

**WE WILL NOT STAND BY AS THE RAILS RISE:
INFRASTRUCTURE, WOMEN'S AGENCY, AND
DIVERSE EXPERIENCES IN TANZANIA**

Lucy W. Massoi

Senior Lecturer

**School of Public Administration and Management
(SOPAM)**

Mzumbe - Morogoro, Tanzania

lucy.massoi@mzumbe.ac.tz

ORCID: <https://orcid.org/0000-0002-7125-0758>

Abstract:

Infrastructure megaprojects are widely framed as engines of modernization, yet their gendered effects remain insufficiently understood, particularly in pastoralist contexts. Focusing on Tanzania's Standard Gauge Railway (SGR), this article examines how large-scale infrastructure reshapes women's agency through differentiated access to emerging economic spaces. Anchored in indigenous storytelling (Ilomon) as a central methodological approach, and complemented by interviews, participant observation, and documentary analysis, the study draws on the narratives of three Maasai women to illustrate contrasting pathways of engagement. While some women expanded market participation, income generation, and decision-making roles, others remained constrained by limited access to

land, capital, and institutional support. Guided by Kabeer's framework, agency is conceptualised as a relational and context-dependent process shaped through the interaction of resources, opportunities, and enabling conditions. The findings show that infrastructure does not generate uniform outcomes but reconfigures access in ways that reflect existing social and institutional dynamics. Strengthening inclusive and gender-responsive approaches is therefore critical to ensuring that megaprojects contribute to more equitable and sustainable development.

Keywords: *SGR, Maasai women, Infrastructure development, Gender equality, Empowerment, Agenda 2063, Pastoralism, Sustainable development*

1.0 INTRODUCTION

Megaprojects have become defining features of contemporary development, widely promoted as engines of economic modernisation, regional integration, and national progress. They are typically understood as large-scale, capital-intensive infrastructure initiatives such as railways, dams and highways, promoted as symbols of national progress but often generating uneven social consequences (Flyvbjerg, 2014). Megaprojects are also seen as political arenas where competing actors negotiate access, visibility and power (Müller-Mahn et al., 2021; Rieber & Müller-Mahn, 2024). Yet their social and gendered dimensions remain underexplored, particularly in contexts where cultural norms and institutional structures shape how different groups experience change (Wangui, 2024).

Within this broad category, infrastructure megaprojects are transformative as they reconfigure access to markets, land and livelihoods. Their impacts, however, are uneven. While they may generate new economic opportunities, they also risk reinforcing inequalities through gender-blind planning, male-dominated trading networks, and compensation schemes that marginalise women (TRC, 2019; Gonzalez et al., 2023; Nuru et al., 2024). These dynamics resonate with global development priorities articulated in the Sustainable Development Goals, particularly SDG 5 on gender equality and SDG 9 on infrastructure and industrial development (Weiland et al., 2021). While large-scale infrastructure investments are often framed as drivers of

inclusive development, their actual outcomes remain uneven, especially for marginalised groups such as pastoralist women. This raises important questions about the extent to which infrastructure-led development contributes to gender-equitable outcomes in practice.

Pastoralism, as practiced by the Maasai in Tanzania, provides a critical lens for examining these dynamics. It is simultaneously an economic system and a cultural framework that organises gender roles, land use and social status (Massoi, 2015; Galaty, 2021). Historically, Maasai women have been positioned at the margins of political and economic life, constrained by patriarchal institutions that restrict their ownership of land, livestock and decision-making power (Wangui, 2024). Against this backdrop, Tanzania's Standard Gauge Railway (SGR) offers an important case for analysing how infrastructure intersects with gendered structures. While the railway has created opportunities for some women to engage in markets and entrepreneurship, it has also reproduced exclusions for those lacking independent resources or cooperative networks.

This article examines the SGR as a site of gendered transformation and negotiation. It asks: How has the SGR reshaped women's access to economic opportunities? What strategies do Maasai women employ to navigate infrastructure-driven change? And to what extent do these changes reflect empowerment, or reinforce existing structural constraints? The narratives of the Maasai women encapsulated in the declaration "*We will not stand by as the rails*

rise” illustrate both resilience and struggle. Their experiences reveal that women are not passive recipients of development but active negotiators operating within restrictive systems. By analysing these narratives through the lenses of empowerment (Kabeer, 1999), political economy (Müller-Mahn et al., 2021; Rieber & Müller-Mahn, 2024), and participatory inclusion (Arnstein, 1969; 2015), the article contributes to broader debates on gender, pastoralism and uneven impacts of infrastructure megaprojects in Africa.

2.0 CONTEXT: THE SGR AND GENDER IN PASTORAL COMMUNITIES

2.1 Standard Gauge Railway (SGR) in Tanzania

The Standard Gauge Railway (SGR) is among Tanzania’s most ambitious infrastructure megaprojects, designed to enhance transport efficiency, expand regional trade, and accelerate economic modernisation. Spanning roughly 2,000 kilometers, the line is being built in six phases, beginning with the Dar es Salaam–Morogoro section (300 km) and extending to Mwanza and Kigoma. It is expected to reduce transport costs by 40 percent, strengthen Tanzania’s role as a regional transport hub, and generate employment in construction, logistics, and trade (Tanzania Railways Corporation, 2019; African Development Bank, 2021). As Monson (2009) demonstrates in her historical analysis of Tanzania’s earlier major railway project (the Tazara Railway, popularly known as Africa’s Freedom Railway), large-scale railway infrastructure in Tanzania

has long been deeply intertwined with national development ambitions, political symbolism, and regional integration efforts.

