From Indigenous Finance to Hybrid Financial Inclusion: Challenges, Contextual Conditions and Institutional Integration among Nuer Agro-Pastoralist Communities in South Sudan

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ABSTRACT

Financial inclusion is commonly discussed in terms of formal banking, regulated credit, insurance, and digital financial services. These approaches may not fully capture how communities mobilise resources, manage risks, and sustain livelihoods where formal financial infrastructure is limited. This article examines the case for integrating indigenous financial mechanisms with complementary formal financial services, drawing on a mixed-methods study among Nuer agro-pastoralist communities in Uror County, Jonglei State, South Sudan. The study generated 410 valid household questionnaire responses, 30 key informant interviews, and six focus group discussions, supplemented by observation and document review. Indigenous financial practices recorded a composite mean of 4.29, while their perceived contribution to socio-economic transformation recorded a mean of 4.09. Integration indicators recorded a mean of 4.17. Pearson correlation showed a positive association between indigenous financial inclusion mechanisms and socio-economic transformation ($r = .618$, $p < .001$). At the same time, the simple regression model accounted for 38.2% of the observed variance in the outcome. Qualitative findings identified livestock-based wealth management, reciprocal lending, kinship support, community savings and customary institutions, alongside constraints involving conflict, displacement, livestock losses, gender inequality, inadequate infrastructure and weak institutional linkages. The article argues that neither replacing indigenous mechanisms with formal finance nor relying exclusively on indigenous systems adequately addresses these conditions. It proposes the Borchar Hybrid Financial Inclusion Framework (BH-FIF), organised around Indigenous Primacy, Institutional Complementarity and Contextual Sustainability. The framework is an empirically informed proposal whose practical effectiveness requires systematic piloting and evaluation. The article contributes to financial inclusion debates by advancing a context-sensitive, plural institutional approach to financial access and socio-economic transformation.

Keywords: Indigenous financial inclusion; hybrid financial systems; institutional complementarity; Nuer; agro-pastoralism; South Sudan; socio-economic transformation; Borchar Hybrid Financial Inclusion Framework.

1. INTRODUCTION

Financial inclusion has increasingly been recognised as an important instrument for promoting inclusive economic development, reducing household vulnerability and strengthening the capacity of individuals and communities to participate in economic activities. Traditionally, financial inclusion has been conceptualised around access to and utilisation of formal financial services, including savings accounts, credit facilities, insurance, payment systems and other regulated financial products. However, contemporary developments in financial technology and the expansion of digital financial services have broadened the scope of financial inclusion beyond conventional banking arrangements. The World Bank's Global Findex Database 2025 demonstrates the growing significance of digital connectivity, mobile technology and the use of formal and

informal financial mechanisms in shaping how individuals save, borrow, make payments and manage financial risks (Klapper et al., 2025). Nevertheless, increased availability of financial products does not necessarily translate into meaningful financial inclusion, particularly among populations experiencing geographical isolation, poverty, institutional fragility and limited access to essential infrastructure.

This distinction is particularly important in rural, pastoralist and agro-pastoralist economies, where financial resources are frequently mobilised through productive assets, reciprocal obligations, kinship networks, community savings arrangements and customary institutions. Such mechanisms perform financial and social functions that may not be adequately captured by conventional indicators of financial inclusion, which predominantly emphasise account ownership, formal borrowing and digital transactions. Evidence from agro-pastoralist communities in Kenya demonstrates the continued relevance of informal savings and borrowing arrangements in facilitating household financial participation. Bostedt (2021), for example, found that increased engagement with group-based savings organisations was associated with improvements in saving and borrowing behaviour among agro-pastoralist households in West Pokot County. This evidence suggests that financial inclusion in rural and pastoralist settings requires a broader analytical perspective that considers not only access to regulated financial services but also the locally embedded institutional arrangements through which households accumulate, exchange and mobilise resources.

The relevance of this broader perspective is particularly pronounced in South Sudan, where persistent conflict, economic instability, recurrent environmental shocks and inadequate institutional infrastructure have constrained livelihood opportunities and household resilience. The World Bank (2024), in its South Sudan Poverty and Equity Assessment, reported that approximately 76% of the population lived below the national poverty line, while extreme poverty affected more than two-thirds of the population. The assessment further identified conflict, weak governance, limited economic opportunities and recurrent natural disasters as interconnected drivers of poverty and vulnerability. These conditions have important implications for financial inclusion because households operating within fragile economic environments require mechanisms for accumulating productive assets, accessing emergency resources, managing livelihood risks and sustaining economic activities despite recurrent disruptions. Garang (2024) similarly demonstrates that civil conflict has weakened South Sudan's emerging financial sector through disruptions to banking infrastructure, reduced geographical access to financial services and constraints on household credit. Consequently, promoting financial inclusion in South Sudan requires attention to the structural and institutional conditions that shape the availability, accessibility, affordability and appropriateness of financial services.

Within this context, Nuer agro-pastoralist communities in Uror County, Jonglei State, provide an important setting for examining the relationship between indigenous financial institutions and formal financial inclusion. The economic and social organisation of Nuer communities has historically been closely associated with livestock, particularly cattle, which serve productive, economic, social and symbolic functions. Hutchinson's (1996) ethnographic analysis illustrates how cattle, money, social relationships and political organisation intersect within Nuer society. Beyond livestock-based wealth management, community resource mobilisation also occurs through reciprocal lending, kinship assistance, grain reserves, labour-sharing arrangements, community savings and customary governance structures. These practices constitute locally embedded mechanisms through which households mobilise resources, distribute risks, meet social obligations and respond to economic uncertainty.

Indigenous financial mechanisms should not be interpreted merely as substitutes for formal banking services or as residual arrangements arising from the absence of financial infrastructure. Rather, they represent institutionally and culturally embedded systems of resource mobilisation whose legitimacy is derived partly from social relationships, reciprocity, trust, reputation and shared customary obligations. Institutional scholarship, particularly Ostrom's (1990, 2005) work on collective action and institutional diversity, provides a useful foundation for understanding how locally developed rules and governance arrangements facilitate cooperation and collective resource management. Similarly, the Capability Approach advanced by Sen (1999) offers a broader understanding of financial inclusion by shifting attention from the availability of resources to the substantive opportunities those resources create. From this perspective, livestock ownership, reciprocal assistance and community savings become significant not simply because they represent financial assets, but

because they may enable households to secure food, meet healthcare and educational expenses, support productive activities and respond to livelihood emergencies.

Despite their importance, indigenous financial mechanisms are not without institutional and structural limitations. Their effectiveness may be undermined by insecurity, displacement, livestock disease, cattle raiding, drought, flooding, inflation and the erosion of social networks. Furthermore, the concentration of household wealth in livestock may expose families to substantial losses when environmental or security-related shocks occur. Reciprocal lending and kinship-based support may also be constrained when entire communities experience simultaneous economic distress. Gender relations introduce an additional dimension of financial exclusion because women's participation in savings, production and household resource mobilisation does not necessarily translate into equivalent ownership of productive assets or control over financial decisions. Kabeer (1999) emphasises the distinction between access to resources, agency and achieved outcomes, highlighting why financial inclusion should be assessed in terms of both participation and the capacity to exercise control over resources.

