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Original Article

Climate Change and Child Safeguarding in North Horr Ward, Marsabit County, Kenya

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ABSTRACT

Climate-related pressures affect the conditions in which children grow, learn and access protection. This study examined household perceptions of climate-related challenges and their relationship with child safeguarding in North Horr Ward, Marsabit County, Kenya. A convergent mixed-methods design involved 141 household respondents and 12 key informants. Household responses were analysed using descriptive statistics and Pearson correlation; stakeholder responses were analysed thematically. Respondents reported frequent drought and increasingly unpredictable rainfall (both M = 4.06). Perceived climate-related food shortages had a mean of 3.91, while environmental challenges affecting households' ability to support children had a mean of 3.50. The climate and safeguarding scores showed a weak positive association (r = .193, p = .024). The meaning of its direction requires verification of scale coding. Stakeholders described pathways through water scarcity, livestock losses, food insecurity, disrupted education and increased household responsibilities. These accounts suggest possible risks but do not establish causation. The findings support coordinated, child-sensitive responses to drought, water access, food security and education, informed by pastoral communities.

Keywords: climate change, child safeguarding, drought, pastoral communities, North Horr, Kenya

INTRODUCTION

Climate change places children's rights and wellbeing under pressure. Drought, extreme heat and floods can interrupt access to water, food, healthcare and education, while their effects depend on exposure and on the services and resources available to families (UNICEF, 2021, 2026). Across Africa, climate change has contributed to losses in livelihoods, water systems and food production (Intergovernmental Panel on Climate Change [IPCC], 2022). Children are affected through direct exposure and through changes in the conditions in which they live and receive care (Helldén et al., 2021; Mohamed et al., 2025).

In the Horn of Africa, drought has affected pastoral and agro-pastoral households whose livelihoods depend on livestock and natural resources. In 2023, Kenya experienced severe drought followed by flooding, placing pressure on livelihoods and access to water, food, health and education services (UNICEF Kenya, 2024). Children may experience these pressures through changes in household income, the burden of collecting water, interruptions to schooling and reduced access to services. However, the pathways through which environmental pressures interact with child safeguarding need closer examination in particular communities.

Climate pressures are not distributed equally. The IPCC (2022) identifies interacting risks to African water supplies, food systems and health, while UNICEF (2021) shows how exposure to environmental hazards combines with unequal access to essential services. In eastern and southern Africa, protection risks may be intensified when climate shocks interact with poverty, displacement and weakened services (UNICEF Eastern and Southern Africa, 2025). These sources support a multi-sector understanding of risk, but they do not imply that all children or pastoral households respond in the same way.

Kenyan research provides a closer view of these pressures. In six drought-affected counties, including Marsabit, Mburu et al. (2024) documented interruptions to schooling, household work and displacement alongside child protection concerns. A participatory study involving children, caregivers and stakeholders in Kenya also described links between climate shocks,

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livelihood losses and pressures on family and community protection systems (UNICEF Kenya, 2026). These studies inform the present inquiry, while leaving a need for evidence focused on household perceptions and safeguarding in North Horr Ward. County-level climate risk analysis helps identify broader patterns but cannot substitute for ward-level evidence (UNICEF, 2024).

North Horr Ward in Marsabit County is an arid area with dispersed settlements, pastoral livelihoods, limited infrastructure, recurrent water scarcity and food insecurity. This study assessed the relationship between climate change and child safeguarding outcomes in the ward. It examined: (1) household perceptions of climate-related conditions; (2) reported child safeguarding conditions; and (3) the statistical association and stakeholder accounts connecting climate pressures with children's wellbeing. It also considers implications for community responses and social transformation.

The contribution is specific: drought and child protection have already been studied in Marsabit and other Kenyan counties, but evidence combining household perceptions of climatic pressures, safeguarding indicators and local stakeholder accounts in North Horr remains limited (Mburu et al., 2024; UNICEF Kenya, 2026). The study addresses this local evidence need without claiming to establish causation.