While these macroeconomic gains are widely anticipated, the SGR's local-level impacts are uneven. In Parakuyo village, Kilosa District, a home to Parakuyo Maasai, the railway has altered grazing patterns, introduced land acquisition pressures, and disrupted mobility systems central to livestock-based economies (Wangui, 2024). Such changes exemplify what Rieber et al. (2025) describe as “displaced futures”, where large-scale infrastructure not only causes immediate physical displacement but also fundamentally reshapes long-term livelihood trajectories and intergenerational prospects for pastoralist communities. At the same time, improved transport access has created new markets for women, enabling diversification into activities such as dairy processing, beadwork sales, and small-scale entrepreneurship. Kilosa has thus become a regional hub where women are increasingly active in trade, though persistent barriers remain, including male-dominated trading networks, limited access to credit, and lack of training (Gonzalez et al., 2023). These dynamics echo findings from other East African megaprojects, such as Kenya's SGR, where new opportunities coexisted with entrenched exclusions (Mkutu et al., 2024; Kioko & Wanjala, 2024). Figure 1 provides a map of the SGR route within Kilosa section, highlighting the specific study area.

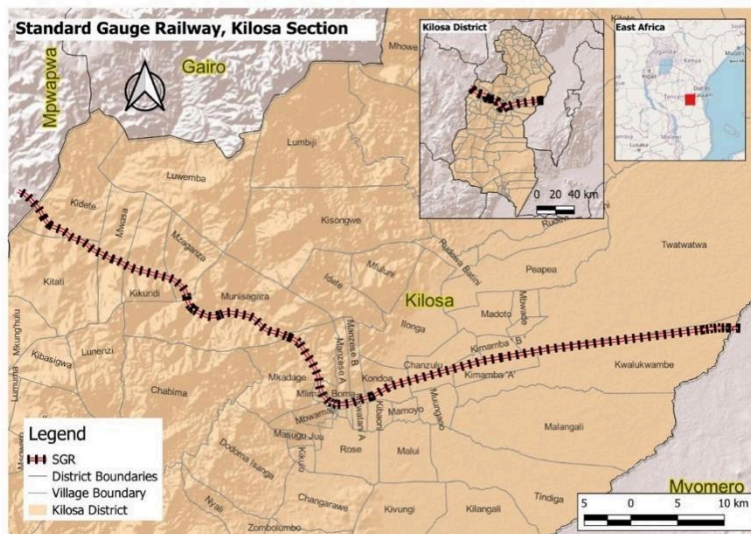


Figure 1: Tanzania's Standard Gauge Railway (SGR) route in Kilosa District

2.2 Gender in pastoral communities

Gender roles in Maasai pastoralist societies are deeply entrenched whereby men control livestock, land, and public decision-making, while women are responsible for domestic labour, childcare, and milk processing (Galaty, 2021; Wangui, 2024). These arrangements constrain women's access to economic opportunities and exclude them from decision-making, though their labour sustain households and communities. Despite these structural barriers, the Maasai women have long developed adaptive strategies, including entrepreneurship and use of social networks to expand

livelihood options (Genda, 2021). Recent studies affirm the growing role of rural women entrepreneurs in navigating economic change and demonstrating resilience in the face of structural constraints (Kitole & Genda, 2024).

In this context, gender is understood not as a fixed category but as a set of social relations and power dynamics that shape access to resources and opportunities (Ridgeway, 2009; Osome, 2025). This perspective underscores how patriarchal land tenure and household hierarchies, such as men's control over compensation payments, limit women's ability to accumulate capital or benefit directly from development interventions (Hodgson, 2011; Massoi, 2019). At the same time, the new infrastructures the SGR, create spaces where these norms can be renegotiated, enabling women to expand their agency and participation in pastoralist economies.

2.3. Research context: Maasai communities in Kilosa District, Morogoro

This study was situated in Parakuyo Village, Kilosa District, a predominantly Maasai community in east central Tanzania where livelihoods remain closely tied to livestock, mobility, and communal land (Galaty, 2021; Massoi & Saruni, 2024). As shown in Figure 1, Parakuyo lies along the SGR corridor where land acquisition and grazing changes have reshaped pastoralist practices (TRC, 2019; Chambo & Massoi,

2026). Kilosa provides a critical context for examining the gendered impacts of large-scale infrastructure. While the Maasai women have historically faced constraints in land rights, capital access, and decision-making (Hodgson, 2001; Bollig, 2004; Wangui, 2024), they are also central to household reproduction and adaptation. The arrival of the SGR has created new market spaces and opportunities for engagement, while reproducing exclusions for women lacking resources or training. These dynamics frame the narratives presented in the sections that follow.

