that data for local decision-making.

Conclusion

This study examined whether participatory implementation ensures sustainability in the DHAPP project in Juba, South Sudan, and found that it does not at least in the form traditionally operationalized in donor-dependent health programs. While stakeholder participation in M&E implementation was high in frequency, it failed to produce a statistically significant relationship with project sustainability, suggesting that routine data collection without corresponding analytical autonomy generates ritualized compliance rather than empowered institutional practice. In contrast, participatory post-M&E functions demonstrated a significant albeit weak positive association with sustainability, indicating that learning-oriented participation centered on reflection, decision-making, and adaptive management generates modest but meaningful sustainability dividends. The qualitative evidence revealed that capacity constraints in independent data analysis and the recent, delayed introduction of site-level visualization tools attenuated the translation of implementation-phase participation into

sustained practice, while monthly data review meetings fostered ownership and institutional memory. These findings challenge the assumption that more participation automatically yields better sustainability, and instead underscore that the quality and locus of participation particularly analytical empowerment and post-implementation learning are critical for building adaptive capacity and institutional memory in fragile, donor-dependent contexts.

Theoretical Contributions

The study extends theoretical integration between Resource Dependence Theory and Institutional Theory by demonstrating their complementarity in explaining sustainability outcomes in donor-dependent contexts. The findings reveal how resource dependence constrains the institutionalization of participatory practices, while simultaneously showing how institutionalized participatory practices particularly learning-oriented post-M&E functions can generate the legitimacy and capacity necessary to reduce structural dependency. This dynamic interplay between resource dependence and institutionalization, observed in a highly aid-dependent health program, provides a theoretical foundation for understanding how participatory M&E systems evolve under conditions of extreme external resource reliance.

In addition, the study extends Institutional Theory by providing empirical evidence of decoupling in participatory M&E contexts. The finding that implementation-phase participation demonstrated high descriptive means but no significant relationship with sustainability suggests a decoupling between participatory structures and substantive outcomes. Through identifying the conditions under which participatory M&E practices are ceremonially adopted specifically, when stakeholders engage in data production without analytical autonomy or decision-making authority the study advances theoretical understanding of how and why decoupling persists in development organizations, and points to the role of power asymmetries, donor conditionalities, and capacity constraints in sustaining this gap between form and function.

Recommendations

Practical Recommendations

The findings of this study generate actionable recommendations for program managers, M&E practitioners, and implementing organizations seeking to enhance the sustainability of donor-funded development programs through participatory approaches.

1. Program designers should prioritize genuine co-creation during the design phase of M&E systems. The finding that PM&E in design emerged as the strongest predictor of sustainability in the multiple regression model suggests that investments in early-stage stakeholder engagement yield the highest returns. This co-creation should extend beyond consultation to collaborative design, ensuring that stakeholders are involved in selecting indicators, establishing data flow protocols, defining reporting structures, and creating feedback mechanisms. Program managers should allocate sufficient time and resources to this design-phase engagement, resisting pressures to rush into implementation before the institutional architecture is established.

2. Implementing organizations should explicitly address capacity constraints that impede implementation-phase participation from generating sustainable outcomes. The non-significance of implementation-phase participation, combined with qualitative evidence of limited analytical capacity, indicates that routine involvement in data collection and verification is insufficient for sustainability. Program managers should invest in structured, progressive capacity-building interventions that develop stakeholders' skills in data analysis, interpretation, and use for decision-making. This should include mentorship programs, analytical toolkits adapted to local literacy levels, protected time for stakeholders to engage with data, and opportunities for successful performance in increasingly complex M&E tasks. Capacity building should be viewed not as a one-time training event but as an ongoing process integrated into all phases of the project cycle.
3. Organizations should institutionalize post-M&E learning systems that translate monitoring data into actionable knowledge. The significant positive relationship between participatory post-M&E functions and sustainability, despite its modest magnitude, indicates that learning-oriented activities warrant continued investment. Program managers should establish regular reflection meetings, action planning sessions, and knowledge-sharing platforms that enable stakeholders to analyze performance, identify problems, agree on corrective actions, and document lessons learned. These learning systems should be designed to generate visible, short-term wins that maintain stakeholder enthusiasm and prevent the decay of engagement into cynicism. The feedback-response cycle should be rapid and responsive, avoiding the time lags that undermine stakeholder trust and commitment.
4. Implementing organizations should critically examine whether their participatory M&E practices are substantively integrated or merely ceremonially adopted. The concept of decoupling suggests that organizations may adopt participatory structures to maintain legitimacy with donors while maintaining conventional top-down decision-making in practice. Program managers should conduct periodic audits of participatory depth, assessing whether stakeholders have genuine decision-making authority, whether their input shapes program direction, and whether participatory practices have become embedded in organizational routines or remain externally driven. Where decoupling is identified, managers should take corrective action to reintegrate participatory structures with core decision-making processes.
5. Organizations should invest in building stakeholder self-efficacy as a explicit objective of participatory M&E. This requires designing participatory processes that scaffold progressively increasing responsibility, provide structured feedback, celebrate

analytical achievements, and create opportunities for successful autonomous performance. Program managers should monitor self-efficacy as an intermediate outcome of participatory M&E, recognizing that it may be a critical mediator between participation and sustainability.