The study tested the null hypothesis that climate change has no statistically significant relationship with child safeguarding outcomes. As the design is observational, the analysis is framed in terms of association rather than a demonstrated causal influence.

Literature Review

Climate risks and children's wellbeing

The climate crisis affects children through overlapping environmental and social conditions. UNICEF's Children's Climate Risk Index considers hazard exposure alongside vulnerability arising from limitations in essential services (UNICEF, 2021). Its 2026 report further highlights the overlap of multiple hazards and gaps in services for children (UNICEF, 2026). This perspective is useful in pastoral settings, where climate shocks are experienced within existing systems of livelihoods, water provision, health, education and social support. An evidence map found that children's safety, agency and displacement had received less research attention than health (Mohamed et al., 2025).

The IPCC (2022) identifies interacting climate risks across Africa, including water scarcity, reduced agricultural productivity and disruptions to education. These processes are particularly relevant to households whose income and food depend on livestock. When pasture and water are scarce, livestock productivity may decline and families may travel in search of resources. In such circumstances, children's schooling, care and access to services may be affected. These are possible pathways requiring local investigation; their presence should not be assumed for every household.

Evidence from Kenya illustrates the importance of examining these connected pressures. UNICEF Kenya (2024) describes how drought and subsequent flooding affected livelihoods, safe water, nutrition and learning. Regional humanitarian reporting also identified substantial needs for food, safe water, health and child protection during the Horn of Africa drought (UNICEF, 2023). These reports establish the wider context but do not, by themselves, show how particular households in North Horr experienced those pressures. The Kenya climate risk model supports planning at county level, but it does not replace ward-level evidence (UNICEF, 2024).

Evidence on climate shocks and child protection

Climate-related threats to protection are mediated by livelihoods and social conditions. Pope et al. (2023) identified loss of assets, displacement, disrupted education and concerns about sexual violence as pathways discussed in research on environmental crises and child marriage. Their review also highlighted limitations in the evidence. A subsequent systematic review by Palmer et al. (2025) found associations in some studies but could not draw a general conclusion that extreme weather consistently increases or decreases child marriage because studies differed and often faced a high risk of bias. The literature thus calls for context-specific analysis and restraint when interpreting causal pathways.

Mburu et al. (2024) reported child protection concerns across six Kenyan counties during drought, including irregular school attendance and children's involvement in livestock-related work. Their findings provide a comparison, not an estimate of particular harms in

the present sample. UNICEF Kenya (2026) similarly reports that climate shocks can intensify poverty, food insecurity and displacement, placing pressure on protection systems. The study highlights the importance of community-led responses that connect education, social protection and health services. Regional evidence also stresses the value of listening to girls, boys and families about risks and support (UNICEF Eastern and Southern Africa, 2025).

The relationship between drought and schooling is not necessarily uniform. In a southern African study, Nordstrom and Cotton (2025) found higher attendance during a severe drought among girls in their sample, while food insecurity was associated with poorer learning assessment outcomes. This illustrates why attendance, learning and safeguarding should be considered separately and why local findings should not be assumed to follow one simple pattern.

Child safeguarding and social transformation

Child safeguarding concerns the conditions and actions that protect children from harm, abuse, neglect and exploitation. The study used a broad composite measure that also included health, education, care and access to services. The safeguarding score therefore combines perceived protection and wellbeing indicators; it is not a direct count of child protection incidents. This distinction matters when comparing the measure with studies of specific protection risks (Mburu et al., 2024; Mohamed et al., 2025).

A social transformation perspective asks whether institutions and community action improve people's lives. Management for Social Transformation links management and ethical practice with the effectiveness of initiatives concerned with human wellbeing (Soko et al., 2012). Applied to the present study, this perspective encourages attention to how county services, community leadership, schools and development organisations coordinate their responses and account for the needs of children. This is an interpretation of the findings; the study did not measure social transformation as an outcome.