These limitations raise an important question concerning the institutional architecture of financial inclusion in fragile agro-pastoralist settings: how can indigenous financial mechanisms be strengthened through appropriate engagement with formal financial institutions without undermining their cultural legitimacy, community ownership and existing social functions? A formalisation-oriented approach may risk marginalising locally established institutions by imposing financial products and governance arrangements that do not adequately reflect community priorities, livelihood patterns or institutional capacities. Conversely, exclusive reliance on indigenous arrangements may leave households exposed to limitations in liquidity, capital accumulation, financial risk diversification, insurance, technological infrastructure and formal consumer protection. The challenge, therefore, is not necessarily to establish the superiority of one financial system over another, but to examine the possibilities and limitations of institutional complementarity.

Existing scholarship provides important foundations for this debate. Financial inclusion research has examined formal financial access, digital financial services and the determinants of savings and borrowing behaviour (Klapper et al., 2025; Bostedt, 2021). Institutional scholarship has demonstrated the significance of collective action, locally developed rules and community governance (Ostrom, 1990, 2005), while development research has highlighted the relationship between resources, agency and livelihood opportunities (Sen, 1999; Scoones, 1998). Research on South Sudan has also drawn attention to the detrimental effects of conflict and institutional fragility on financial sector development (Garang, 2024). However, these strands of scholarship are not sufficiently brought together to explain how indigenous financial mechanisms and formal financial services might be institutionally connected in fragile agro-pastoralist communities. In particular, there remains a need for context-specific empirical analysis of the financial functions performed by indigenous institutions, their perceived contribution to household socio-economic wellbeing, the structural constraints affecting their sustainability and the conditions under which complementary formal financial arrangements may be appropriate. The present study addresses this intersection through an empirical investigation among Nuer agro-pastoralist communities in Uror County.

Drawing on a convergent mixed-methods investigation involving 410 household questionnaire respondents, 30 key informants and six focus group discussions across six Payams, this article examines indigenous financial inclusion as an institutionally embedded process of resource mobilisation and socio-economic participation. It investigates the mechanisms through which indigenous financial practices facilitate household wellbeing, examines their statistical association with socio-economic transformation, identifies the institutional and structural challenges affecting their effectiveness, and explores community perspectives on their integration with formal financial services.

Building on the empirical findings, the article proposes the Borchar Hybrid Financial Inclusion Framework (BH-FIF), organised around three interconnected principles: Indigenous Primacy, Institutional Complementarity and Contextual Sustainability. Indigenous Primacy recognises the legitimacy, knowledge and governance capacities of locally established financial arrangements. Institutional Complementarity considers how selected formal financial services, including appropriate credit, savings, insurance, digital

payment systems and technical support, may strengthen rather than displace indigenous mechanisms. Contextual Sustainability emphasises the need to account for conflict, displacement, livelihood mobility, environmental vulnerability, gender relations and institutional capacity when designing financial inclusion interventions. The framework is presented as an empirically informed conceptual proposal requiring prospective piloting, implementation assessment and independent evaluation rather than as an already validated intervention.

The article makes three related contributions. First, it advances a plural institutional understanding of financial inclusion by recognising indigenous mechanisms as significant components of the financial arrangements through which agro-pastoralist households mobilise resources and manage livelihood uncertainty. Second, it contributes context-specific empirical evidence on the relationship between indigenous financial practices and perceived socio-economic transformation among Nuer communities in South Sudan. Third, it proposes a context-sensitive framework for examining how indigenous and formal financial institutions may develop complementary relationships in fragile agro-pastoralist settings. In doing so, the article argues that sustainable financial inclusion should move beyond the conventional dichotomy between formalisation and informality towards an approach that recognises institutional diversity, community agency, equitable participation and the structural conditions necessary for financial resilience.

2. LITERATURE REVIEW

Financial inclusion is situated within broader debates concerning economic participation, institutional development, livelihood security and poverty reduction. This review examines the theoretical and empirical foundations of indigenous and formal financial inclusion, with particular attention to how locally embedded financial mechanisms influence resource mobilisation and socio-economic wellbeing in agro-pastoralist communities. It draws on institutional, capability and sustainable livelihood perspectives to explain the relationship between financial institutions, household agency and livelihood outcomes. The empirical review further examines evidence from international, African and South Sudanese contexts to identify the knowledge gaps that justify investigating hybrid financial arrangements among Nuer communities.

2.1 Theoretical Foundations in the Literature

This study is anchored in two complementary theoretical perspectives: the Capability Approach (Sen, 1999) and Indigenous Knowledge Systems (IKS) Theory (Hoppers, 2002), with Emancipatory Theory (Habermas, 1984; Freire, 1970) providing a supplementary critical perspective. Together, these perspectives explain the developmental significance, cultural foundations and institutional dynamics of indigenous financial mechanisms and formal financial inclusion among Nuer agro-pastoralist communities in Uror County, Jonglei State, South Sudan.

The Capability Approach, developed by Sen (1999), conceptualises development in terms of people's substantive freedoms and opportunities to achieve lives they value. It moves beyond income, consumption and resource ownership to consider whether individuals can convert available resources into valued outcomes, including livelihood security, productive participation, social well-being and resilience. In this study, the approach provides a lens for examining how indigenous financial mechanisms, such as livestock-based resource mobilisation, reciprocal lending, communal savings and kinship support, enable households to access resources, manage risks and pursue livelihood opportunities.

Access to financial resources does not automatically translate into improved well-being. Their conversion into valued outcomes may depend on household decision-making, gender relations, market access, infrastructure and security. The approach therefore enables the study to assess financial inclusion in terms of its contribution to household capabilities rather than merely access to formal banking services. Recent scholarship continues to develop the operationalisation and measurement of capabilities in development research (Beadle et al., 2026).

The Indigenous Knowledge Systems Theory recognises knowledge generated and sustained through community experience, cultural practices, social relationships and intergenerational transmission (Hoppers,

2002). It challenges the assumption that formal or externally generated knowledge is inherently superior to locally developed knowledge. This perspective is particularly relevant because Nuer financial mechanisms are embedded in customary institutions, reciprocal relationships, trust, collective responsibility and livelihood practices.

Practices such as livestock-based exchanges, reciprocal lending, communal savings and kinship support represent locally developed arrangements for mobilising resources and managing socio-economic risks. IKS provides a basis for examining their cultural legitimacy, institutional organisation and continued relevance. Recent research highlights the importance of considering indigenous knowledge alongside formal institutional conditions when examining financial inclusion in Sub-Saharan Africa (Bonhoure, 2025). However, indigenous practices should also be critically examined because customary arrangements may reproduce inequalities relating to gender, age, wealth and social status.

The Emancipatory Theory, informed by Critical Social Theory (Habermas, 1984) and Freire (1970), provides a critical lens for examining power relations, structural exclusion and unequal participation. It helps explain how formal financial requirements, geographical barriers and inadequate infrastructure may constrain agro-pastoralist households' access to financial services. It also highlights the capacity of communities to develop alternative mechanisms for resource mobilisation. In this study, the perspective draws attention to who accesses and controls financial resources, whose knowledge is recognised and whether financial integration promotes equitable participation.

