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Beyond Static Schools:
Aligning Education Systems with Pastoral Mobility

Evidence from key informant interviews on education access, girls' schooling and indigenous knowledge integration across pastoral communities in Kenya, Somalia, Tanzania and South Africa

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ABOUT US

CGIAR aims to address gaps in knowledge about climate change and food security for peace and security policies and operations through a unique multidisciplinary approach. Our main objective is to align evidence from the realms of climate, land, and food systems science with peacebuilding efforts already underway that address conflict through evidence-based environmental, political, and socio-economic solutions.

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EXECUTIVE SUMMARY

Formal education systems across the East and Horn of Africa were built around a static assumption, that children stay in one place long enough to attend a fixed school on a fixed calendar. Yet for pastoral communities, this assumption has never held, and key informant interviews for this study confirm that the mismatch between mobile livelihoods and static education systems remains one of the most consistent and least resolved findings in the entire dataset. Fixed school locations, long travel distances, rigid academic calendars and household labour demands combine to produce low enrolment and high dropout, a pattern that falls hardest on girls.

This brief argues that policy responses so far has been insufficient not because good alternative models do not exist, but because they have rarely been implemented, funded or scaled with the seriousness given to static education systems. Decades of research on mobile schools, alternative basic education and distance learning for pastoralist children show what works and what does not. The evidence gap is not technical, it is one of political will, sustained investment, and willingness to treat mobility as a permanent design parameter rather than a temporary problem to be solved or wished away through sedentarization.

WHY THIS MATTERS

Approximately two-thirds of Somalia's population is pastoralist, and only around one-fifth of pastoralist children in Somalia receive any formal education, if at all. This gap driven by fixed school locations, cultural practices, and the structural incompatibility between mobile livelihoods and static schooling models (Jama & Barre, 2019). Again, this gap is not a marginal access problem but is a systemic exclusion of a substantial share of the school-age population from any formal educational pathway.

This brief builds on evidence generated specifically for this study through key informant interviews with 20 pastoralist women-led, humanitarian, climate-resilience, policy and peacebuilding organizations across Kenya, Somalia, Tanzania and South Africa. That evidence shows education exclusion is not gender neutral. Girls face compounding barriers beyond the general mismatch between mobility and static schooling due to household labour expectations and early marriages among other factors. In Somalia specifically, near-universal female genital mutilation, which is frequently followed by withdrawal from school and early child marriages. Climate shocks intensify all of these pressures simultaneously, as recent UNICEF reporting on drought-driven child marriage across Ethiopia, Kenya and Somalia demonstrates.

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What the evidence shows

- Fixed schools, long travel distances, rigid calendars and household labour demands drive low enrolment and dropout in pastoral communities, particularly among girls.
- In Somalia, an estimated four out of five pastoralist children receive no formal education at all.
- Climate shocks directly intensify education exclusion and drought-linked economic pressure is a documented driver of early marriage and school withdrawal across the Horn of Africa.
- Recommended alternatives such as mobile schools, flexible calendars, community-based teachers, boarding facilities, radio and offline learning, vocational education are well documented but inconsistently funded / underfunded and scaled.
- Women's indigenous ecological knowledge remains largely excluded from formal curricula, treated as informal rather than integrated alongside scientific and technical content in school settings.
- Where alternative models have been implemented with sustained support, they demonstrate measurable gains in girls' retention, safety and continued schooling.



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SITUATING THE EVIDENCE: WHAT THE WIDER LITERATURE SHOWS

The mismatch between static (sedentary) education systems and pastoral mobility identified in this study is one of the most extensively documented problems in the pastoralist development literature, spanning more than four decades of research and policy experimentation. Krätli and Dyer's (2009) foundational review of strategic options for mobile pastoralists and education catalogued the range of models attempted across contexts, including mobile schools, shepherd schools, distance and radio-based learning, and boarding facilities, while cautioning that no single model works universally; effective approaches must be matched to the specific mobility patterns, seasonal rhythms and social structures of the community in question (Krätli & Dyer, 2009).

Kenya's experience with mobile schools illustrates both the promise and the fragility of these alternatives. A qualitative case study of mobile schools in Turkana County found the model persistently undermined by inadequate teacher numbers and weak integration pathways into the formal education system, despite mobile schooling's conceptual fit with nomadic pastoralist life (Ngugi, 2016). A more recent study of mobile schools in Samburu County, using a transformative innovation policy lens, found that mobile schooling can meaningfully improve enrolment, retention and completion when properly resourced, but that it remains a niche innovation whose system-level impact depends on sustained investment and integration with health, security and other sectors rather than treatment as a standalone education intervention (Transformation Innovative Policy Consortium, 2020).