The analysis is also informed by UNICEF's distinction between hazard exposure and vulnerability (UNICEF, 2021). Climate-related pressures may influence children's lives through household livelihoods and service access, but these relationships are shaped by local resources and institutions. The study explores this proposition through survey associations and stakeholder accounts rather than a tested causal pathway.

Theoretical Framework

Bronfenbrenner's ecological systems theory, which guided this study, locates child development within interconnected settings, from the immediate household and school to wider community, institutional and societal influences (Bronfenbrenner, 1979). A child's daily care and schooling can be understood within the immediate setting; connections between households and schools operate across settings; and service provision and resource decisions can affect children even when they do not participate in those decisions. The approach directs attention to how these levels interact rather than treating child safety as solely a household responsibility.

Belsky (1980, 1993) applies an ecological perspective to child maltreatment, examining factors in individual, family and wider social contexts. This is useful for interpreting stakeholders' accounts of household stress and the availability of services. It does not establish that drought caused maltreatment in North Horr; the present research did not measure the causal links required to test that claim.

The study also uses the sustainable livelihoods framework to consider household assets, livelihood strategies, vulnerability and the institutions that influence access to resources (Department for International Development [DFID], 1999). In North Horr, livestock, water and social relationships are relevant resources, while drought and market or service constraints may affect households' choices. This framework complements ecological theory by helping explain why a hazard may have different consequences for different households. Neither framework was statistically tested as a causal model in this article.

Complementing these frameworks, Soko et al. (2012) connect ethical management with the effectiveness of initiatives intended to improve human wellbeing. Here this perspective supports attention to community participation, organisational coordination and accountability as practical implications; social transformation was not a variable measured in the survey.

METHODOLOGY

Research design and setting

The study used a convergent mixed-methods design in North Horr Ward. A household survey examined environmental and safeguarding variables, while a qualitative strand gathered stakeholder perspectives on environmental pressures and child wellbeing. The two strands were analysed separately and brought together during interpretation. The observational design does not establish causality.

Participants and sampling

The study involved 141 household respondents and 12 key informants. Household participants were adults responsible for children under 18 years. Households were allocated proportionately across selected manyatta zones and selected systematically. Stakeholders were selected purposively for their knowledge of safeguarding, environmental issues and local services. No children participated directly. The planned household sample was 150. Valid observations could vary between analyses because of missing responses.

Data collection and measures

A structured questionnaire collected demographic information and responses to five-point Likert statements concerning environmental conditions and child safeguarding. Climate-related items addressed recurrent drought, rainfall variability, livelihood disruption, food shortages and household vulnerability. Safeguarding items included school attendance, health, protection from harm and exploitation, care, and access to support. The scale anchors were 1 = strongly disagree to 5 = strongly agree.

A semi-structured guide gathered written responses from key informants through the SurveyMars platform. Key informants represented child services, education, health, local administration, community and religious leadership and civil society. Stakeholder observations were used to contextualise the survey rather than to estimate prevalence.

Cronbach's alpha across the 62 questionnaire items was .832. This overall figure does not establish reliability for the climate or safeguarding scales separately. The construction and direction of the composite scales require verification against the questionnaire, coding file and statistical output.

Data analysis and ethics

Descriptive means and standard deviations summarised selected responses. Pearson correlation examined the bivariate association between climate and safeguarding scores. Qualitative responses were coded thematically and considered alongside the survey findings. The regression analysis requires verification before an adjusted estimate can be reported.

The study reported seeking approval from the Tangaza University Research Ethics Committee and a national research permit. Participants gave informed consent, and confidentiality safeguards were reported. Participants were adults and could decline or withdraw. Approval and permit details require confirmation from the study records.

Findings and Discussion

Household perceptions of climate-related conditions

Respondents reported substantial exposure to climate-related difficulties. Agreement that drought had become frequent and rainfall increasingly unpredictable was high, with a mean of 4.06 for each item. Respondents also associated changes in rainfall with their livelihoods and reported climate-related food shortages. These values describe perceptions of conditions; they are not meteorological measurements or independent proof of changes over time.