3.0 THEORETICAL FRAMEWORK: GENDER, AGENCY, AND THE POLITICAL ECONOMY OF INFRASTRUCTURE

3.1 Gender as an analytical lens

Gender is not treated here as a fixed or binary category but as a contested and evolving concept, shaped by historical, social, and institutional contexts (Acker, 1992; Connell, 2009; Scott, 2010; Butler, 2025). Feminist and sociological scholars emphasise its fluid, relational, and power-laden character, making it central to understanding how inequalities are produced and sustained. This study therefore approaches gender as a set of social relations and power dynamics that structure access to resources, opportunities, and decision-making (Ridgeway, 2009; Osome, 2025). This conceptual lens allows for an analysis of how infrastructure megaprojects intersect with entrenched inequalities, and how women navigate or challenge the structures. The

focus is not only on describing women's roles in pastoralist societies (outlined in the background) but also on applying gender as a critical category of analysis in relation to empowerment and infrastructure-led development.

Building on this foundation, the article applies three complementary frameworks: Kabeer's Empowerment Framework (1999, 2005, 2011), which analyses empowerment through resources, agency, and achievements; Political Arena of Infrastructure Development (Rieber & Müller-Mahn, 2024), which conceptualises megaprojects as contested spaces where actors negotiate benefits and control; and Arnstein's Ladder of Participation (1969), as adapted by Nuru et al. (2024), which distinguishes between symbolic inclusion and substantive empowerment. Together, the approaches provide a multi-dimensional framework for understanding: how infrastructure projects reshape women's access to resources and economic agency; why megaprojects are contested spaces where marginalised actors must negotiate entry; and the extent to which the Maasai women's participation in the SGR economy is transformative or remains symbolic.

3.2 Kabeer's empowerment framework: Resources, agency, and achievements

Kabeer (1999) conceptualises empowerment as a process through which marginalised individuals gain the capacity to make strategic life choices in economic, political, and social domains. The framework emphasises three

interdependent dimensions: resources, agency, and achievements. Access to resources, whether economic (income and financial capital), human (education and vocational skills), or social (networks and cultural capital), enables women to challenge restrictive socio-economic conditions (Ibrahim & Alkire, 2007; Cornwall, 2016). Agency refers to the ability to act, make choices, resist structural inequalities, and participate in decision making (Kabeer, 2011). *Agency* is not exercised in a vacuum but is deeply shaped by cultural norms and social relations. As Kabeer et al. (2011) demonstrate in their study of Afghan women, negotiations over agency often involve complex trade-offs between “Afghan values” and women’s rights, showing how empowerment processes are context-specific and culturally negotiated. *Achievements* represent the tangible realisation of these efforts, such as improved income, educational opportunities, and enhanced social recognition. In the context of the SGR, the framework helps to assess whether women’s engagement in new economic spaces reflects genuine empowerment or only participation without decision-making power. One participant explained: “*For the first time, I earned enough to send my children to school*” (Interview, February 2024, Kilosa District). This illustrates Kabeer’s notion of achievements as concrete socio-economic gains. However, as the findings later demonstrate, empowerment requires more than access to resources, including agency in control over pricing, distribution, and long-term market participation (Kabeer & Sweetman, 2015).

3.3 The political arena of infrastructure development

Infrastructure projects are not only physical investments but also political and economic arenas where actors engage, negotiate, and redefine their roles (Rieber & Müller-Mahn, 2024). The SGR illustrates this duality. While it expanded market access for Maasai women by enabling faster and cheaper transport, the benefits were mediated by entrenched barriers. One participant noted that the railway created opportunities to sell beyond local communities, prompting diversification into higher-value activities. Mama Anna, for example, had this to say: *“When the railway came, we saw new faces and buyers. That’s when I started thinking differently, I took my beadwork from ceremonies to the marketplace”* (Interview, February 2024, Kilosa District).

Her account not only underscores how infrastructure can generate opportunities but also reveals that women’s participation occurs within male-dominated networks that restrict influence. This dynamic reflects broader critiques that megaprojects frequently privilege state agencies, corporate investors, and large-scale traders, while marginalising local women (Flyvbjerg, 2014; Rieber & Müller-Mahn, 2024; Nuru et al., 2024). As Rieber et al. (2025) argue, such projects often produce “futures in displacement,” where affected communities experience not only physical relocation but also profound disruptions to their envisioned future livelihoods and social reproduction. In pastoralist

contexts, where women rarely own land, compensation is directed to male household heads (Wangui, 2024).

3.4 Gender, infrastructure, and the ladder of participation

Arnstein's *ladder of participation* (2015), as adapted by Nuru et al. (2024), provides a framework for assessing whether women's involvement is symbolic or substantive. The lower rungs of the ladder represent token forms of participation, while the higher rungs indicate active decision-making and control. In the SGR context, the framework helps to distinguish between passive participation, where women engage in small-scale trade with limited influence, and active agency, where women diversify products, form cooperatives, and shape community-level initiatives. However, as Cleaver (2001) critically observes, participatory approaches often fail to deliver genuine empowerment because they tend to overlook deeply entrenched power relations, institutional constraints, and the limitations of local institutions. Studies of participatory governance therefore stress that meaningful participation requires both voice and influence, not just presence (Cleaver, 2001; Kindon et al., 2007; Cornwall, 2016; Lah, 2025). This framework therefore guides the analysis of findings to evaluate whether the Maasai women's engagement in the railway economy reflects genuine empowerment or remains largely symbolic.

