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Eco-Tourism Activities and Income Improvement among Women Entrepreneurs in Nkaiti Ward, Arumeru district, Tanzania

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Abstract
Eco-tourism creates income opportunities for communities adjoining protected areas, although women may experience unequal access to markets, capital, skills, and tourism governance. Objective: This study examined eco-tourism activities and their contribution to income improvement among women entrepreneurs in Nkaiti Ward, Tanzania. An explanatory concurrent mixed-methods design involved 109 women entrepreneurs selected through stratified simple random sampling and six key informants selected purposively. Questionnaires captured activity, engagement, perceptions, and recalled monthly income data, while interviews provided contextual explanations. Descriptive statistics and ordinary least-squares regression were used for analysis. Findings revealed that weaving was the leading activity (46.8%), followed by homestays (12.8%), herbal products (9.2%), and wood carving (8.3%). Mean monthly income increased from TZS 66,834.86 before engagement to TZS 132,844.04 afterward. Eco-tourism engagement positively and significantly predicted post-engagement monthly income ($p < .001$, $r = .510$, $R^2 = .260$, standardized $\beta = +.510$). Interview evidence confirmed income growth, household support, diversification, and continuing seasonal instability. Conclusion: Eco-tourism provides a meaningful livelihood pathway for women entrepreneurs, but participation alone does not ensure stable or equitable earnings. Recommendations: District authorities, tourism operators, and community organizations should expand affordable finance, product differentiation, market linkages, business capabilities, and year-round tourism programming to strengthen women-owned enterprises and income stability.

1.0 Introduction

Eco-tourism has become an important strategy for connecting biodiversity conservation with community development in destinations where natural and cultural resources support visitor experiences. Community participation can create employment, household income, enterprise opportunities, infrastructure improvements, and stronger incentives for conserving local resources (Hassan et al., 2026). These benefits extend beyond direct tourism jobs because residents can supply accommodation, food, guiding, transport, crafts, cultural performances, and conservation services (Kulunge et al., 2026). Inclusive eco-tourism also converts ecological and cultural assets into livelihood opportunities when communities control meaningful roles within tourism value chains (Bhatt et al., 2026). However, the durability of these gains depends on benefit distribution, local authority, market access, and institutional support. Eco-tourism should therefore be assessed by the opportunities it creates, the income it retains locally, and the conditions that determine who benefits from participation.

Women's tourism entrepreneurship matters because small enterprises can connect locally held knowledge with income generation, cultural preservation, and household welfare. Women frequently enter tourism through crafts, food preparation, homestays, guiding, cultural interpretation, and other activities compatible with community resources (Batra & Batra, 2026). Their enterprises may also preserve and transmit cultural knowledge while creating commercially valuable visitor experiences (Altinay et al., 2026). Nevertheless, women's agency remains influenced by social expectations, institutional arrangements, business networks, finance, education, and control over productive assets (Saito et al., 2026). Reviews of empowerment research further warn that tourism participation should not be treated as equivalent to multidimensional empowerment (Efthymiadou & Farmaki, 2024). These conditions determine whether participation becomes a stable enterprise or remains a low-value informal activity. A credible assessment must consequently examine both participation patterns and the measurable livelihood outcomes associated with those patterns.

Tanzania's northern tourism circuit provides a relevant setting because protected areas, villages, wildlife management areas, and tourism enterprises operate within connected tourism systems. Research across three wildlife management areas in northern Tanzania shows that residents recognize livelihood support, capacity building, and social-service benefits, although employment gains remain limited and unevenly perceived (Kulunge et al., 2026). A separate study from the Tarangire–Manyara ecosystem reports that wildlife tourism can support community income, employment, financial flows, conservation participation, and markets for local products (Mmbaga et al., 2024). Evidence from communities around Mount Kilimanjaro further shows that tourism-related livelihood gains depend on household assets, skills, infrastructure, finance, and institutional conditions (Kitole & Sesabo, 2024). These studies provide regional context, but they do not establish the outcomes experienced by women entrepreneurs in Nkaiti Ward.

Community tourism enterprises also face demand shocks, uneven benefit sharing, and conservation-related costs. Evidence from Zanzibar shows that tourism-linked livelihood alternatives do not always produce higher or more stable monetary returns than established resource-based activities (Pike et al., 2024). Tanzanian conservation-policy research indicates that community benefits may be smaller than wildlife-related losses when benefit-sharing arrangements are unclear or weakly implemented (Kegamba et al., 2024). Reviews of community-based eco-tourism similarly identify governance, infrastructure, market access, and meaningful participation as conditions shaping whether benefits are sustained (Hassan et al., 2026). Income stability, diversification, and equitable market access must therefore be examined directly rather than inferred from participation rates.