Country-specific research reinforces the gendered dimension of this exclusion identified in this data. A study of girl-child education in Baringo County, Kenya, applying an access framework of accessibility, availability, acceptability, adaptability and affordability, found that all five dimensions independently constrained pastoralist girls' school participation, with early marriage, adherence to pastoralist cultural norms and poverty compounding the purely logistical barriers created by mobility itself (Wakhisi et al, 2025). This finding directly supports our conclusion that mobility-related barriers and gender-related barriers operate simultaneously rather than as separate problems requiring separate solutions. There are intersectional dynamics to be considered in such scenarios.

In Somalia specifically, the scale of exclusion is severe as nomadic pastoralists constitute roughly two-thirds of the population, yet only around 22 percent of pastoralist children access formal education, a gap compounded by the practice of female genital mutilation, which affects an estimated 98 percent of Somali girls and is frequently followed by school withdrawal due to resulting health complications and early child marriage (Jama & Barre, 2019). This is corroborated by UNICEF's regional reporting, which found that the number of children at risk of dropping out of school across Ethiopia, Kenya and Somalia tripled within three months during a recent drought period; from 1.1 million to an estimated 3.3 million, placing adolescent girls at substantially elevated risk of early marriage as a negative household coping mechanism (Wakhisi et al, 2025; UNICEF USA, 2024).

Evidence on effective interventions is more encouraging. A longitudinal study of AMREF Health Africa's Community-Led Alternative Rite of Passage (CL-ARP) programme in Kajiado County, Kenya, designed to prevent female genital mutilation/cutting and child marriage while keeping girls in school, followed 2,647 girls over three years and found that 98 percent remained free of FGM/C, 99 percent avoided child, early or forced marriage, and 98 percent remained enrolled in school, although girls who experienced threats or violence remained more likely to experience all three negative outcomes despite programme participation (Kawai et al., 2025). This finding is directly relevant to this brief's recommendations, that culturally grounded, community-led alternatives to harmful practices can produce durable educational gains when they address the social drivers of dropout directly, rather than focusing on school access alone.

Finally, a broader review of evolving global approaches to educating nomadic children cautions that policy attention has often overemphasized physical access logistics, getting a school building or mobile unit near enough to reach, albeit at the expense of considering whether the content and structure of learning itself fits nomadic livelihoods and cultural values, a critique that applies directly to this study's parallel finding that indigenous ecological knowledge remains excluded from formal curricula even where physical access to schooling improves (Dyer, 2016).



KEY FINDINGS

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1. Static education systems remain structurally incompatible with pastoral mobility

Respondents consistently described formal education as insufficiently adapted to nomadic and semi-nomadic communities. Fixed school locations, long travel distances, insecurity, rigid academic calendars, seasonal migration and household labour demands combine to produce low enrolment and dropout, with girls affected disproportionately. This finding was reported by key informants across all four study countries i.e. Kenya, Somalia, Tanzania and South Africa, thus indicating a shared structural gap rather than an isolated national issue.

This finding is not new to the literature but remains prolonged and largely unresolved. Krätli and Dyer's (2009) strategic review of mobile pastoralist education options, now widely cited across subsequent research, catalogued this same mismatch and the range of alternative models developed in response, suggesting that this problem has been well understood for years without being adequately solved at scale.

2. The scale of exclusion is severe, particularly in Somalia

Nomadic pastoralists make up an estimated two-thirds of Somalia's population, yet only around 22 percent of pastoralist children access any formal education (Dyer, 2016). This is not a marginal enrolment gap, and it represents systemic exclusion of a majority-population livelihood group from the formal education system entirely.

3. Girls face compounding barriers beyond mobility itself

Beyond the general mismatch between mobility and static schooling, girls face additional and compounding barriers due to household labour expectations, early marriage, and, in Somalia specifically, female genital mutilation affecting an estimated 98 percent of girls, frequently followed by school withdrawal and early child marriages (Jama & Barre, 2019). For instance, a Baringo County study applying an access-and-affordability framework found that all five access dimensions constrain pastoralist girls' schooling simultaneously, with cultural norms compounding rather than simply adding to logistical barriers (Wakhisi, 2025).

4. Climate shocks directly intensify education exclusion

Drought and climate-related economic pressure are documented drivers of early marriage and school withdrawal and are not indirect or theoretical risks, but an active, measured pattern. For example, UNICEF reporting found that the number of children at risk of dropping out across Ethiopia, Kenya and Somalia tripled within three months during a recent drought period, and that child marriage more than doubled within a year in the worst-affected regions of Ethiopia, as families turned to early marriage as a negative coping mechanism for economic hardship (UNICEF USA, 2024).