4.0 METHODOLOGY

4.1 Study area, research design and sample size justification

The research was conducted in Parakuyo Village, Kilosa District, Morogoro Region. The area lies along the SGR corridor, where land acquisition and grazing disruptions have reshaped Maasai pastoralist livelihoods (TRC, 2019; Schetter et al., 2025). The community is predominantly Maasai, with households relying on livestock, mobility, and communal land tenure systems (Galaty, 2021; Massoi & Saruni, 2024). These features make Parakuyo a relevant site for examining how large-scale infrastructure intersects with gendered power relations in pastoralist settings (Hodgson, 2011; Müller-Mahn et al., 2021).

This study adopts a qualitative narrative inquiry design rooted in indigenous methodologies, ensuring that knowledge gathering is culturally respectful and contextually relevant approaches to knowledge gathering (Evans, et al., 2014). Specifically, the research utilises *Ilomon*, an indigenous Maasai storytelling method, as the primary means of eliciting personal narratives from participants. *Ilomon* provides a culturally appropriate and empowering engagement, allowing participants to narrate their lived experiences

authentically and meaningfully. This approach enriches the data's depth, cultural validity, and contextual relevance (Smith, 1999; Kovach, 2021).

In line with narrative and life history traditions, where 3 - 5 participants are often sufficient to achieve data saturation when accounts are information – rich (Ahmed, 2025), the study purposively engaged three Maasai women who are referred here by pseudonyms (Mama Eliza, Mama Anna, and Mama Nasha). Their narratives offered contrasting trajectories of empowerment and exclusion, capturing both converging and divergent themes. While the small sample does not allow for statistical generalisation, the information – rich cases, generated through storytelling and triangulated with interviews, observations, and document analysis, provide analytical generalisation, highlighting process and dynamics transferable to similar contexts.

4.2 Participant selection

Participants were purposefully selected from Parakuyo Village in Kilosa District, where the SGR infrastructure directly intersects with the Maasai pastoralist livelihoods. The three women, Mama Eliza, Mama Anna, and Mama Nasha were chosen based on their distinct yet representative experiences of navigating the socio-economic changes brought by the railway. The selection criteria included: (i) first-hand experiences of economic adaptation to the SGR, (ii) direct engagement with new livelihood strategies, and (iii) willingness to share rich, culturally embedded narratives (Patton, 2002). Together, their diverse trajectories of opportunity,

resilience, and constraint provided a balanced basis for examining empowerment and exclusion in the context of infrastructural – led development.

4.3 Data collection methods

4.3.1 Indigenous storytelling (*Ilomon*)

Data collection was primarily conducted through *Ilomon*, an indigenous Maasai storytelling method that allowed participants to express their experiences freely, avoiding the restrictive structure of conventional interviews (Chilisa, 2012). A total of three-story telling sessions was held in familiar community settings, each lasting approximately 1 – 2 hours. With participants' consent, all sessions were audio-recorded, and detailed field notes were taken during and immediately after, to capture contextual observations, non-verbal cues, and research reflections. These combined strategies ensured that the narratives were both culturally authentic and information – rich (Ahmed, 2025).

4.3.2 Complementary methods for triangulation

To enrich and validate the narratives, the study also employed semi-structured follow-up interviews, participant observations, and documentary analysis. The follow-up interviews were used to probe emerging themes and clarify details arising from storytelling sessions (Bryman, 2016). Direct observation in community settings and market settings further

contextualised the narratives, with systematic field notes documenting women's daily activities, community interactions, and entrepreneurial ventures influenced by the SGR. Fieldnotes were systematically taken in line with ethnographic principles (Emerson et al., 2011). Documentary analysis of sources such as the Tanzania Railways Corporation ESIA reports, Parakuyo village records, and relevant policy documents provided additional context and supported triangulation (Bowen, 2009). This triangulated approach ensured that the findings were not only rooted in culturally grounded *Illomon* but also corroborated by multiple sources, thereby enhancing the credibility and trustworthiness of the study.

4.3 Data analysis

The collected narratives were transcribed, translated from Maasai and Swahili languages into English, and thematically analysed. Guided by Kabeer's empowerment framework (Kabeer, 1999), the analysis focused on identifying patterns relating to (i) access to resources (economic, educational, and social capital), (ii) exercise of agency (decision-making power and autonomy), and (iii) achievements of long-term socio-economic mobility. By applying this framework, the study critically assessed whether engagement with the SGR economy translates into genuine empowerment or reinforces existing inequalities.

4.4 Ethical considerations

Ethical guidelines were strictly followed, respecting indigenous cultural protocols and community engagement norms (Chilisa, 2012). Prior informed consent was obtained from all participants in Maasai or Swahili language, ensuring that they fully understood the study's objectives, methods, and intended use of their narratives. To protect confidentiality, pseudonyms (Mama Eliza, Mama Anna, and Mama Nasha) were used throughout. Participants retained control over their narratives, reinforcing the indigenous methodological principle of co-creation and shared ownership of knowledge (Smith, 1999; Kovach, 2021).

5.0 FINDINGS: WOMEN EXPERIENCES IN THE WAKE OF THE SGR

This section presents three narrative cases: Mama Eliza, Mama Anna, and Mama Nasha, to illustrate the diverse experiences of Maasai women in the context of the SGR. The cases show how the railway created new opportunities for some women while leaving others constrained by limited access to resources, training, and support. Presented as empirical narratives, these cases highlight the uneven ways in which infrastructure-led change is encountered and negotiated in everyday life.

