

# Pastoralist Mobility and Climatic Adaptation in the Sahel: A Review of Satellite-Based Conflict Early Warning Systems for Uganda, 2004

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G, r, a, c, e, N, a, l, w, o, g, a, ,, A, i, s, h, a, K, i, g, o, z, i, ,, R, o, b, e, r, t, O,  
k, e, l, l, o, ,, M, u, s, a, B, a, r, y, a, m, u, j, u, r, a

## | Abstract

Background: The integration of satellite-based conflict early warning

systems into strategies for pastoralist mobility and climatic adaptation in the Sahel region of Uganda represents a nascent area of inquiry within African Studies. Purpose and objectives: This review aimed to synthesise, within the 2004 timeframe, the key debates and evidence regarding these systems. Its objectives were to assess their conceptual foundations, evaluate reported practical implications, and identify critical gaps for subsequent research and policy. Methodology: A structured literature review was undertaken. Relevant scholarly and grey literature from 2004 and prior was identified and analysed using thematic synthesis to distil core findings and arguments. Findings: The analysis for 2004 found that the theoretical potential of satellite monitoring for conflict early warning was recognised. However, evidence of operational effectiveness in supporting pastoralist adaptation in Uganda was limited. Discussions highlighted significant structural constraints, including technological access, institutional capacity, and the integration of satellite data with ground-level socio-ecological knowledge. The literature pointed to a reliance on pilot initiatives rather than established systems. Conclusion: The review concludes that, by 2004, satellite-based early warning systems for pastoralist contexts in Uganda remained largely conceptual. Their development required much stronger empirical foundations and explicit attention to the specific political, environmental, and cultural contexts of Sahelian pastoralism. Recommendations: Future initiatives should prioritise co-design with pastoralist communities to ensure local relevance. Investments are needed in ground-truthing satellite data, building local analytical capacity, and fostering greater transparency in data collection

and sharing protocols. Key words: Pastoralist mobility, climate adaptation, conflict early warning systems, satellite monitoring, Sahel, Uganda, African Studies, review Contribution statement: This review consolidates the 2004 scholarly and policy discourse on satellite-based early warning systems for pastoralism in Uganda, providing a baseline assessment of their conceptual status and practical challenges to inform future research and programme development.

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