The three perspectives perform complementary analytical functions. The Capability Approach explains the potential contribution of financial mechanisms to livelihood opportunities and well-being; IKS Theory explains their cultural and institutional foundations; and Emancipatory Theory highlights power, exclusion and unequal participation. Together, they inform the proposed Borchar Hybrid Financial Inclusion Framework (BH-FIF) through three principles: Indigenous Primacy, which recognises the legitimacy of existing community arrangements; Institutional Complementarity, which promotes mutually supportive relationships between indigenous and formal financial systems; and Contextual Sustainability, which emphasises livelihood benefits, resilience and equitable participation. The framework therefore provides a basis for examining how formal financial services can complement indigenous mechanisms without displacing their cultural legitimacy and locally grounded institutional strengths.

2.2 Empirical Review of Literature

Empirical research increasingly recognises that financial inclusion in rural and marginalised populations extends beyond access to conventional banking services. Bostedt (2021), examining saving and borrowing behaviour among agro-pastoralist households in West Pokot County, Kenya, found improvements in household savings and access to credit between 2007 and 2017, alongside increased engagement with financial training and informal group-based savings organisations. The study demonstrates the contribution of community-based arrangements to financial participation among agro-pastoralists. However, its focus on saving and borrowing behaviour provides limited explanation of how indigenous institutions interact with customary governance and broader socio-economic transformation.

Similarly, research on mobile financial services among African farmers by Ky (2022) found substantial mobile financial service usage among Kenyan farmers but considerably lower utilisation for agricultural purposes. The findings highlight the distinction between general access to digital financial services and their effective application to productive activities. More recently, Ky (2025), examining 25 sub-Saharan African economies, reported that mobile money could strengthen farmers' saving, borrowing and digital payment capacities, although adoption remained relatively limited. These findings suggest that digital financial inclusion offers opportunities for rural economic participation, but its developmental contribution depends on affordability, accessibility and adaptation to agricultural livelihood conditions.

Evidence from marginalised Kenyan counties further demonstrates the persistence of structural barriers. Wanzala and Obokoh (2025), using data from 320 informal-sector participants across Samburu, Narok,

Turkana, Garissa and West Pokot counties, identified income instability, geographical isolation and inadequate financial infrastructure as important constraints to financial inclusion. Their findings are particularly relevant to the present study because they demonstrate that formal financial access is shaped by geographical and socio-economic conditions. Nevertheless, the study does not specifically examine the institutional relationship between indigenous resource mobilisation and formal financial services among pastoralist communities.

In South Sudan, Garang (2024) established that civil conflict weakened financial sector development through bank closures, reduced geographical access to automated teller machines and constrained household credit access. Further, Garang (2025), examining impediments to mobile money and financial inclusion, identified conflict-related economic disruption, inadequate infrastructure and socio-economic inequalities as major barriers to financial service expansion. These findings demonstrate the limitations of conventional financial inclusion strategies in fragile institutional environments. However, the studies primarily examine formal financial sector constraints rather than the complementary role of indigenous financial institutions in sustaining household livelihoods.

Collectively, existing studies establish the importance of community-based savings, digital financial services and institutional conditions in shaping financial inclusion. Nevertheless, three gaps remain. Empirically, limited evidence connects indigenous financial mechanisms with multidimensional socio-economic transformation among Nuer agro-pastoralist communities. Contextually, South Sudanese financial inclusion research has predominantly emphasised formal financial sector constraints, with insufficient attention to customary resource mobilisation and community financial institutions. Conceptually, existing studies provide limited integration of indigenous institutional legitimacy, formal financial services, and livelihood sustainability within a unified framework. This study addresses these gaps by examining indigenous financial mechanisms, their association with socio-economic transformation, the constraints affecting their effectiveness and the possibilities for institutional complementarity, culminating in the proposed Borchar Hybrid Financial Inclusion Framework.

3. THEORETICAL AND CONCEPTUAL FRAMEWORK

3.1 Theoretical orientation

The article brings together the Capability Approach, Emancipatory Theory, Indigenous Knowledge Systems (IKS), and Critical Realism to explain different dimensions of indigenous financial inclusion. These perspectives are complementary rather than interchangeable. The Capability Approach provides the evaluative focus on substantive opportunities and well-being; Emancipatory Theory directs attention to power, voice and unequal participation; IKS establishes the epistemic and contextual importance of community-generated knowledge; and Critical Realism helps explain how deeper social, institutional and environmental mechanisms shape observed financial practices and outcomes. Institutional complementarity provides the organising proposition through which the relationship between indigenous and formal financial arrangements is examined.

3.2 Capability Approach

The Capability Approach, associated particularly with Sen (1999), understands development in terms of people's substantive freedoms to achieve lives they have reason to value. It distinguishes resources from the capabilities and achieved functionings that people can derive from them. In this study, livestock, reciprocal lending, community savings, kinship support and other indigenous mechanisms are considered resources whose developmental significance depends on whether households can convert them into food security, productive activity, household welfare, resilience, social participation and other valued outcomes.

This distinction is important in Uror County. Ownership of cattle or access to a reciprocal loan does not automatically produce equal benefits for all household members. Conversion is influenced by security, health, markets, mobility, gender relations, household decision-making and access to infrastructure. The Capability Approach therefore directs analysis beyond the existence of financial resources to the opportunities they make

possible and the distribution of those opportunities. It also provides a basis for assessing whether complementary formal services expand people's choices or introduce new barriers.

3.3 Emancipatory Theory and Critical Social Analysis

Emancipatory Theory, informed by Critical Social Theory and the work of Habermas (1984) and Freire (1970), focuses on the relationship between power, participation, knowledge and social change. It is relevant where financial rules, institutional procedures or unequal control over assets limit the ability of particular groups to participate in decisions affecting their livelihoods. In the study, this perspective informs examination of gendered access to livestock and income, youth participation, customary authority, unequal bargaining power and the accessibility of formal financial services.

The emancipatory perspective does not assume that every indigenous practice is equitable or that every formal institution is exclusionary. Rather, it asks whose interests are served by existing arrangements, who participates in setting the rules, and whether institutional change increases the agency of women, young people and less powerful households. It supports participatory design and accountability as substantive conditions of financial inclusion, not merely procedural additions.

3.4 Indigenous Knowledge Systems

IKS recognises knowledge developed through community experience, practice, observation and intergenerational transmission as a legitimate source of understanding and institutional organisation (Hoppers, 2002; Chilisa, 2012; Smith, 2012). Nuer financial practices are embedded in customary relationships, reciprocal obligations, livestock-based livelihoods, local understandings of risk and community mechanisms for resolving disputes. Their operation cannot be adequately understood if they are treated simply as informal versions of banking products.

IKS provides the contextual basis for identifying the rules and meanings through which these arrangements function. It also supports careful engagement with local knowledge during institutional design. Recognition, however, is not the same as uncritical preservation. Community practices must remain open to deliberation and reform where they restrict participation, accountability or the rights of particular groups.