Nkaiti Ward contains Olasiti, Kakoi, Minjingu, and Vilima Vitatu villages near Tarangire National Park and the Babati–Arusha corridor. Women in these communities weave, host homestays, prepare traditional cuisine, produce jewelry, prepare herbal products, carve wood, perform dance, and provide related visitor services. Tanzanian research shows that women's social and economic capital influences tourism-enterprise goals and growth (Mkini Lugalla et al., 2024), while studies in northern Tanzania document community benefits associated with wildlife tourism (Kulunge et al., 2026; Mmbaga et al., 2024). Those studies offer relevant regional comparisons but do not provide direct evidence about the activity structure and income outcomes of women-owned enterprises in Nkaiti. This gap justifies an analysis focused specifically on the ward and its participants.

The study therefore examined eco-tourism activities and income improvement among women entrepreneurs in Nkaiti Ward. It addressed two questions: Which eco-tourism activities do women entrepreneurs undertake, and how does the intensity of eco-tourism engagement contribute to post-engagement monthly income? The analysis follows recent mixed-methods tourism research that combines household evidence with contextual interviews and separates results from broader interpretation (Bhatt et al., 2026). It also responds to calls for varied methods, diverse settings, and stronger outcome measurement in women's tourism entrepreneurship research (Batra & Batra, 2026). Because the study did not include a non-participant control group, the regression is interpreted as a statistical contribution rather than definitive causality, consistent with cautious livelihood analysis (Pike et al., 2024).

2.0 Theoretical Framework

The Sustainable Livelihoods Approach provides the primary framework for interpreting women's eco-tourism enterprises. It treats livelihoods as combinations of capabilities, assets, and activities that enable people to secure a living while responding to changing conditions (Chambers & Conway, 1992). Its asset categories include human, social, natural, physical, and financial capital, which interact through institutions and vulnerability contexts rather than operating independently (DFID, 1999). Contemporary inclusive eco-tourism research applies the same perspective to examine whether tourism strengthens skills, ownership, infrastructure, livelihood diversity, and

access to income-generating opportunities (Bhatt et al., 2026). In Nkaiti Ward, cultural knowledge and nearby natural attractions represent potential assets, while enterprise income constitutes one livelihood outcome. The framework therefore frames income improvement within a broader system of skills, networks, finance, infrastructure, environmental resources, and seasonal exposure.

The framework is especially relevant to women because gendered institutions and household responsibilities mediate access to livelihood assets. Tourism entrepreneurship may strengthen financial independence, decision-making, self-confidence, and social networks, but these gains depend on the resources and authority available to women (Samal & Dash, 2024). Research on women entrepreneurs in Tanzania shows that social and economic capital influence business aspirations and enterprise development (Mkini Lugalla et al., 2024). Broader tourism research similarly identifies motivations, barriers, enablers, and outcomes as interconnected dimensions of women-owned ventures (Batra & Batra, 2026). Consequently, an income increase can represent improved financial capital without necessarily eliminating market exclusion, seasonal vulnerability, unpaid care work, or limited control over business decisions. The study uses this framework to connect activity participation, income change, and qualitative accounts of livelihood experience.

The framework also cautions against assuming that every new tourism activity constitutes a sustainable livelihood. Evidence from Zanzibar shows that alternative livelihood interventions can generate mixed monetary outcomes and may redistribute opportunity differently across gender groups (Pike et al., 2024). Reviews of community-based eco-tourism report that benefits depend on inclusive governance, community networking, infrastructure, and effective participation in decision-making (Hassan et al., 2026). Studies in Northern Tanzania similarly find that perceived tourism benefits vary by education, age, residence, location, and lived experience (Kulunge et al., 2026). Sustainable livelihood assessment must therefore consider the magnitude, distribution, and stability of income rather than relying only on average change. This interpretation guides the article's attention to activity concentration, income dispersion, regression effect size, and recurring interview explanations.

3.0 Materials and Methods

3.1 Study area and research design

The study was conducted in Nkaiti Ward, Manyara Region, covering Olasiti, Kakoi, Minjingu, and Vilima Vitatu villages near Tarangire National Park. Wildlife attractions, cultural resources, road access, and visitor movement support community-based tourism enterprises in the area. The study adopted an explanatory concurrent mixed-methods design to collect quantitative and qualitative evidence in the same field phase. The design enabled interpretation of activity distributions, engagement measures, and income statistics alongside interview accounts of enterprise experience, household support, diversification, and seasonal demand.