> “Pastoralist women are not just victims of climate change; they are keepers of indigenous ecological knowledge and crucial agents of change.” — TUPO Foundation / Rural Women's Assembly

5. Effective alternative models exist but remain inconsistently scaled

Mobile schools, flexible calendars, community-based teachers, boarding facilities, radio and offline learning, vocational education and targeted girls' support were all identified by respondents as viable alternatives. The evidence base confirms this. For instance, a Samburu County study found mobile schooling can meaningfully improve enrolment and retention when properly resourced, though a separate Turkana County study found the same model persistently undermined by inadequate teacher numbers and weak integration into the formal system , thereby illustrating that the model works in principle but frequently fails in practice due to insufficient sustained investment (Ngugi, 2016).

Encouragingly, targeted interventions addressing the social drivers of school dropout directly rather than access alone show strong results. AMREF's Health Africa's community-led Alternative Rite of Passage (CL-ARP) programme in Kajiado County, Kenya, followed 2,647 girls over three years and found 98 percent remained in school, alongside comparable success rates in preventing FGM/C and early marriage (Kawai et al., 2025).

6. Indigenous knowledge remains excluded from formal curricula

Women's knowledge of weather patterns, livestock management, seed preservation, food processing, water management, medicinal plants and conflict resolution was repeatedly identified as a resilience resource, yet formal policy, research and education systems continue to treat this knowledge as informal or outdated rather than validating and integrating it alongside scientific and technical content.

This is consistent with the broader global critique that policy attention to nomadic education has focused disproportionately on physical access i.e. getting a school or mobile unit within reach, while neglecting whether the content of learning itself reflects nomadic livelihoods and cultural values (Dyer, 2016).



THE CORE POLICY ARGUMENT

Header photo: Ricardo Ferro/Unsplash

The evidence in this brief supports a specific conclusion, that the barrier to aligning education with pastoral mobility is not a lack of known solutions. Mobile schools, flexible calendars, distance and radio-based learning, and community-led programmes addressing the social drivers of dropout have all been piloted, studied and, in some cases, proven effective over several decades of research across multiple countries and contexts.

What has been missing is sustained investment at the scale required to move these models from pilot projects to system-level infrastructure as well as the willingness to treat pastoral mobility as a permanent feature of the communities being served, rather than a logistical obstacle to be minimized through sedentarization or fixed geography.

The Somalia data point is relevant here; a 78 percent exclusion rate for pastoralist children is not the result of an unsolved technical problem, but of a persistent gap between documented best practice and actual investment.

POLICY RECOMMENDATIONS

The recommendations below are derived directly from the key informant interview findings presented in this brief and are further supported by the regional and global literature reviewed above. They translate this brief's core argument; that effective alternatives to static schooling are well documented but under-invested.

1. Scaling Proven Alternative Education Models

- Move mobile schools from pilot to system-level infrastructure - scale mobile schools, flexible calendars and community-based teaching with sustained multi-year funding, learning directly from relevant examples, such as Kenya's Samburu County experience, where the model improved enrolment and retention when properly resourced, and its Turkana County experience, where the same model was undermined specifically by inadequate teacher numbers.

- Match education models to local mobility patterns - follow the strategic-options that no single alternative model works universally; design selection should be driven by local mobility patterns and community structure rather than a single national template (Krätli & Dyer, 2009).

- Invest specifically in teacher recruitment and retention for mobile settings - address the single most recurring failure point identified across multiple case studies, notably that of inadequate teacher numbers, through targeted incentives (e.g. hardship allowances, mobile-teacher career pathways) rather than treating mobile schooling as a curriculum design problem alone.

2. Addressing the Social Drivers of Girls' Dropout

- Fund community-led alternatives to harmful practices directly - invest in and replicate AMREF Health Africa's Community-Led Alternative Rite of Passage (CL-ARP) programme model from Kajiado County, which kept 98 percent of participating girls in school and prevented FGM/C and early marriage in a comparable share of cases over a three-year follow-up period, rather than funding school-access interventions alone (Kawai et al., 2025).

Prioritize Somalia's severe exclusion gap specifically - target investment toward closing the gap between Somalia's roughly two-thirds pastoralist population share and the estimated one-fifth of pastoralist children currently accessing formal education, recognizing this as a distinct, higher-severity case within the East & Horn of Africa (EHoA) region.

3. Linking Drought Response and Education Continuity

- Build education continuity safeguards directly into drought and humanitarian response planning - treat school dropout and early marriage as predictable, trackable drought impacts and not secondary consequences especially against documented evidence that at-risk-of-dropout children across Ethiopia, Kenya and Somalia tripled within three months during a recent drought period for example.

- Connect education continuity planning to anticipatory action systems - integrate education-continuity triggers into emerging anticipatory-action frameworks such as IGAD's Forecasts to Local Action (FOLA) approach, so that education risk is monitored and acted on using the same forecast-based triggers already being developed for livelihood protection (CLARE Programme, 2026)

4. Integrating Indigenous Knowledge into Curricula

- Co-design curriculum content with women knowledge-holders - ensure formal education validates and builds on pastoral ecological knowledge e.g. weather patterns, livestock management, seed preservation rather than just treating it as separate from or inferior to standard curricula. Recognize that there is no single way of learning and that there are many ways of knowing.