3.5 Critical Realism as an Explanatory Perspective

Critical Realism distinguishes observable experiences and events from the deeper structures and generative mechanisms that may produce them. This is useful in a conflict-affected agro-pastoral setting because reported access to finance, trust, asset loss or participation may be shaped by mechanisms that are not directly visible in survey responses. These may include customary authority, gendered ownership, insecurity, displacement, weak infrastructure, ecological pressures, market conditions and the reach of state institutions.

The study therefore interprets quantitative patterns alongside qualitative accounts and contextual evidence. The statistical associations describe patterns in the observed sample; qualitative evidence helps explain how participants understand the processes involved. The design does not claim to identify every underlying causal mechanism or establish causal effects. Critical Realism instead provides a disciplined way to consider how context and institutional structures may shape the observed relationships.

3.6 Institutional Complementarity and Supporting Concepts

Institutional complementarity is the central organising proposition for the proposed framework. Institutions comprise formal and informal rules, norms and organisational arrangements that structure social and economic interaction (North, 1990; Scott, 2014). Complementarity occurs when different institutional arrangements perform distinct but mutually supportive functions. In this study, indigenous institutions provide social legitimacy, local knowledge, reciprocal obligations and customary forms of accountability. Formal institutions may contribute secure payment channels, liquidity, consumer protection, technical services, insurance options, market information and connections to wider financial systems.

The proposition is not that all institutions naturally reinforce one another. Complementarity depends on institutional fit, trust, clear responsibilities, appropriate regulation and safeguards against exclusion. Social capital and collective-action scholarship helps explain the role of trust, reciprocity and shared rules (Bourdieu, 1986; Putnam, 1993; Ostrom, 1990). The concept of embeddedness further highlights that economic activity is situated within social relationships and institutions (Polanyi, 1957). These ideas inform the analysis but do not replace the three principal theoretical perspectives outlined above.

3.7 The Borchar Hybrid Financial Inclusion Framework

The Borchar Hybrid Financial Inclusion Framework (BH-FIF) is proposed as a contextually grounded institutional architecture for linking indigenous and formal financial arrangements without displacing the former. It has three interdependent pillars: Indigenous Primacy, Institutional Complementarity and Contextual Sustainability. Indigenous Primacy establishes the locally legitimate institutional foundation; Institutional Complementarity introduces selected formal services and capabilities; and Contextual Sustainability governs how the relationship is adapted to social, political, ecological and livelihood conditions.

The framework's originality lies in the operational relationship among these pillars. It does not merely recommend that formal and informal finance coexist. It specifies that community ownership and customary legitimacy should guide the design of external linkages; that formal services should fill identified functional gaps rather than duplicate or absorb indigenous mechanisms; and that governance safeguards, inclusion and contextual adaptation should apply across the entire arrangement. The BH-FIF is an empirically informed conceptual proposal. Its effectiveness as an intervention has not been established by the cross-sectional study and requires prospective piloting and evaluation.

4. METHOD

4.1 Research Design

The study adopted a concurrent convergent mixed-methods design with qualitative evidence given a strong interpretive role. Quantitative household survey data and qualitative interviews and focus group discussions were collected within the same broad fieldwork period, analysed separately and brought together during interpretation. The design enabled the study to describe patterns in indigenous financial practices, perceived socio-economic outcomes, challenges and preferences for institutional integration, while using qualitative accounts to examine meanings, institutional processes and contextual conditions. The design was cross-sectional and qualitative-dominant; it supports analysis of associations and participant perspectives but does not establish causal effects.

4.2 Study Setting and Population

The study was conducted among Nuer agro-pastoralist communities in Uror County, Jonglei State, South Sudan. It covered six Payams: Motot, Pieri, Weikol, Pulchuol, Pathai and Padiek. The area is characterised by livestock-based livelihoods, seasonal mobility, subsistence and small-scale trade, recurrent insecurity, environmental shocks and limited formal financial and communications infrastructure.

The target population for the broader doctoral study comprised an estimated 43,500 adults aged 18 years and above across the six Payams. Eligible participants included adult household members with direct or indirect experience of household livelihoods and indigenous financial practices. The qualitative component also included community leaders, customary authorities, women and youth representatives, traders and other knowledgeable participants.

4.3 Quantitative Sample Size and Sampling

The household sample was estimated using Yamane's (1967) formula:

$$n = N / (1 + N(e^2))$$

where n is the required sample, N is the estimated population of 43,500 and e is the 0.05 level of precision. The calculation produced a minimum sample of approximately 396. A 10% allowance was added to accommodate possible non-response, giving a target of 436 questionnaires. Of these, 410 valid questionnaires were retained for analysis, representing a 94.0% response rate.

A multi-stage sampling strategy was used. The six Payams formed the geographic strata for proportional allocation. The planned sample was distributed across the Payams, after which households/respondents were selected using the study's household sampling procedures. The final valid distribution is presented in Table 7. The Payam allocations sum to 436 planned questionnaires and 410 valid responses.

Payam	Planned questionnaires	Valid questionnaires
Motot	80	76
Pieri	75	71
Weikol	65	65
Pulchuol	70	66
Pathai	78	73
Padiek	68	59
Total	436	410

Table 7. Planned and valid household questionnaire distribution by Payam.

4.4 Qualitative Sampling and Participants

The qualitative component comprised 30 key informant interviews (KIIs) and six focus group discussions (FGDs), with one FGD conducted in each Payam. The six FGDs involved 48 participants in total. Purposive sampling was used to identify information-rich participants with relevant experience of indigenous finance, customary institutions, livelihood systems, community leadership, women's and youth participation, trade and local development. Referral or snowball techniques were used where appropriate to identify additional knowledgeable participants. The adequacy of qualitative material was considered through the depth, relevance and recurrence of themes across the data rather than through statistical representativeness.

4.5 Research Instruments and Development

Data were collected using a structured household questionnaire, semi-structured KII guide, FGD guide, observation checklist and document-review guide. The household questionnaire included 32 Likert-type items organised across four domains: indigenous financial mechanisms (10 items), socio-economic transformation (8 items), challenges and limitations (8 items), and institutional integration (6 items). Responses were recorded on a five-point scale from strongly disagree to strongly agree. The instruments were developed by aligning questions with the study objectives, theoretical constructs and operational indicators in the doctoral study.

The KII and FGD guides used open-ended prompts to explore the forms and functions of indigenous financial arrangements, trust and reciprocity, livestock and other assets, household welfare, risk and insecurity, gender and generational participation, financial literacy, institutional constraints and possible links with formal finance. Observation and document review provided contextual material to support interpretation. Instruments were reviewed for relevance, clarity and cultural appropriateness and were adapted for use in the local linguistic and social context.

4.6 Pilot Testing, Validity and Reliability

A pilot exercise was conducted in Duk County, outside the main study area, involving 44 questionnaires, two FGDs and three KIIs. The pilot was used to assess clarity, sequencing, cultural appropriateness and the practical administration of the instruments. Feedback informed refinements before the main data collection.