5.1 Mama Eliza: From milk to markets

Mama Eliza's experience reflects a transition from subsistence-based dairy production to small-scale entrepreneurship following the introduction of the SGR.

Prior to the railway, milk production was primarily for household consumption, with limited opportunities for sale beyond the village due to poor market access and transport constraints.

With the arrival of the SGR, improved connectivity brought new flows of people and potential customers into the area. Mama Eliza began processing milk into yoghurt and fermented products, which she sold in small takeaway containers to travellers and local market visitors. She explained:

“Before the railway, milk was just milk everyone had it, and there was no market for selling it. Every morning, I woke early to milk cows, but the milk would often spoil or simply feed our calves because there was nowhere to sell it. My husband managed our livestock, but the income was never enough for all our family’s needs. When the railway arrived, things began to change. I attended a community training workshop on new business opportunities. They taught us how to make yoghurt and fermented milk, packaging them in take-away cups ideal for travellers and market visitors brought to our area by the railway.

“Initially, I was unsure as business was unfamiliar to me. But as people bought my yoghurt, I realised I could achieve much more. With each sale, I saved carefully and eventually earned enough not only to meet our daily needs

but also to send my children to school, something I'd only dreamed about. This new income also brought respect and a stronger voice in family decisions, uncommon for women in our community. I encouraged other women to join me, forming a cooperative to support each other. The SGR did not just bring customers, it brought new possibilities, showing us, we could rewrite our own stories.”

Her account shows how improved connectivity, combined with access to training, enabled her to move from subsistence production to market-oriented activity. By processing milk into value-added products, she was able to engage with a broader customer base linked to railway mobility. Her activities also extended beyond individual enterprise to include collective efforts, such as forming a women’s cooperative.

5.2 Mama Anna: Beadwork, Education, and Social recognition

Mama Anna’s experience illustrates how traditional skills were adapted to new economic opportunities created by the SGR. Prior to the railway, beadwork was primarily a cultural practice, produced for household use, ceremonies, and local exchange, with limited commercial value. The arrival of the SGR brought increased movement of travellers and traders through the area, creating a new customer base. In response, Mama Anna began producing beadwork for sale, transforming a cultural activity into a source of income. She explained:

“When the railway came, we lost grazing land. My husband and many men in the community struggled to cope, but I knew we had to find new ways to sustain our family. I have always been skilled in beadwork, a tradition passed down from my grandmother. It was something I loved, but before, we only made jewellery for family and ceremonies. When I saw new people passing through our village and railway station, I realised I could sell my beadwork to them. (Interview, Mama Anna, February 2024, Parakuyo village).

“Slowly, I started creating and selling my work to travellers, and the demand grew. I taught my daughters and other women in our community to make intricate designs, incorporating modern elements while keeping our traditions alive. With the money I earned, I bought books and uniforms for my children, ensuring they received education. More importantly, I preserved our cultural identity in a time of rapid change. The railway didn’t just change our land; it showed us we could change ourselves.” (Interview, Mama Anna February 2024, Parakuyo village).

Her account shows how beadwork was repositioned from a cultural practice into a livelihood activity linked to emerging market opportunities. The expansion of her activities extended beyond individual income generation, as she trained other women and transmitted skills to younger generations. Through this process, beadwork production incorporated new designs while maintaining

cultural significance, allowing her to respond to changing economic conditions while sustaining local identity.

5.3 Mama Nasha: Navigating barriers in the wake of opportunities

Mama Nasha's experience illustrates the constraints that shape some women's ability to benefit from opportunities associated with the SGR. Unlike other women who were able to engage in new market activities, her efforts to participate in the emerging railway economy were limited by restricted access to resources, capital, and support.

Following the arrival of the railway, she attempted to sell dried meat and food items near the station, aiming to benefit from the increased flow of travelers. However, these efforts did not generate consistent returns. She explained:

“When the railway came, I saw other women start new businesses. I tried to sell dried meat near the station, but people didn't buy much. I didn't have enough money to package it well or pay for a stall. The market is there, but it's for those who already have something to begin with. For me, things stayed the same. My daughters help me with chores, but I still worry they won't finish school.” (Interview, February 2024, Parakuyo village).

“Sometimes I stand by the railway and see other women selling their milk and beadwork. I want to join them, but without money for a stall or training, I feel left behind. My daughters help me at home, but I fear they will face the same struggles if nothing changes.” (Interview, February 2024, Parakuyo village).

Her account shows that while new market spaces emerged around the railway, participation in these spaces was not equally accessible to all. Although opportunities were visible, her ability to engage remained constrained by limited financial resources and lack of access to training. As a result, her economic situation remained largely unchanged, and concerns about her children’s education persisted.

6.0 DISCUSSION: RESOURCES, AGENCY AND ACHIEVEMENTS

This section interprets the findings through the lens of resources, agency, and achievements, drawing on Kabeer’s (1999) framework of empowerment. It examines how women’s experiences in the context of the SGR reflect the interplay between access to resources, the capacity to act, and the outcomes that emerge from these processes. The findings show that infrastructure-led change does not produce uniform effects; rather, women’s engagement with emerging opportunities is shaped by how these dimensions interact in specific social and economic contexts.