3.2 Population, sample, and sampling

The quantitative population comprised women entrepreneurs engaged in eco-tourism activities within the four study villages. Stratification by village and enterprise activity was completed before simple random procedures selected 109 women for the questionnaire. This approach aimed to ensure representation across locations and activity categories while limiting researcher discretion during participant selection. The researchers purposively selected six key informants because they had practical knowledge of tourism, women's enterprises, conservation, or community development. All selected participants completed their instruments, producing 109 usable questionnaires and six completed interviews.

3.3 Data collection and measurement

The questionnaire recorded each participant's principal eco-tourism activity, duration of participation, number of tourism products or services offered, frequency of sales or visitor contact, and perceptions of income outcomes. It also asked participants to recall average monthly income before and after engagement. We standardized and combined duration, activity diversity, and market-contact items to form an eco-tourism engagement index, with higher values indicating more intensive participation. We measured three income-perception statements using five ordered response categories ranging from 1 (strongly disagree) to 5 (strongly agree). The interviews examined mechanisms supporting income growth, differences among enterprise types, diversification, household use of earnings, and the influence of tourism seasons. Direct observation confirmed visible products and services where field access permitted.

3.4 Validity, reliability, and ethical safeguards

Two specialists in research, livelihood analysis, and eco-tourism reviewed the instruments for relevance, clarity, and construct coverage. Their assessment produced a content validity index of 0.95, supporting the questionnaire items' adequacy. Pilot testing generated Cronbach's alpha of 0.922 for the complete instrument, indicating strong internal consistency across the measured domains. Participation was voluntary, and each participant received information about the academic purpose, confidentiality protections, and the right to withdraw. We used anonymous reporting and removed identifying details from interview extracts. We obtained institutional approval and local administrative permission before fieldwork began.

3.5 Data analysis and regression specification

Frequencies and percentages summarized principal activities, while means and standard deviations described income-related perceptions and monthly income. Ordinary least-squares regression estimated the contribution of the eco-tourism engagement index to post-engagement monthly income using $Y = \beta_0 + \beta_1 E + \varepsilon$, where Y represents monthly income after engagement, and E represents the standardized engagement index. The standardized coefficient (β) and Pearson correlation coefficient (r) indicated the direction and strength of the relationship, while R^2 showed the proportion of income variation explained by engagement. We evaluated statistical significance at $\alpha = .05$ and reported the p-value, r, R^2, adjusted R^2, β, and F statistic together. We organized

interview records thematically and integrated them with quantitative findings during interpretation.

4 Results

4.1 Eco-tourism activities undertaken by women

Table 1 presents the distribution of principal eco-tourism activities reported by the 109 women entrepreneurs. The percentage for weaving was recalculated directly from its frequency, because 51 divided by 109 equals 46.8%. The corrected percentages sum to 100.0%, ensuring consistency between the frequencies, percentages, and total sample.

Table 1. Principal eco-tourism activities undertaken by women entrepreneurs (N = 109)

Activity	Frequency	Percent
Weaving	51	46.8
Homestay	14	12.8
Herbal products	10	9.2
Wood carving	9	8.3
Jewelry and homestay	7	6.4
Traditional cuisine	6	5.5
Traditional dance	5	4.6
Jewelry	3	2.8
Weaving and herbal products	2	1.8
Weaving and traditional dance	2	1.8
Total	109	100.0

Source: Field data (2024).

Weaving accounted for 46.8% of all principal activities, making it the dominant entry point into eco-tourism enterprise. Homestays represented 12.8%, herbal products represented 9.2%, and wood carving represented 8.3%. Traditional cuisine, dance, jewelry, and combined activities each involved relatively small proportions. The distribution shows enterprise diversity, but it also reveals substantial concentration around one craft activity. Such concentration may support cultural continuity while simultaneously increasing competition among producers selling similar products.

Interview evidence expanded the understanding of women's participation beyond the principal activities reported in the questionnaire. In an interview with a key informant, several visitor-oriented and community-based enterprises emerged as new income sources. This was evidenced when one key informant said:

> *"Women have started homestays, cooking classes, food tours, and community conservation programmes. These activities have become important ways for them to earn and support their communities." Key informant interview, 17 August 2024*

The explanation supports the quantitative distribution of women's participation in homestays, traditional cuisine, weaving, and related enterprises. It also extends the numerical findings by identifying cooking classes, food tours, and conservation programmes that were not separately

categorised. Together, the evidence shows that women's economic participation spans cultural products, accommodation services, food experiences, and community initiatives. Nevertheless, the dominance of weaving indicates that these emerging opportunities remain less common than established craft-based activities.