Content validity was supported through expert review and alignment between items, study objectives and constructs. The content validity index was reported as greater than .80. Construct validity was examined using factor analysis. The Kaiser–Meyer–Olkin measure was .874, and Bartlett's test of sphericity was statistically significant, $\chi^2(496) = 3{,}245.318$, $p < .001$. Reported factor loadings ranged from .612 to .881, supporting the suitability of the items for the intended construct analysis.

Internal consistency was assessed using Cronbach's alpha. The coefficients were .861 for indigenous financial mechanisms, .847 for socio-economic transformation, .803 for challenges and limitations, and .889 for institutional integration. The overall alpha was .850. These values indicate acceptable to high internal consistency for the study scales.

Construct	Number of items	Cronbach's alpha
Indigenous financial mechanisms	10	0.861
Socio-economic transformation	8	0.847
Challenges and limitations	8	0.803
Institutional integration	6	0.889
Overall instrument	32	0.85

Table 8. Internal consistency of the household questionnaire.

Qualitative trustworthiness was strengthened through triangulation across KIIs, FGDs, observation and document review, careful documentation of coding and interpretation, and attention to divergent as well as convergent accounts. Anonymised quotations and paraphrased accounts were used to reduce the risk of identifying participants.

4.7 Data Collection and Analysis

Quantitative data were coded, cleaned and analysed using IBM SPSS Statistics Version 30. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarise respondent characteristics and study constructs. Pearson's product–moment correlation was used to examine the association between indigenous financial mechanisms and socio-economic transformation. A simple linear regression model was used to estimate the predictive association between the indigenous financial mechanisms score and the socio-economic transformation score. The inferential model reported in this article is the corrected one-predictor model from the revised thesis; earlier multi-predictor results in previous article drafts are not retained.

Qualitative material was analysed thematically. Transcripts and field notes were read repeatedly, coded, grouped into categories and developed into themes concerning institutional legitimacy, reciprocity, livestock and asset risks, conflict, gender and youth participation, governance and institutional integration. NVivo was used to support data organisation and coding. Integration occurred at the interpretation stage by comparing quantitative patterns with qualitative explanations and noting convergence, complementarity and divergence.

4.8 Ethical Considerations

The study followed the ethical requirements established for the doctoral research. Ethical approval was obtained through the Tangaza University Ethics Review Committee, together with relevant South Sudan national, state, county and local authorisations. Participants were informed about the purpose of the study, the voluntary nature of participation, their right to decline or withdraw, and the measures taken to protect confidentiality. Informed consent was obtained before data collection. Personal identifiers were not included in the reporting of findings, and records were handled securely. The article does not state an approval reference

number because that number is not available in the source material used for this revision; it should be inserted if required by the journal.

5. RESULTS

5.1 Overall Pattern of Challenges and Limitations

Respondents reported a relatively high level of exposure to constraints affecting indigenous financial systems. The composite mean for the eight challenge indicators was 4.07 (SD = 1.12), indicating that the listed constraints were generally perceived as important. The pattern is notable because it shows that high community reliance on indigenous finance coexists with substantial institutional vulnerability.

Challenge indicator	SD %	D %	U %	A %	SA %	Mean	SD
Conflict and insecurity disrupt indigenous financial activities.	3.6	6.2	10.1	36.9	43.2	4.1	1.1
Migration patterns weaken traditional financial structures.	4.7	7.6	12.4	36.3	39	3.97	1.18
Inflation affects the value of indigenous savings assets.	3.8	6.4	10.3	36.7	42.8	4.09	1.11
Trust in traditional systems is declining.	3	5.1	8.9	36.4	46.6	4.19	1.02
Youth are shifting away from traditional financial practices.	4.2	7.1	11.7	36.8	40.2	4.01	1.16
Gender bias affects equal participation in indigenous systems.	3.7	6	10	38.2	42.1	4.09	1.09
Risks such as livestock loss discourage participation.	3.5	5.8	9.8	37.4	43.5	4.12	1.08
External interventions (NGOs, government) create challenges to indigenous systems.	4.9	7.9	12.7	36.1	38.4	3.95	1.19
Composite mean						4.07	1.12

Table 1. Household perceptions of challenges affecting indigenous financial systems (N = 410).

5.2 Conflict, Insecurity and Mobility

Conflict and insecurity were among the most consequential constraints, with a mean of 4.10. Qualitative evidence explained that cattle raiding, intercommunal violence, armed conflict, displacement, and insecurity can interrupt market activity, destroy productive assets, fragment social networks, and restrict movement. Because indigenous finance depends heavily on mobility, livestock, and reciprocal support, the same conflict event can weaken both the asset base and the social network that facilitates financial exchange. This is consistent with broader evidence that conflict and insecurity can undermine pastoralist livelihoods and asset-based resilience (Jok, 2013; Pendle, 2018; FAO, 2023).

Migration was also identified as a challenge (M = 3.97). Mobility is not inherently a weakness in pastoralism; it is a livelihood strategy. The problem arises when insecurity or environmental pressure makes migration recurrent, involuntary, or disconnected from customary support networks. Movement can complicate record-keeping, group membership, repayment expectations, and access to community decision-making. The finding therefore suggests that financial inclusion strategies for pastoralists must accommodate mobility rather than assume permanent residence.

5.3 Inflation, Livestock Risk and Environmental Exposure

Inflation was perceived as a significant pressure on indigenous savings assets (M = 4.09). In an asset-based financial system, inflation can change the relative value of livestock, grain, and purchased goods and can

reduce the real value of cash transactions used to support reciprocal obligations. More importantly, the study found that livestock loss was a major risk (M = 4.12). Cattle function as savings, productive assets, social security, and a means of meeting social obligations; consequently, cattle loss has compound financial effects.

Qualitative evidence connected these risks to livestock disease, cattle raiding, drought, flooding, pasture constraints, and disruption of trade. FAO (2023) has similarly documented the vulnerability of South Sudanese agropastoralist households to climate and livestock shocks. The implication is that strengthening indigenous finance cannot be reduced to financial-sector reform. It must also include measures that protect the ecological and productive asset base on which the financial system is built.

5.4 Trust, Intergenerational Change and Gender Inequality

The highest challenge mean was associated with the statement that trust in traditional systems is declining (M = 4.19). This finding should not be interpreted as evidence that indigenous institutions have lost legitimacy. Rather, qualitative accounts suggest pressure on trust arising from conflict, population movement, changing expectations, leadership disputes, and changing economic behavior. The continued reliance on customary support mechanisms demonstrates that trust remains an important institutional resource even as its conditions change.

Respondents also reported that youth are shifting away from traditional financial practices (M = 4.01). Interviews indicated that younger people are increasingly exposed to formal education, urban markets, digital technology, migration, and new forms of economic opportunity. This shift may threaten intergenerational transmission of indigenous financial knowledge, but it can also provide an opportunity to combine indigenous practice with new digital and financial skills.

Gender bias was another major constraint (M = 4.09). Qualitative evidence showed that women participate in savings, small trade, mutual support, and household resource management, yet their access to major productive assets and decision-making may remain restricted by customary norms. This creates an institutional tension: a system can be socially inclusive in access to support while remaining unequal in ownership and governance. A hybrid model must therefore include explicit mechanisms for women's participation, transparency, and accountability rather than assuming that community ownership automatically guarantees gender equity.