To bring together these differentiated experiences, Table 1 summarises the trajectories of the three women using Kabeer’s framework. The comparison illustrates how Mama Eliza and Mama Anna were able to translate access to resources into forms of agency and tangible achievements, while Mama Nasha’s experience reflects how limited access to land, capital, and training shaped the extent to which such processes could unfold. The table provides a comparative lens that connects the empirical narratives presented in the previous section with the analytical discussion that follows.

Table 1: Comparative experiences of Maasai women under the SGR (Kabeer’s framework)

Dimension	Mama Eliza (milk to markets)	Mama Anna (beadwork & education)	Mama Nasha (barriers & exclusion)
Resources	Access to training on yoghurt production; small but reliable income from dairy products; cooperative membership.	Traditional beadwork skills repurposed for new markets; modest income invested in children’s schooling.	No land ownership; limited financial capital; excluded from training and cooperatives.

Dimension	Mama Eliza (milk to markets)	Mama Anna (beadwork & education)	Mama (barriers & exclusion)	Nasha &
Agency	Gained stronger voice in household financial decisions; initiated cooperative with other women.	Taught beadwork to other women and daughters; active role in cultural preservation and market adaptation.	Dependent on husband/male relatives for compensation; constrained by domestic responsibilities.	
Achievements	Paid school fees and improved family nutrition; enhanced social recognition in community.	Ensured children's education; preserved and modernised beadwork traditions; increased social respect.	No measurable economic gains; daughters' schooling at risk; continued dependence and marginalization.	

Source: *Research findings (2024).*

These differentiated trajectories point to a broader pattern in which infrastructure-led development does not simply create opportunities but redistributes them unevenly across social groups. While the SGR opened new economic spaces, the ability to access and benefit from these spaces remained mediated by pre-existing inequalities in assets, knowledge, and social positioning.

This suggests that empowerment in such contexts is not a linear progression from access to outcomes, but a contingent process shaped by structural conditions that enable or constrain women's participation. As such, the SGR can be understood not only as a physical infrastructure, but also as a social arena in which existing inequalities are reproduced, negotiated, and, in some cases, transformed.

The narratives of Mama Eliza and Mama Anna, generated through indigenous storytelling (*Ilomon*) and complemented by interviews, participant observation, and documentary analysis, illustrate how access to resources can be translated into agency and visible achievements. In contrast, Mama Nasha's experience points to the ways in which these processes are shaped by the availability of enabling conditions, highlighting the differentiated pathways through which empowerment unfolds in the context of infrastructure-led development. The use of indigenous storytelling (*Ilomon*) alongside conventional qualitative methods further enabled the study to capture these nuanced and differentiated experiences, grounding the analysis in locally embedded perspectives.

6.1 Resources: Uneven access in the context of infrastructure-led change

Access to resources emerges as a central factor shaping women's engagement with opportunities associated with the SGR. Prior to the railway, limited transport

infrastructure constrained women's participation in commercial markets, confining most economic activities to subsistence-level production within local communities. Similar constraints have been documented in rural African contexts, where poor connectivity restricts women's integration into broader market systems (Porter, 2011; Bryceson & Howe, 1993).

The improved connectivity brought by the SGR expanded the movement of goods and people, opening access to wider markets and enabling women to engage with customers beyond the village. For Mama Eliza and Mama Anna, these changes created entry points into income-generating activities. Their participation was further supported by access to training opportunities and informal networks, which enabled them to convert existing skills into market-oriented production. This reflects broader findings that infrastructure can enhance women's economic participation when combined with complementary resources such as skills and social networks (Kabeer, 1999; Doss 2013).

This aligns with Kabeer's (1999) conceptualization of resources as a foundational dimension of empowerment, encompassing both material assets and the social conditions that enable individuals to act. In this study, access to markets, knowledge, and networks functioned as enabling resources that supported women's engagement with emerging economic opportunities.

These patterns are supported by field observations and community accounts, which indicate increased market

activity involving Maasai women selling dairy products and beadwork to railway passengers and nearby urban consumers. Such developments resonate with studies that highlight the role of infrastructure in reshaping local economies and facilitating new livelihood strategies, particularly in rural settings (Rieber & Müller-Mahn, 2024; Bergius et al., 2020).

However, Mama Nasha's experience highlights the uneven distribution of these benefits. Despite her proximity to the railway and awareness of emerging markets, her limited access to start-up capital, training, and supportive networks constrained her ability to participate effectively. This reflects broader structural inequalities in resource access, particularly in pastoralist and patriarchal contexts where women's control over productive assets remains limited (Hodgson, 2001; Chambo & Massoi, 2026).

In Maasai communities, land ownership and compensation systems are predominantly male-controlled, restricting women's access to financial resources. Compensation for land acquired during the construction of the SGR was largely directed to male household heads (TRC, 2019), limiting women's ability to accumulate capital and invest independently. This reinforces existing gendered inequalities in asset ownership, which have been widely identified as a key barrier to women's economic empowerment (Doss et al., 2015).

These findings underscore that access to infrastructure alone does not guarantee inclusion. Rather, the ability to benefit from new opportunities is shaped by existing social and institutional arrangements that determine who can access, control, and mobilise resources. In this sense, the findings challenge narratives of infrastructure as inherently transformative, supporting critiques of “infrastructural optimism” that emphasise the uneven and socially differentiated outcomes of large-scale development projects (Müller-Mahn et al., 2021).

These patterns suggest that access to resources under infrastructure development is not merely about availability, but about distribution, control, and the institutional mechanisms that govern inclusion and exclusion.