Table 1: Selected Household Climate-Related Indicators

Statement	Mean	SD
Drought had become frequent	4.06	0.950
Rainfall patterns had become increasingly unpredictable	4.06	0.625
Changes in rainfall affected household livelihoods	3.80	0.853
Climate-related shocks disrupted household activities	3.69	0.781
Climate change contributed to household food shortages	3.91	0.709
Environmental changes reduced food availability	3.63	0.913
Household was highly vulnerable to climate-related shocks	3.55	0.727
Environmental challenges affected ability to support children	3.50	0.815

Note. Five-point agreement scale.

These high mean scores are consistent with the drought and livelihood pressures described in African and Kenyan evidence (IPCC, 2022; UNICEF Kenya, 2024, 2026). They nevertheless reflect respondents' perceptions; they do not measure rainfall trends or establish that human-induced climate change caused each reported drought. The livelihoods framework helps interpret these concerns through water, pasture and livestock assets rather than treating drought as an isolated event (DFID, 1999).

Reported child safeguarding conditions

The survey found the highest mean among the selected safeguarding items for children attending school regularly (M = 4.29, SD = 0.877). Protection from exploitation (M = 3.87, SD = 0.757) and protection from harm (M = 3.85, SD = 0.822) also had relatively high means. Reporting of child abuse had a lower mean (M = 3.30, SD = 1.216). These responses reflect adult perceptions and do not measure verified attendance, reporting rates or the prevalence of abuse.

Table 2: Selected Child Safeguarding and Wellbeing Indicators

Statement	Mean	SD
Children attend school regularly	4.29	0.877
Children are protected from exploitation	3.87	0.757
Children are protected from harm	3.85	0.822
Children have good health	3.76	1.191
Children's basic needs are met	3.72	1.176
Environmental challenges rarely interfere with school attendance	3.51	1.035
Cases of child abuse are reported	3.30	1.216

Note. Five-point agreement scale.

The high reported mean for regular school attendance should be interpreted alongside stakeholder descriptions of interruptions, rather than treated as proof that all children attended consistently. Household responses and stakeholder observations refer to different forms of evidence and may capture different experiences. Mburu et al. (2024) documented irregular attendance in drought-affected Kenyan communities, whereas Nordstrom and Cotton (2025) found increased attendance under drought in their southern African sample. Together these findings suggest that the relationship depends on local conditions and that attendance alone does not describe learning or protection. The wider evidence suggests that climate hazards can affect children's education through several pathways (Helldén et al., 2021; UNICEF Kenya, 2025).

Relationship between climate change and safeguarding

The climate change and child safeguarding composite scores showed a weak positive correlation ($r = .193$, $p = .024$). This indicates a statistically significant bivariate association in the analysed data. Its substantive direction cannot be interpreted without confirming the coding and composition of both scales. The positive coefficient alone does not establish whether climate stress protects children or worsens safeguarding.

The adjusted association requires further verification before it can be reported. The analysis should be checked against the original model output, including the cases, variables and coding used.

The bivariate result does not show whether the association would remain after accounting for other variables. Before drawing further conclusions, the scale construction, coding, valid cases and complete model output require verification. Even after these checks, the cross-sectional design would not establish causality.

Stakeholder accounts of climate-related pathways

Key informants described recurrent drought, water scarcity, high temperatures and variable rainfall. They linked these conditions to shortages of water and pasture, livestock losses and reduced availability of milk and other food. Informants also described possible consequences for children's health and nutrition. These are stakeholder observations; the study did not independently quantify each pathway or establish the extent to which a particular climate event caused a particular outcome.

Participants reported that environmental pressures could interrupt education through household movement, greater responsibilities and, in some instances, extreme heat. Some identified differences in the responsibilities of girls and boys: girls were described as undertaking water collection and household tasks, while boys were described as travelling with livestock. These observations point to different possible exposures, but they do not establish the prevalence of these experiences or apply uniformly to all children.