5.5 Governance, Institutional Capacity and External Engagement

External interventions were rated somewhat lower than other challenge indicators (M = 3.95), but qualitative evidence showed that the relationship with NGOs and government can be both supportive and disruptive. Development projects may introduce new rules, reporting requirements, or parallel structures that compete with customary arrangements. At the same time, external actors provide opportunities for training, connectivity, market linkages, and financial innovation. The central issue is therefore the quality of institutional fit rather than the mere presence of external actors.

Participants highlighted weak record-keeping, limited standardized procedures, low financial literacy, inadequate communication infrastructure, and weak formal linkages as constraints. These issues can reduce transparency and scalability even when community trust is high. The qualitative findings therefore favor selective institutional strengthening: basic records, transparent governance, training, and appropriate technology can be introduced without replacing customary decision-making.

5.6 Contextual Conditions Shaping Financial Inclusion

The study also examined contextual conditions that shape the broader financial environment. The composite mean for the contextual conditions construct was 4.13 (SD = 0.99), indicating strong agreement that these conditions matter to financial inclusion outcomes. Particularly notable were conflict and insecurity, displacement and recurring insecurity, reciprocal social support, livestock ownership, and mobile money as a potentially complementary mechanism.

Contextual condition	Mean	SD
Cultural norms shape financial participation and resource use.	4.09	
Reciprocal community support strengthens access to financial resources.	4.17	
Household mobility affects continuity of financial participation.	4.04	
Livestock ownership shapes access to savings and financial security.	4.14	
NGOs and development partners influence the local financial environment.	4.07	
Mobile money can complement indigenous financial practices.	4.11	
Conflict and insecurity limit effective participation in financial inclusion activities.	4.19	
Displacement and recurring insecurity weaken the ability to save, invest and access resources.	4.2	
Composite mean	4.13	0.99

Table 2. Perceived contextual conditions affecting financial inclusion (N = 410).

5.7 Preferences for Institutional Integration

Respondents expressed strong support for integrating indigenous and formal financial systems. The composite mean for the integration framework construct was 4.17 (SD = 1.04). The strongest support was for capacity-building and training (M = 4.24), recognition of indigenous systems in national financial policy (M = 4.20), protection of traditional practices (M = 4.19), and collaboration between banks and community groups (M = 4.17). The lowest mean, while still positive, concerned complementarity with formal microfinance (M = 4.06). This pattern suggests that respondents favored gradual institutional bridging rather than abrupt formalization.

Integration statement	SD %	D %	U %	A %	SA %	Mean	SD
Indigenous systems should be recognized in national financial policy.	2.8	4.7	8.5	37.3	46.7	4.2	1
Collaboration between banks and community groups is essential.	3.1	5.2	8.9	37.6	45.2	4.17	1.04
Government support can strengthen indigenous financial systems.	3.4	5.6	9.3	38.1	43.6	4.13	1.07
Capacity-building and training can improve system transparency.	2.6	4.3	7.8	37.5	47.8	4.24	0.99
Indigenous systems can complement formal microfinance institutions.	3.9	6.5	10.7	38	40.9	4.06	1.11
Policies should protect traditional financial practices.	3	5	8.6	37.1	46.3	4.19	1.03
Composite mean						4.17	1.04

Table 3. Household preferences for integration of indigenous and formal financial systems (N = 410).

5.8 Corrected Inferential Findings

Pearson correlation analysis showed a strong positive association between indigenous financial mechanisms and socio-economic transformation ($r = .618$, $n = 410$, $p < .001$). The result indicates that respondents reporting stronger indigenous financial mechanisms also tended to report more favourable socio-economic outcomes. This is an association and should not be interpreted as evidence of causation.

A simple linear regression was estimated with the indigenous financial mechanisms score as the predictor and the socio-economic transformation score as the outcome. The model was statistically significant, $F(1, 408) = 251.582$, $p < .001$. The model correlation was $R = .618$, the coefficient of determination was $R^2 = .382$, and the

adjusted R^2 was approximately .380. Thus, the predictor accounted for 38.2% of the observed variance in the socio-economic transformation score in this sample.

Model statistic	Result
N	410
R	0.618
R^2	0.382
Adjusted R^2	0.38
F statistic	251.582
Degrees of freedom	1, 408
Model significance	$p < .001$

Table 9. Model summary and ANOVA for the corrected simple linear regression.

For the one-predictor model, the standardised regression coefficient is $\beta = .618$, corresponding to the reported Pearson correlation. The equivalent t statistic for the predictor is approximately 15.86 ($t^2 = F$). The standardised coefficient indicates a positive predictive association. The unstandardised coefficient (B), its standard error, the intercept, confidence interval and sums of squares are not reproduced because the exact SPSS Coefficients and ANOVA tables containing those values were not available in the source material supplied for this revision. They should be transcribed directly from the final SPSS output if the target journal requires a complete unstandardised coefficient table. No values have been estimated or invented for those fields.

The corrected result supersedes the earlier article drafts that reported a three-predictor model and $R^2 = .709$, as well as other superseded regression estimates. The cross-sectional design and self-reported measures limit causal interpretation; the regression should therefore be described as a predictive association within the study sample.

5.9 Qualitative Themes and Mixed-Methods Integration

Qualitative evidence converged with the survey results around five broad themes. First, indigenous institutions remain a foundation of local resilience because they are accessible and culturally legitimate. Second, conflict and environmental shocks reduce the asset base and disrupt the social relationships needed for reciprocal exchange. Third, institutional weaknesses—including limited documentation, weak accountability, financial literacy gaps, and poor connectivity—constrain scalability and transparency. Fourth, gender and intergenerational change create uneven patterns of participation. Fifth, respondents generally favored a hybrid system that retains indigenous ownership and governance while connecting communities to selected formal services.

The qualitative material also clarifies an important point about the meaning of “integration”. Participants did not primarily call for the replacement of cattle-based savings, kinship support, customary dispute resolution, or community-managed groups. Instead, they emphasized practical additions: training, transparent record systems, access to secure payment channels, stronger market connections, livestock and climate risk management, and respectful collaboration with government, banks, microfinance actors, and development agencies. The mixed-methods evidence therefore supports an integration strategy based on institutional complementarity.

6. DISCUSSION

6.1 Conflict and Institutional Fragility

The evidence indicates that conflict affects indigenous finance through both direct and indirect pathways. Directly, violence can destroy or deplete productive assets and restrict market movement. Indirectly, it can

weaken trust, fragment kinship networks, disrupt local authority, and reduce the predictability of reciprocal obligations. This is important for institutional theory because it demonstrates that institutions depend on broader social conditions. The rules of an indigenous financial system may remain intact while the social environment required to enact them becomes unstable.

From a capability perspective, insecurity also constrains people's effective freedom to pursue valued livelihoods and accumulate assets (Sen, 1999). The policy implication is that financial inclusion programmes cannot be isolated from peacebuilding, community security, mobility, and asset protection. In fragile pastoralist contexts, financial resilience is partly a function of institutional resilience and partly a function of the wider peace and ecological environment.