6.2 Agency and decision-making

Agency, understood as the ability to define goals and act upon them (Kabeer, 1999), emerges in this study not as a fixed attribute, but as a dynamic and negotiated process shaped by access to resources and embedded social relations. The findings show that engagement in SGR-related economic activities did not merely generate income, it reworked the terms through which women participate in decision-making within both household and community spheres.

For Mama Eliza and Mama Anna, economic participation translated into more than financial gain; it repositioned them within household power structures. Income became not only a resource, but a lever through

which they expanded their voice and influence. As Mama Eliza noted, contributing to household income enabled her to take a more active role in financial and livelihood decisions. This echoes broader evidence that control over income can shift bargaining dynamics and strengthen women's participation in decision-making processes (Doss, 2013; Kabeer, 1999).

Beyond the household, these shifts extended into community spaces. Field observations revealed that women were no longer confined to passive attendance in local meetings; they spoke, questioned, and contributed to discussions on market access, education, and livelihoods. This movement from presence to participation signals a subtle but important shift toward more substantive forms of engagement. Such transformations resonate with participatory frameworks that distinguish between symbolic inclusion and meaningful influence (Arnstein, 2015; Nuru et al., 2024). At the same time, agency unfolded unevenly. Mama Nasha's experience illustrates how the scope of action is closely tied to access to enabling conditions. While she recognised emerging opportunities, limited access to capital, training, and decision-making resources shaped how far she could translate intention into action. Her experience does not reflect an absence of agency, but rather the ways in which agency is mediated by existing structures of resource control and social organization (Hodgson, 2001; Bollig, 2004).

These variations underscore a critical point: agency is not simply possessed, it is produced within specific

social, economic, and institutional contexts. In this sense, the SGR did more than create opportunities; it opened new arenas in which women negotiate, contest, and reconfigure their roles. Some were able to actively reshape their positions within these emerging spaces, while others navigated more gradual and constrained pathways. This supports arguments that infrastructure projects are not neutral interventions, but sites where power relations are actively reorganised, often in uneven and context-specific ways (Rieber & Müller-Mahn, 2024).

At the same time, these emerging forms of agency continue to be shaped by broader power dynamics. The planning and implementation of the railway followed a largely top-down approach, with limited gender-sensitive safeguards in compensation and participation processes (TRC, 2019). Moreover, access to new market opportunities is often mediated through existing social networks, which influence how and to what extent women can participate.

Taken together, the findings suggest that infrastructure development can expand the terrain of women's agency but does not automatically level it. Instead, agency emerges as a negotiated outcome, shaped by the interplay between new opportunities and enduring social structures. Where enabling conditions align, women are able to reposition themselves in meaningful ways; where they do not, agency remains present, but operates within narrower margins. This highlights that agency is not only exercised through visible economic participation, but

also negotiated within everyday social relations, where cultural norms and household dynamics continue to shape the boundaries of women's decision-making power.

6.3 Achievements: Translating opportunity into tangible outcomes

Achievements, understood as the observable outcomes resulting from access to resources and the exercise of agency (Kabeer, 1999), emerge in this study as the most visible expression of how women translate opportunity into change. In the cases of Mama Eliza and Mama Anna, engagement in SGR-related economic activities did not simply generate income; it produced tangible shifts in livelihoods, aspirations, and social positioning, particularly in relation to children's education, financial independence, and community recognition.

For Mama Anna, these achievements were most clearly reflected in her ability to invest in her children's education. Income from beadwork enabled her to meet school-related costs and expand opportunities for her children beyond what had previously been possible. In this sense, education becomes more than an outcome; it is a deliberate and forward-looking investment that signals changing aspirations and future trajectories. This reflects broader evidence that women's economic empowerment contributes to improved household welfare and intergenerational outcomes, particularly in education (Kabeer, 1999; Doss et al., 2015).

These individual experiences are reinforced by field observations and community accounts, which point to increased school enrolment and greater investment in children's education within the study area. Women's earnings were used not only to complement state-provided education, but also to access additional opportunities such as private schooling and educational materials. This suggests that economic participation enabled women to move from meeting immediate needs to actively shaping long-term opportunities for their children.

More broadly, these achievements illustrate the ripple effects of empowerment. Economic gains extended beyond individual benefit, translating into enhanced social recognition and visibility. Women were increasingly seen as contributors to household welfare and community development, signalling shifts not only in material conditions but also in status and identity. In this sense, achievement is not only about what women gain, but also about how they are perceived and how they position themselves within their social environments.

At the same time, the findings reveal variation in how such achievements are realised. Mama Nasha's experience reflects how the translation of opportunity into tangible outcomes depends on access to enabling conditions. Although she was situated within the same infrastructural context, limited access to capital, training, and independent financial resources shaped the extent to which she could convert opportunity into measurable

gains. Her experience highlights how achievements are closely linked to the interplay between resources and agency.

This contrast underscores a key insight: achievements do not automatically follow from the presence of infrastructure. Rather, they emerge where opportunities intersect with the capacity to act and the resources required to sustain that action. In this regard, the findings align with critiques of large-scale infrastructure projects that emphasise their socially differentiated outcomes, particularly in contexts marked by gendered inequalities (Müller-Mahn et al., 2021; Bergius et al., 2020).

