

Operationalising Fit-for-Purpose Land Administration in Traditional Areas: Drone-Enabled, Community-Led Spatial Planning for Climate-Resilient Development

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SUMMARY

Governments face growing pressure to secure land rights, steer orderly settlement growth, and embed climate risk into local decision-making. This paper presents an operational model that couples drone-based remote sensing with community-led spatial planning to implement fit-for-purpose land administration in traditional council areas. The approach has been deployed within a National Land Planning Programme framework that aligns municipal planning mandates under SPLUMA with customary governance, using formal referral protocols and targeted land-use scheme updates to establish one authoritative planning record.

The technical workflow begins with rapid acquisition of very high-resolution imagery, processed into orthomosaics and elevation products to support parcel-level mapping, homestead identification, and hazard overlays for floods and slope instability. These layers are reconciled with cadastral, valuation, and infrastructure datasets to surface inconsistencies and service backlogs. In practice, this often means defining a pragmatic base map where formal boundaries are incomplete, while flagging gaps for subsequent adjudication.

The governance workflow is anchored in structured participation with traditional councils and ward committees. Community sessions validate features, document local tenure arrangements, identify vulnerable groups (with emphasis on women and youth), and prioritise interventions such as basic service connections, homestead numbering, wayleaves, and cultural-heritage protection. Outputs include: (i) implementable Area Plans aligned to IDP/SDF cycles; (ii) concise text amendments and rural overlays for municipal land-use schemes; (iii) a municipal register capturing traditional allocations and planning decisions; and (iv) a shortlist of capital projects sequenced by affordability and climate

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risk.

Early results indicate clearer tenure recognition, shorter review times for local applications when standard operating procedures are in place, and improved readiness of shovel-worthy projects in peri-urban and rural nodes. The paper details the enabling conditions—policy alignment, trusted local facilitation, lightweight QA of imagery products, and a simple analytics stack—and addresses constraints such as mandate frictions and fragmented records. It concludes with a scale-out plan that standardises templates, codifies MoUs between municipalities and traditional councils, and specifies a monitoring framework to track coverage, decision-cycle times, rights recording, and investment leverage. The contribution demonstrates how practical geospatial innovation, integrated with institutional design, advances climate-resilient, inclusive land governance.

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