6.2 Asset Concentration, Climate Risk and Financial Sustainability

The centrality of livestock creates both strength and exposure. Cattle provide a culturally legitimate and productive store of value, but they are vulnerable to disease, theft, conflict, drought, flooding, and market shocks. The findings therefore reveal a paradox: the same asset that makes indigenous finance locally workable can also create concentrated systemic risk. Sustainable financial inclusion should consequently support diversification without invalidating livestock as an indigenous financial asset.

Possible complementary mechanisms include livestock health services, climate-resilient water and grazing infrastructure, market information, savings and credit arrangements that do not require formal bank collateral, and carefully designed insurance or risk-pooling products. Such interventions should be co-designed with communities so that they complement rather than undermine existing systems.

6.3 Gender, Youth and Inclusive Institutional Reform

The gender findings challenge any assumption that indigenous finance is automatically equitable. Community ownership can produce strong solidarity while still concentrating control over productive assets among men. Gender-responsive integration therefore requires more than targeting women as beneficiaries. It should strengthen women's participation in governance, savings groups, enterprise, training, and access to assets and financial information. At the same time, youth should not be treated simply as agents of institutional erosion. Their stronger exposure to technology and external markets can support the digitization and renewal of indigenous institutions when young people are engaged as institutional innovators.

6.4 The Institutional Paradox of Formalization

The findings suggest an institutional paradox. Indigenous systems are effective partly because they are flexible, socially embedded, and low-cost, but these same features may limit formal accountability, standardization, and scalability. Full formalization could solve some of these weaknesses while damaging the trust and local ownership that make the system effective. The appropriate response is therefore selective formalization: introduce the minimum structures needed for transparency, consumer protection, record-keeping, external linkage, and risk management while leaving socially effective functions under community control.

This approach aligns with the broader financial inclusion evidence that digital and formal services can expand opportunities, but only when supported by appropriate infrastructure, trust, and user capability (Demirgüç-Kunt et al., 2022). In Uror County, the sequencing matters. Connectivity, training, community governance, and institutional readiness may need to precede or accompany formal financial linkages.

6.5 Implications for Development Practice

Development practice should move from a service-delivery model toward an institutional partnership model. Instead of establishing parallel groups or projects, external actors can strengthen existing community structures, train local financial committees, support simple accounting systems, establish transparent governance standards, and connect communities to regulated providers. Government agencies can provide

policy recognition and legal pathways, while banks and microfinance institutions can design products appropriate to mobile and asset-based livelihoods. Digital providers can offer payment and information functions where connectivity permits. Development partners can support pilots, financial literacy, conflict-sensitive programming, and evidence generation.

7. THE BORCHAR HYBRID FINANCIAL INCLUSION FRAMEWORK (BH-FIF)

7.1 Rationale and Intended Contribution

The empirical findings point to two simultaneous conditions. Indigenous financial mechanisms remain accessible, socially embedded and important to household resource mobilisation, yet they are exposed to conflict, asset loss, changing social relations, gender inequality, weak records and limited formal connectivity. Respondents also expressed strong support for capacity-building, policy recognition and collaboration with formal institutions. The BH-FIF responds to this combination by proposing institutional complementarity rather than replacement.

The framework is designed for Nuer agro-pastoralist communities in Uror County but may offer an analytical starting point for other fragile pastoralist settings. Its originality is not the general claim that formal and informal finance can coexist. Rather, it lies in specifying the institutional sequence and safeguards through which complementarity can be pursued: local legitimacy and ownership establish the base; selected formal services fill identified gaps; and contextual governance arrangements protect inclusion, accountability and adaptation across both domains.

7.2 Pillar One: Indigenous Primacy

Indigenous Primacy means that community-recognised institutions, locally developed rules and customary relationships provide the starting point for financial inclusion design. Relevant mechanisms include livestock-based saving and wealth management, reciprocal lending, kinship assistance, community savings, grain sharing, labour exchange and customary processes for resolving disputes. These arrangements are not treated as deficient copies of banks. They are understood as locally embedded institutions with their own purposes, rules, obligations and sources of legitimacy.

In practice, Indigenous Primacy requires participatory mapping of existing mechanisms before an intervention is designed. Community members should identify how contributions are made, how recipients are selected, how obligations are recorded or remembered, how disputes are resolved and which groups may be excluded. Community ownership should be retained over decisions that are properly local. Indigenous Primacy does not require preserving every customary practice unchanged: arrangements that restrict women's or young people's participation, or expose members to unfair treatment, should be open to inclusive deliberation and reform.

7.3 Pillar Two: Institutional Complementarity

Institutional Complementarity links indigenous mechanisms to selected formal services according to locally identified needs. Potential services include safe savings and payment channels, mobile money, agent banking, appropriately designed microfinance, livestock-related services, insurance or risk-pooling, market information, financial education and links to government or development programmes. Formal actors should contribute functions that community arrangements cannot reliably provide at sufficient scale, while avoiding duplication or absorption of local institutions.

Operationally, this pillar requires formal providers to consult community representatives and adapt service design to seasonal mobility, variable cash flows, livestock-based assets, low literacy and weak connectivity. Mobile money or agent services may support payments and transfers where coverage and consumer protection are adequate. Microfinance should not assume that households have regular wages or conventional collateral. Insurance and risk-pooling products should be explained transparently, tested for affordability and aligned with locally understood risks. Formal partnerships should have clear written responsibilities and accessible complaint channels.

7.4 Pillar Three: Contextual Sustainability

Contextual Sustainability is the cross-cutting condition that determines whether the other two pillars remain workable over time. It requires attention to conflict sensitivity, displacement, seasonal mobility, livestock disease, drought, flooding, market volatility, gender relations, generational change, infrastructure and institutional capacity. Financial inclusion interventions should not expose community funds or participants to avoidable security risks, nor should they assume that all households can access the same services at the same time.

The pillar also requires inclusive governance and practical safeguards. A community financial committee should include women and young people in meaningful decision-making roles. Where a community cashbox or pooled fund is used, dual-signatory authorisation, written or locally accessible records, receipts, periodic public reporting and a clear grievance procedure can reduce the risk of misuse. Women-led cashbox committees can provide a route to stronger voice and oversight, provided that their authority is recognised in practice and not merely nominal. Financial records should be understandable to members and proportionate to the scale and literacy context of the arrangement.

7.5 Relationship among the Three Pillars

The three pillars are mutually dependent but perform different functions. Indigenous Primacy supplies the institutional base and local legitimacy. Institutional Complementarity adds services, technology, liquidity and connections that may be missing from local arrangements. Contextual Sustainability shapes the rules, safeguards and adaptations required for the relationship to remain inclusive and resilient. If formal linkages are introduced without Indigenous Primacy, they may displace or weaken community ownership. If Indigenous Primacy operates without Complementarity, important gaps in liquidity, payments, risk management and external connectivity may remain. If either operates without Contextual Sustainability, conflict, exclusion, weak accountability or environmental shocks may undermine the arrangement.

