

Building the Future of E-Governance: How Mapex Digitized and Geo-Enabled West Bengal's Land Records

Mapex (formerly the GIS division of Azure Knowledge Corporation) partnered with the Directorate of Land Records & Surveys (DLRS), Government of West Bengal, to transform over 68,000 analogue cadastral maps into a digital, geo-referenced land records system. Spanning 42,302 revenue villages, this initiative aimed to improve governance, transparency, and land administration.

The Challenge

West Bengal's land records were outdated analogue, non-spatial, and fragmented resulting in inefficiency, public mistrust, and legal disputes. A scalable, spatially accurate digital solution was needed to modernize the system and prepare it for future e-governance.



Our Approach

Mapex executed a four-stage georeferencing workflow:

STAGE I	STAGE II	STAGE III	STAGE IV
Ground Control Network Establishment	Spatial Data Preparation	Mono Imagery Georeferencing	Cadastral Map Geo-Referencing
DGPS surveys established primary and secondary control points for high spatial accuracy.	Satellite triangulation and ortho-imagery generation provided the base for accurate map overlays.	High-res imagery was aligned to control points to ensure sub-meter accuracy.	Raster cadastral sheets were geo-referenced, edge-matched, and validated for topology.

Each stage followed a rigorous QA/QC protocol, with validation by DLRS.

The Solution

We delivered geo-referenced digital and hard-copy cadastral maps, a cloud-hosted GIS platform, and trained DLRS staff for long-term maintenance. The system integrated satellite feeds, LRMS, and mobile/web tools for ongoing land record updates.

Impact & Results

Enhanced Transparency	Accelerated Transactions	Dispute Reduction	Foundational Platform
Citizens can now access authoritative, spatially accurate land records online, leading to reduced litigation and manual verification.	We have streamlined property transactions and mutations by integrating the Land Records Maintenance System (LRMS) and Registration workflows.	Increased transparency has paved the way for the authorities to minimize boundary disputes and support long-term credit secured on land.	The geo-referenced database serves as the backbone for future initiatives- land reform measures, urban planning, watershed management, and e-governance services.

Key Statistics

42,302

revenue villages mapped

68,453

cadastral sheets georeferenced

22+

district-wide satellite imagery analyses

100%

QA/QC compliance with RMS error targets

4 structured project stages, spanning imagery collection to vector map alignment

By modernizing West Bengal’s land records into a seamless, spatially enabled system, Mapex helped government authorities deliver citizen-centric, dispute-free land administration. This large-scale exercise has allowed us to lay the foundation of India’s bid to usher in the next generation of digital land governance.

Mapex represents a new era in offering customised GIS Solutions and new-age offerings such as geospatial data engineering, enabling our clients to elevate their strategic planning, operational efficiency, and growth. As a part of Azure Knowledge Corporation, Mapex combines an experience of over two and a half decades, strategic vision and technological depth to unlock actionable insights.