ABOUT THIS SERIES

This brief is the fifth and final report in a five-part CGIAR- OPPD - SAWONET policy brief series drawing on key informant interviews with pastoralist women-led, humanitarian, climate-resilience and peacebuilding organizations across Kenya, Somalia, Tanzania and South Africa. It builds on the flagship brief's overarching findings (Brief 1), the adaptation-leadership evidence in Brief 2, the rangeland governance and peacebuilding findings in Brief 3, and the GESI lens on pastoral mobility in Brief 4, completing the series' account of the interconnected climate, conflict, mobility, governance and education challenges facing pastoralist women across the region.

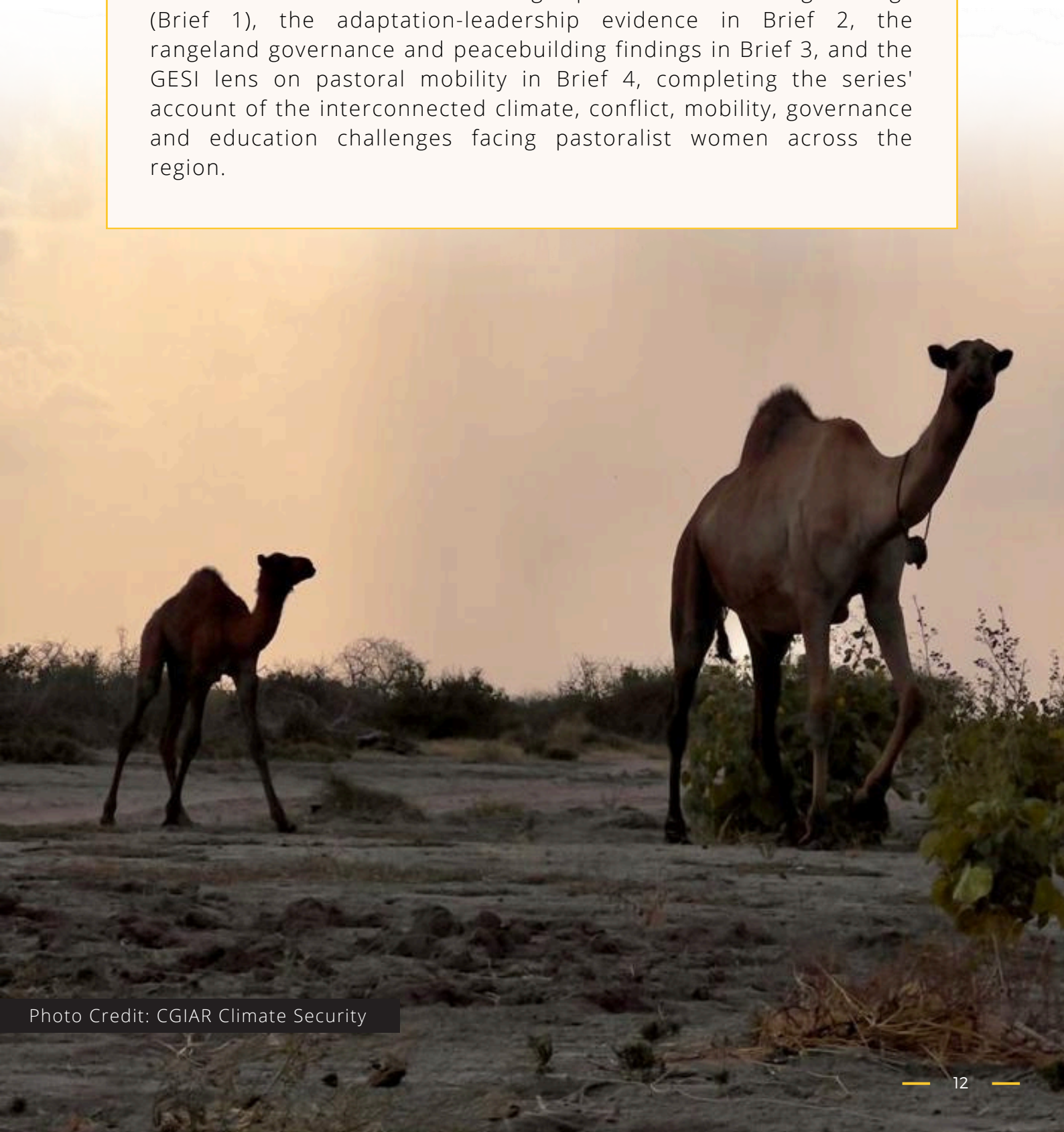


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