Viewed together, the experiences of Mama Eliza, Mama Anna, and Mama Nasha demonstrate that achievements under the SGR are not uniform but layered and context specific. While some women were able to translate new opportunities into meaningful and visible gains, others experienced more gradual or limited outcomes shaped by existing structural conditions. These findings point to the importance of recognizing achievement as a process, one that unfolds differently across individuals and contexts, and one that is shaped by the interaction between infrastructure, resources, and social relations.

Collectively, these outcomes illustrate that achievements are not simply indicators of success, but reflections of deeper structural conditions that shape who is able to convert opportunity into lasting socio-economic change.

6.4: Bringing the dimensions together

Taken together, the experiences of Mama Eliza, Mama Anna, and Mama Nasha demonstrate that women's empowerment in the context of the SGR unfolds through differentiated and context-specific pathways. While the railway expanded economic opportunities, the findings show that the extent to which women benefit depends on how access to resources, the ability to exercise agency, and supportive institutional conditions interact.

For Mama Eliza and Mama Anna, improved access to markets, training, and social networks enabled a positive trajectory in which resources were translated into agency and subsequently into tangible achievements. Their experiences illustrate the transformative potential of infrastructure when enabling conditions are present, particularly in expanding women's economic participation and strengthening their role in decision-making processes.

At the same time, Mama Nasha's experience highlights the importance of inclusive support systems in ensuring that such opportunities are more widely accessible. Her trajectory points to the need for complementary measures, including access to training, financial capital, and equitable compensation mechanisms, to enable more women to participate effectively in emerging economic spaces.

These patterns reinforce Kabeer's (1999) conceptualization of empowerment as a process shaped by the interaction between resources, agency, and achievements. In this study, the SGR acted as an important enabling platform, but the outcomes it

generated were mediated by existing social and institutional conditions.

In this sense, the SGR can be understood not only as a physical intervention, but also as a catalyst for social and economic change. By expanding access to markets and enabling new forms of participation, it has created opportunities for women to redefine their roles within households and communities. Strengthening these gains through inclusive and gender-responsive approaches can further enhance the contribution of infrastructure to equitable and sustainable development outcomes.

7.0 CONCLUSION AND POLICY IMPLICATIONS

The SGR has not simply transformed Maasai women's livelihoods but has done so in uneven and context-specific ways. While the railway has created new spaces for economic engagement, strengthened women's participation in decision-making, and expanded future aspirations, these shifts are neither automatic nor uniformly experienced. The ability to benefit from infrastructure-led opportunities depends on access to resources, supportive institutional conditions, and the capacity to convert these into meaningful outcomes.

The experiences of Mama Eliza, Mama Anna, and Mama Nasha are not isolated or exceptional cases, but analytically revealing trajectories that reflect broader patterns of inclusion and exclusion. They show how similar structural conditions can produce divergent outcomes, depending on women's starting positions and the enabling environment within which they operate.

Empowerment in infrastructure contexts therefore emerges as a conditional and socially differentiated process. As Kabeer (1999) emphasises, access to resources alone does not guarantee empowerment; it is the interaction between resources, agency, and institutional structures that shapes whether opportunities translate into tangible achievements.

From a policy perspective, these findings underscore the need to embed gender-responsive approaches throughout the entire lifecycle of infrastructure development. This includes recognizing women as independent stakeholders in compensation and resettlement processes, expanding access to training and financial resources, and ensuring inclusive participation in planning and implementation. Targeted support for women-led cooperatives and local enterprises can strengthen collective agency and widen access to emerging economic opportunities. Without such measures, infrastructure risks reinforcing existing inequalities rather than transforming them.

The implications extend beyond the immediate case of Kilosa. Similar dynamics are likely to emerge in other pastoralist and rural contexts where large-scale infrastructure intersects with gendered livelihoods and unequal access to resources. In this regard, the analysis speaks to wider development agendas that emphasise gender equality, inclusive education, and climate resilience, as reflected in global and regional frameworks such as the 2030 Agenda for Sustainable Development and Agenda 2063. Infrastructure can contribute

meaningfully to these priorities, but only when accompanied by deliberate strategies that address structural inequalities and support locally grounded forms of participation.

Ultimately, the SGR can be understood as both a physical and social infrastructure: a site where opportunities are created, but also where inequalities are negotiated and, at times, reproduced. Strengthening its transformative potential requires sustained attention to those who remain at the margins, particularly women with limited access to resources and institutional support. By combining indigenous storytelling with an empowerment-based analytical framework, the analysis contributes to ongoing debates on gender and infrastructure, offering nuanced insights into how megaprojects can foster more inclusive and context-sensitive development pathways. In doing so, it challenges linear assumptions about infrastructure and development, demonstrating instead that transformative outcomes depend on who can access, navigate, and shape the opportunities that such projects create.

Author contribution

The author was solely responsible for the conception, data collection, analysis and writing of this publication.

Funding

This research was supported by the German Research Foundation (DFG) under the project BO3 *Violent Futures*, part of the CRC-TRR 228 *Future Rural Africa*.

Declaration of competing interest

The author declares no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

Acknowledgments

Sincere thanks to the Maasai women who generously shared their experiences, and to the local partners and community leaders in Kilosa District, for their support. The author also gratefully acknowledges the constructive comments of the anonymous peer reviewers and editors, which helped to strengthen this manuscript.

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