4.2 Perceived income outcomes

Table 2 presents the mean, standard deviation, and rank for each income-perception statement. The three statements are reported separately because their distributions address distinct aspects of income improvement. Higher scores indicate stronger agreement, while the standard deviations show the extent of variation in participants' perceptions.

Table 2. Women entrepreneurs' perceptions of income outcomes (N = 109)

Perception statement	Mean	SD	Rank
Eco-tourism engagement increased my income	4.88	0.33	1
Income is sufficient to meet basic needs	4.59	0.75	2
Eco-tourism provides stable and consistent income	3.71	0.85	3

Source: Field data (2024). Scale: 1 = strongly disagree to 5 = strongly agree.

The strongest agreement concerned income increase, which recorded a mean of 4.88 and the smallest standard deviation of 0.33. Perceived adequacy for basic needs ranked second, with a mean of 4.59 and a standard deviation of 0.75. Income stability ranked third, with a mean of 3.71 and the largest standard deviation of 0.85. Participants therefore agreed more consistently that their income had increased than that their earnings were stable. The result separates improvement in average financial position from predictability across tourism seasons.

The interviews provided further insight into the predictability of earnings obtained from different eco-tourism enterprises. During an interview with a key informant, homestays and herbal products were described as offering relatively dependable returns despite seasonal fluctuations. This was evidenced when one key informant said:

> *"Although there is some variation depending on tourism seasons, homestays and herbal products still provide women with more predictable earnings than many activities available before eco-tourism." Key informant interview, 17 August 2024*

The observation corresponds with the mean score of 3.71 recorded for stable and consistent income among women entrepreneurs. It clarifies why income stability ranked below perceived income increase and the ability to meet basic household needs. The interview evidence indicates that certain enterprises provide greater financial predictability without completely removing seasonal variations. Accordingly, the two evidence sources show improved income reliability for selected enterprises while confirming continued exposure to changing visitor demand.

4.3 Monthly income change

Table 3 compares the reported monthly income summaries before and after participation in eco-tourism activities. The presentation includes the sample size, mean, standard deviation, absolute

change, and percentage change. These statistics establish the direction and magnitude of the observed difference before presenting the regression model.

Table 3. Monthly income before and after eco-tourism engagement

Period	n	Mean income (TZS)	SD (TZS)
Before engagement	109	66,834.86	147,534.77
After engagement	109	132,844.04	245,346.85
Absolute change	—	+66,009.18	—
Percentage change	—	+98.8%	—

Source: Field data (2024).

Average monthly income increased from TZS 66,834.86 before engagement to TZS 132,844.04 after engagement. The absolute increase was TZS 66,009.18, representing 98.8% of the pre-engagement mean. However, the post-engagement standard deviation reached TZS 245,346.85, compared with TZS 147,534.77 before engagement. The large dispersions indicate substantial differences among entrepreneurs in both periods. Consequently, interpret the mean increase alongside the regression effect and qualitative evidence of unequal and seasonal earnings.

4.4 Regression results

Table 4 presents the regression model statistics, including the p-value, R^2, adjusted R^2, standardized β, correlation coefficient, and model test. Eco-tourism engagement positively contributed to post-engagement monthly income, and the model was statistically significant. Reporting these statistics together distinguishes the strength and direction of the relationship from the probability associated with the significance test.

Table 4. Model summary for the contribution of eco-tourism engagement to post-engagement monthly income

Statistic	Value	Interpretation
p-value	< .001	Statistically significant at α = .05
R^2	.260	Engagement explained 26.0% of income variation
Adjusted R^2	.253	Variance estimate adjusted for model complexity
Standardized β	+.510	Positive contribution to monthly income
r	+.510	Positive association between engagement and income
F statistic	F(1, 107) = 37.595	The model was statistically significant

Source: Field data (2024); N = 109 women entrepreneurs.

Table 5 presents the coefficients supporting the model summary. The coefficient for the standardized eco-tourism engagement index is positive, indicating that higher engagement was associated with higher post-engagement monthly income. The p-value confirms that the contribution was statistically distinguishable from zero under the specified model.