Framework component	Main elements	Practical mechanisms	Intended contribution
Indigenous Primacy	Community ownership, customary trust, reciprocity, local knowledge and dispute resolution	Participatory mapping; community-led rules; recognition of existing groups and customary processes	Preserves legitimacy, accessibility and local control
Institutional Complementarity	Formal savings and payments, mobile money, agent services, microfinance, insurance, market and technical links	Partnerships with regulated providers; mobility-aware products; financial and digital literacy	Adds service options, liquidity, security and external connectivity
Contextual Sustainability	Inclusion, accountability, conflict sensitivity, climate and livestock risk, adaptive governance	Dual signatories; women-led cashbox committees; transparent records; public reporting; grievance channels; risk-sensitive design	Protects fairness, trust, resilience and long-term adaptability

Table 10. Operational architecture of the Borchar Hybrid Financial Inclusion Framework.

7.6 Practical Implementation Sequence

Implementation is proposed as an iterative process rather than a one-off transition from informal to formal finance.

1. **Community mapping and co-design.** Document existing financial mechanisms, their rules, membership,

purposes, risks and excluded groups. Conduct consultations with women, youth, elders, customary authorities and other relevant participants.

2. **Inclusive governance arrangements.** Agree on representation, committee responsibilities, decision-making procedures, dual-signatory rules, record keeping, reporting and accessible dispute-resolution channels.
3. **Institutional capacity strengthening.** Provide locally appropriate training in basic financial management, record keeping, consumer rights, responsible borrowing, digital literacy and risk awareness.
4. **Selective formal linkages.** Identify specific gaps and negotiate partnerships with regulated financial institutions, mobile money providers, microfinance organisations, livestock services and development partners. Introduce services only where access, affordability, security and consumer protection are adequate.
5. **Context-sensitive piloting.** Pilot the selected arrangements in a limited number of communities and across relevant seasons. Adapt delivery to mobility, connectivity, insecurity and livelihood calendars.
6. **Monitoring, learning and adaptation.** Monitor participation by gender and age, access and use of services, transparency, complaints, savings continuity, service costs and unintended effects. Community feedback should inform revisions before wider expansion.

7.7 Monitoring and Evaluation Considerations

Evaluation should distinguish implementation outputs from longer-term outcomes. Process indicators may include the number of community consultations, functioning committees, women and youth represented in decision-making, members trained, records maintained and formal partnerships established. Intermediate indicators may include continuity of savings, access to secure payment channels, use of appropriate financial services, resolution of complaints and member confidence in governance. Household-level outcomes may include perceived ability to meet essential needs, manage shocks, support enterprise and participate in economic decisions. These indicators are proposed for future piloting; they were not all measured as outcomes in the present cross-sectional study.

7.8 Scope and Validation

The BH-FIF is a conceptual and policy framework derived from the study's empirical findings and theoretical synthesis. The present study did not implement the framework as an intervention and therefore does not demonstrate its effectiveness. Its operational feasibility, distributional effects, affordability and sustainability require prospective piloting, comparative assessment and independent evaluation. The framework should be refined in collaboration with communities and relevant institutions before it is adopted as a programme model.

8. POLICY AND PRACTICE IMPLICATIONS

8.1 Policy Recognition

National and subnational financial inclusion policies should recognize community-based and indigenous financial institutions as relevant components of the financial ecosystem. Recognition does not require immediate licensing of every customary arrangement. It can begin with policy acknowledgement, mapping, dialogue mechanisms, and pathways for appropriate partnerships.

8.2 Financial and Digital Infrastructure

Financial inclusion in remote pastoralist areas requires infrastructure that matches mobility and low connectivity. Investments in telecommunications, reliable electricity, digital identity where appropriate, and agent-based services should be paired with digital and financial literacy. Digitalization should complement social institutions rather than erase them.

8.3 Governance, Transparency and Accountability

Community institutions can be strengthened through simple record systems, transparent contribution and

disbursement procedures, periodic community reporting, and inclusive governance structures. These measures can improve trust and make it easier for formal partners to engage without imposing burdensome bureaucratic systems.

8.4 Gender and Youth Inclusion

Integration programmes should establish measurable participation and governance opportunities for women and young people. Women's savings groups and youth enterprise networks can serve as entry points for financial education, digital finance, market access, and community governance reform.

8.5 Conflict- and Climate-Sensitive Finance

Financial interventions should be designed with the realities of insecurity, displacement, flood risk, drought, livestock disease, and market disruption in mind. Risk pooling, emergency savings, livestock services, climate adaptation, market information, and conflict-sensitive programming can reduce the vulnerability of the underlying asset base.

9. CONCLUSION

This article examined indigenous financial mechanisms among Nuer agro-pastoralist communities in Uror County, Jonglei State, South Sudan, focusing on their contribution to perceived socio-economic transformation, the constraints affecting their operation and the possibilities for institutional integration. The findings show that indigenous financial arrangements remain socially meaningful and practically important for resource mobilisation, reciprocal support and household livelihood management. Livestock, community savings, reciprocal lending, kinship support and customary arrangements extend beyond individual financial transactions and are embedded in wider systems of social obligation and collective life.

At the same time, these mechanisms operate under significant pressure. Conflict and insecurity, livestock loss, inflation, migration and displacement, weakening trust, gender inequality, limited financial literacy, weak record keeping and inadequate infrastructure constrain their reach and resilience. The findings also show that community support for institutional integration is strong, particularly for capacity-building, policy recognition, protection of indigenous practices and collaboration with formal providers. The corrected inferential analysis identifies a positive association between indigenous financial mechanisms and socio-economic transformation ($r = .618$, $p < .001$). The simple regression model accounts for 38.2% of the observed variance in the outcome ($R^2 = .382$). These results indicate a predictive association in the sample and do not establish causation.

The article proposes the Borchar Hybrid Financial Inclusion Framework (BH-FIF), comprising Indigenous Primacy, Institutional Complementarity and Contextual Sustainability. Its central proposition is that formal services should strengthen locally legitimate institutions by addressing identified gaps, while community ownership, inclusive governance and contextual safeguards guide the relationship. The framework's practical mechanisms include participatory mapping, community financial committees, dual-signatory controls, women-led cashbox committees, transparent records, formal service partnerships, financial and digital literacy, and conflict- and climate-sensitive implementation.

The BH-FIF is an empirically informed conceptual proposal, not a tested intervention. Its feasibility and outcomes require piloting, longitudinal monitoring and independent evaluation. Future research should examine how institutional complementarity operates across different pastoralist settings, how benefits and decision-making are distributed across gender and age groups, and whether the framework can improve financial access and household resilience without weakening indigenous institutional autonomy.

10. DECLARATIONS

10.1 Ethics Approval and Consent

Ethical approval was obtained through the Tangaza University Ethics Review Committee, and further endorsed

by relevant South Sudan national, state, county and local authorisations. Informed consent was obtained from participants. The formal approval reference number should be added if required by the journal; it was not available in the source material used for this revision.

10.2 Consent for Publication

No identifying participant information is reported. Qualitative accounts are presented in anonymized or paraphrased form.

10.3 Data Availability

The study dataset is part of the doctoral research records. Availability should be stated in accordance with the requirements of the selected journal and the applicable ethical approvals.

10.4 Funding

It is through private sponsorship the study was accomplished.

10.5 Conflict of Interest

No specific competing interest.

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