Stakeholders identified existing responses involving schools, health facilities, government offices, faith-based and community organisations, and other partners. They described awareness activities, referrals, water interventions, relief and drought preparedness. Some also noted limited follow-up, uneven awareness and coordination gaps. These accounts suggest opportunities to strengthen the continuity and reach of services during environmental shocks.

The reported pathways are consistent with Kenyan evidence that drought can disrupt livelihoods and schooling (Mburu et al., 2024; UNICEF Kenya, 2024, 2026). They also reflect the livelihoods framework's emphasis on access to assets during shocks (DFID, 1999). The comparison makes these accounts plausible, but does not establish the frequency of specific risks in North Horr. The connections between water, food and health also correspond to the broader pathways described by Helldén et al. (2021).

Stakeholders' accounts of girls' water-related responsibilities and boys' herding activities suggest that responses should examine differences in exposure without assuming that all children have the same roles. UNICEF Eastern and Southern Africa (2025) similarly emphasises the perspectives of girls and boys. Ecological theory draws attention to the interaction between household responsibilities and schooling (Bronfenbrenner, 1979).

The reported coordination gaps and uneven awareness of support point to an institutional dimension of safeguarding. Children's protection depends partly on connections among families, schools, health services and child protection actors (Belsky, 1980; Bronfenbrenner, 1979). Soko et al. (2012) offer a complementary rationale for assessing whether organisations manage initiatives ethically and effectively. The study identified perceived gaps; it did not evaluate any specific programme. UNICEF Kenya (2025) similarly calls for responses across sectors; the present study cannot assess whether those responses are effective locally.

Recommendations

The following recommendations respond to the reported findings and should be refined with local stakeholders:

1. Protect access to safe water. Because respondents reported frequent drought and stakeholders described water scarcity and collection burdens, county water services and community representatives should identify underserved settlements, improve reliable water access and consider the safety and travel time of children and caregivers. Monitor functionality, accessibility and collection time across seasons.
2. Support education during drought. Because stakeholders reported disrupted learning and changing household responsibilities, schools, caregivers and education officers should use attendance follow-up, suitable support for mobile households and agreed referral arrangements. Monitor attendance and re-entry separately from learning and protection outcomes; avoid assuming that all absences result from drought.
3. Connect food, livelihood and protection services. Perceived food shortages and stakeholder accounts of livestock losses justify coordinated consideration of nutrition, livelihood support and child safeguarding. County departments and partners should identify vulnerable households through locally agreed criteria and link them to existing services. Monitor uptake and continuity rather than assuming that an intervention has improved safeguarding.
4. Strengthen referrals and coordination. Stakeholders described uneven awareness and gaps in follow-up. Child protection officers, schools, health workers, community leaders and partners should agree on referral contacts and responsibilities, communicate them in locally accessible ways, and review whether referrals are completed while protecting confidentiality.
5. Include community perspectives and improve evidence. Because responsibilities and risks were described as differing by gender and context, involve caregivers, pastoral leaders, women and young people

in identifying service barriers, using safe and age-appropriate methods. Verify scale coding and the original regression output before using the statistical relationship to guide decisions, and collect disaggregated information on service access where feasible.

Conclusion and Further Research

Households in North Horr reported recurrent climate-related pressures, while stakeholders described possible effects on livelihoods, food, water, learning and children's safety. The survey correlation indicates a weak positive association between the composite scores, but its substantive direction requires verification of the scale coding. The findings support child-sensitive climate responses, while the observational design limits causal interpretation.

The observational design cannot establish causality. Adult reports do not substitute for children's own experiences, and stakeholder accounts are not prevalence estimates. A single ward limits generalisability. The study did not use independent meteorological records or verified child protection records in the findings presented here. The meaning of the composite scores and the valid sample for each analysis need confirmation. Overall reliability across 62 items does not establish reliability for each separate construct.

Future research could combine verified climate records, school attendance and service data with carefully safeguarded, age-appropriate participation by children. Longitudinal designs could examine how changes in climate conditions and household resources relate to changes in child outcomes. Separate measures of protection incidents, service access and wellbeing would help clarify the pathways identified in this study.

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