Table 5. Regression coefficients for post-engagement monthly income

Predictor	B	SE	Std. β	t	p
Constant	132,844.04	23,493.21	—	5.654	< .001
Eco-tourism engagement index	+125,126.89	20,409.44	+.510	6.131	< .001

Source: Field data (2024). Dependent variable: post-engagement monthly income in TZS.

The standardized coefficient (β = +.510) indicates a positive contribution of eco-tourism engagement to post-engagement monthly income. The model was statistically significant ($p < .001$). $R^2 = .260$ shows that engagement explained 26.0% of the observed variation in post-engagement income, while the adjusted R^2 of .253 accounts for model complexity. The positive correlation (r = +.510) confirms the direction and strength of the bivariate relationship. The remaining 74.0% of variation indicates that enterprise type, capital, skills, market access, household conditions, and tourism seasonality also matter.

Interview information also clarified the household importance of the income growth recorded through the questionnaire. During an interview with a key informant, increased earnings were associated with stronger financial positions and improved family support. This was illustrated through the explanation provided by one key informant:

> *"Women offering homestays and selling traditional crafts have seen their incomes rise. These activities generate additional revenue, improve their financial position, and help them support their families." Key informant interview, 17 August 2024*

The reported experience corresponds with the increase in mean monthly income from TZS 66,834.86 to TZS 132,844.04. It also reflects the strong agreement recorded for the statement that eco-tourism engagement increased women entrepreneurs' income. The quantitative results establish the direction and magnitude of income improvement, while the interview explanation identifies its household significance. Taken together, the findings indicate that eco-tourism strengthens women's earnings and their capacity to address family financial responsibilities.

5 Discussion

5.1 Activity structure and enterprise opportunities

The dominance of weaving indicates that women enter eco-tourism through culturally embedded knowledge and comparatively accessible tools, materials, and household-based production. Women entrepreneurs can convert cultural skills into visitor products while reinforcing the transmission and visibility of local heritage (Altinay et al., 2026). Similar community tourism research shows that rural women use cultural resources to support household livelihoods, although enterprise opportunities remain constrained by networks, markets, and community institutions (Makandwa et al., 2023). The broader women's tourism literature also identifies low entry barriers and flexible work arrangements as important motivations, but warns that these same conditions can concentrate women in low-value segments (Batra & Batra, 2026). Activity distribution in Nkaiti reflects both dimensions, as weaving expands participation while the limited presence of

combined activities suggests incomplete movement into higher-value service packages. Enterprise development should consequently retain cultural authenticity while strengthening product quality, differentiation, pricing, and access to reliable buyers.

Homestays, herbal products, wood carving, food, dance, and jewelry offer opportunities to diversify the local tourism economy. Inclusive eco-tourism research shows that participation in guiding, accommodation, cultural enterprises, and tour operations generally creates greater livelihood potential than being confined to informal, low-skilled roles (Bhatt et al., 2026). Community-based eco-tourism reviews also associate homestays and food services with income diversification, local employment, and stronger retention of tourism value (Hassan et al., 2026). Evidence from Northern Tanzania identifies handicrafts, traditional performances, guiding, and accommodation as relevant community enterprises within wildlife tourism areas (Kulunge et al., 2026). The interview evidence from Nkaiti confirms that women are already combining tourism services, cultural activities, and conservation programmes. This diversification provides a foundation for enterprise packages that extend visitor spending beyond isolated craft purchases.

5.2 Income improvement, effect magnitude, and stability

The observed mean increase and positive regression coefficient indicate that stronger eco-tourism engagement was associated with improved monthly income. Regional evidence from the Tarangire–Manyara ecosystem likewise links wildlife tourism with community income, employment, investment, and markets for local products (Mmbaga et al., 2024). Research on women's tourism entrepreneurship in Tanzania shows that social and economic capital can strengthen enterprise goals and growth (Mkini Lugalla et al., 2024). International evidence similarly recognizes tourism entrepreneurship as a pathway to women's economic participation, financial independence, and household support (Batra & Batra, 2026). The Nkaiti result adds entrepreneur-level income evidence, but the relationship remains associational because the design cannot rule out concurrent influences such as prices, household activities, capital, experience, and broader tourism demand.