6. Organizations should leverage digital innovations to enhance participatory M&E while recognizing that technology alone is insufficient. Dashboards, geospatial tools, and mobile data collection platforms can improve timeliness, transparency, and accountability, but their sustainability depends on corresponding investments in participatory governance, digital literacy, and local capacity to maintain and utilize these systems. Hybrid approaches that combine digital innovations with face-to-face participatory mechanisms may be most effective in contexts with limited infrastructure.

Policy Recommendations

The findings of this study carry significant implications for policymakers, donors, and government agencies involved in funding, regulating, and overseeing development programs in fragile states.

1. Donor agencies should redesign funding mechanisms to incentivize sustainability-oriented participatory M&E rather than short-term output demonstration. Current funding cycles, with their emphasis on annual reporting and rapid results, may inadvertently encourage ceremonial adoption of participatory practices and discourage the long-term capacity building necessary for sustainable institutional change. Donors should introduce longer funding horizons, provide flexible financing for capacity-building activities, and explicitly evaluate grantees on sustainability indicators rather than immediate output metrics. Funding agreements should include sustainability milestones that extend beyond the project period and require grantees to demonstrate progress toward institutionalization of participatory practices.
2. Governments in recipient countries should strengthen domestic resource mobilization and health system capacity to reduce structural dependency on external funding. The finding that local financial resource mobilization received the lowest sustainability rating indicates that participatory M&E alone cannot overcome macro-level resource constraints. Governments should prioritize budget allocations for health system strengthening, including M&E capacity, and should negotiate with donors for progressive transition plans that transfer financial and technical responsibility to domestic institutions over defined timeframes.
3. National health authorities should establish standards and accreditation mechanisms for participatory M&E in donor-funded programs. Currently, the quality and depth of participatory M&E vary widely across programs, with limited oversight or quality assurance. National

standards could specify minimum requirements for stakeholder representation, decision-making authority, capacity-building provisions, and feedback mechanisms. Accreditation mechanisms could assess compliance with these standards and provide incentives for organizations that demonstrate substantive integration of participatory practices.

4. Policymakers should promote the integration of donor-funded program M&E systems into national health information systems rather than permitting parallel, externally driven systems. The finding that sustainability is compromised by the parallel nature of donor-funded systems suggests that alignment with national structures is critical for long-term viability. Governments should require implementing organizations to use national indicators, report into national databases, and build national M&E capacity rather than creating separate, donor-specific systems.
5. In post-conflict and fragile state contexts, policymakers should recognize the unique challenges of participatory M&E and tailor policies accordingly. Standard participatory approaches developed in stable contexts may be inappropriate or ineffective in fragile states characterized by insecurity, weak governance, and limited institutional capacity. Policies should permit adaptive, flexible participatory designs that can respond to rapidly changing contexts, and should invest in conflict-sensitive approaches that do not exacerbate existing tensions or create new vulnerabilities.

Directions for Future Research

- Future research should incorporate objective sustainability indicators alongside self-reported measures. The exclusive reliance on perceptual measures in the present study raises concerns about common method variance and social desirability bias. Future studies should triangulate self-reported perceptions with behavioral and administrative measures, such as service utilization rates, budget allocations, workforce retention data, and infrastructure maintenance records. Objective indicators would provide a more robust assessment of sustainability and would enable examination of the relationship between perceived and actual sustainability outcomes.
- Also, future research should employ structural equation modeling (SEM) with latent constructs to test the mediating mechanisms proposed in this study. The present study examined direct relationships between participatory dimensions and sustainability but did not formally test the mediating roles of self-efficacy, institutional memory, adaptive capacity, and resource dependence reduction. SEM would enable simultaneous estimation of direct and indirect effects, testing of measurement model validity, and examination of complex theoretical models with multiple mediators and moderators.

- In addition, future research should conduct comparative studies across multiple programs, sectors, and country contexts to identify context-modifying factors and refine the phase-specific model proposed herein. The present study was conducted in a single program within a single geographic context, limiting generalizability. Comparative research would enable identification of the contextual conditions under which each participatory phase is most effective, the institutional factors that facilitate or impede institutionalization, and the resource dependence configurations that moderate participatory effects.
- Future research should examine the role of power, politics, and conflict in shaping participatory M&E outcomes. The present study touched on these issues but did not systematically examine how power asymmetries between donors, implementing organizations, and local stakeholders influence the design, implementation, and effects of participatory M&E. Critical research approaches, including political economy analysis and ethnographic methods, could illuminate the hidden power dynamics that shape participatory processes and their sustainability outcomes.
- Lastly, future research should investigate the potential negative effects of participatory M&E, including participant fatigue, opportunity costs, and the burden of participation on already marginalized communities. The present study focused on positive associations but did not examine potential harms or diminishing returns. Research on the "dark side" of participation would provide a more balanced assessment of when, how, and for whom participatory M&E is beneficial, and when it may be counterproductive or exploitative.

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