The regression was statistically significant, and $R^2 = .260$ indicates that eco-tourism engagement explained a meaningful 26.0% of post-engagement income variation. Statistical significance evaluates evidence against a null relationship, whereas R^2 measures the proportion of observed variation explained by the model. Recent tourism research shows that livelihood benefits vary with education, age, residence, enterprise opportunity, and recognition of tourism support (Kulunge et al., 2026). Tanzanian women entrepreneurs also differ in access to economic capital, social capital, goal-setting capacity, and enterprise-growth conditions (Mkini Lugalla et al., 2024). Inclusive eco-tourism studies further identify education, skills, infrastructure, institutional support, ownership, and value-chain access as determinants of livelihood outcomes (Bhatt et al., 2026). The unexplained 74.0% therefore supports multivariable research and targeted enterprise assistance.

Income stability received the lowest perception score and the greatest variation, demonstrating that higher average earnings did not remove seasonal vulnerability. Longitudinal evidence from

Zanzibar shows that tourism-related alternatives do not automatically outperform established livelihood strategies or distribute monetary gains evenly (Pike et al., 2024). Community-based eco-tourism research identifies market linkages, transport, governance, and community networks as important conditions influencing benefit stability (Hassan et al., 2026). Northern Tanzania research also shows that perceived tourism benefits vary among locations and social groups, confirming that participation does not produce uniform outcomes (Kulunge et al., 2026). The key informants' references to seasonal variation are therefore consistent with wider tourism vulnerability patterns. Savings mechanisms, complementary enterprises, domestic tourism markets, digital sales, and year-round products are needed to strengthen livelihood resilience.

5.3 Implications for women's livelihood empowerment

Income improvement can strengthen financial capital, but empowerment also requires control over resources, enterprise decisions, skills, networks, and institutional voice. Women's tourism enterprises may preserve culture and build social recognition while still operating within gendered constraints that limit expansion (Altinay et al., 2026). Agency-focused research shows that women entrepreneurs' opportunities and outcomes emerge through interactions among individual capacities, social relationships, institutions, and market conditions (Saito et al., 2026). Sustainable tourism scholarship likewise calls for gender-aware policies that address structural inequalities rather than assuming entrepreneurship alone produces inclusion (Kimbu et al., 2024). The Nkaiti evidence supports this broader interpretation because women reported higher income but uneven stability and concentrated participation within weaving. Economic contribution should therefore be reinforced through decision-making representation, market access, affordable finance, capability development, and protection of women's control over enterprise earnings.

The findings also have implications for conservation legitimacy within the wider Tarangire–Manyara tourism area. Residents are more likely to recognize and support wildlife-based tourism when benefits are visible, locally relevant, fairly distributed, and connected to household needs (Kulunge et al., 2026). Policy research in Tanzania shows that unclear benefit-sharing mechanisms and insufficient compensation can weaken community support for protected-area governance (Kegamba et al., 2024). Regional wildlife-tourism research nevertheless demonstrates that income, employment, community services, and cultural visibility can strengthen the perceived development value of conservation areas (Mmbaga et al., 2024). Supporting women-owned enterprises can make conservation benefits more directly observable at the household level. Transparent procurement, enterprise partnerships, and women's participation in tourism governance can therefore strengthen both livelihood outcomes and community support for conservation.

6 Conclusion and Recommendations

Women entrepreneurs in Nkaiti Ward participate in a varied eco-tourism economy led by weaving, homestays, herbal products, and wood carving. Quantitative and qualitative evidence consistently indicates that engagement contributes to improved income and household support. Mean monthly

income increased by TZS 66,009.18, while the regression demonstrated a positive standardized coefficient of $\beta = +.510$, a positive correlation of $r = +.510$, and statistical significance at $p < .001$. The model explained 26.0% of post-engagement income variation ($R^2 = .260$), indicating a meaningful contribution while leaving substantial variation to other enterprise and household conditions. Wide income dispersion and weaker perceptions of stability show that outcomes remain unequal and exposed to tourism seasons. Eco-tourism should therefore be treated as a valuable component of women's livelihood portfolios rather than a complete solution to household economic insecurity.

Babati District Council, tourism authorities, community organizations, and private operators should establish transparent market linkages for locally produced crafts, food, accommodation, cultural experiences, and conservation services. Enterprise programmes should combine affordable working capital with bookkeeping, pricing, product development, digital marketing, quality control, customer care, and tourism-language capabilities. Support for weaving should prioritize differentiated designs and stronger branding, while women entering homestays and cultural packages require standards, safety guidance, and direct connections with tour operators. Savings groups and flexible credit products should reflect seasonal cash flows rather than imposing repayment schedules disconnected from tourism demand. Women entrepreneurs should hold meaningful representation in local tourism planning and benefit-sharing decisions. These measures can increase the proportion of tourism value retained by households while strengthening enterprise resilience and conservation support.

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