

Land Tenure and Geospatial Data and Technology

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OUTLINE

- I. Overview of geospatial data and technology for land tenure
- 2. Role of new geospatial technologies in securing land tenure
- 3. Opportunities and considerations in using geospatial technologies for land tenure and improved resources governance
- 4. Implications for sustainable development

TERMS AND CONCEPTS

Geospatial Data:

• Any data that is linked to a location

Geospatial Technology:

- Range of tools for mapping and data management
- Global Information System (GIS), Global Positioning System (GPS), and satellite imagery

MANAGING LAND REQUIRES KNOWLEDGE

- Where are the land resources?
- Who has access to these land resources?
- How much land is there?

Geospatial data and technology can help you answer these questions.

GEOSPATIAL DATA AND TECHNOLOGY TO SECURE LAND



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LAND RECORDS AND GEOSPATIAL DATA COLLECTION

DEVELOPED NATIONS

- Most land records are digitized
- Records are created and maintained in land administration or cadastral systems
- Collected by professional surveyors and follow legal and accuracy standards

DEVELOPING NATIONS

- Large cities may have invested in a cadastral system
- However, in most of the developing world paper records are prevalent

How can geospatial data help bridge this gap?

CHALLENGE

- Lack of documentation and digital records
- High cost of land surveyors and traditional land administration processes
- Gap between government planned land administration and local/regional priorities
- Emphasis on attracting investments
- Low capacity



MOBILE APPLICATIONS TO SECURE TENURE – MAST EXAMPLE



MAST is flexible and adaptive approach and can be used for:

- Systematic Registration
- Spot Registration
- Conflict Resolutions
- Sustainable land use planning



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CONSIDERATIONS



KEY CONSIDERATIONS

- Legal accuracy requirements
- Data collection and management
- Sustainability

I. ACCURACY REQUIREMENTS

General Rule:

• Highly accurate data is more difficult and more costly to collect and to manage

URBAN AREAS

• I meter, sub-meter requirements



RURAL AREAS

• Varies, often 2-10 meter requirements



2. DATA QUALITY

Data quality encompasses the accuracy and precision of both:

- The spatial data
 - The attributes

TOPOLOGY EXAMPLE

 Topology describes spatial relationships



3. SUSTAINABILITY



OPPORTUNITIES AND EMERGING TECHNOLOGIES

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EMERGING TECHNOLOGIES

OPERATIONAL GUIDELINES FOR RESPONSIBLE LAND-BASED INVESTMENT

ANALYTICAL FRAMEWORK FOR LAND-BASED INVESTMENTS IN AFRICAN AGRICULTURE

GEOSPATIAL DATA AND TECHNOLOGY

- Geospatial data can inform such investments to avoid potential land-related conflicts between investors and communities.
- Maps and analysis can be helpful to investors throughout a project's life cycle, including:
 - Due diligence and pre-project assessment phases
 - Negotiations
 - Project implementation
 - Project close-out

CLEAN ENERGY INVESTMENT IN MEXICO

MEXICO: COMPLEX TENURE

INDIVIDUAL PROPERTY

- Private titles
- Registered with the Public Registry of Property

COMMUNITY LANDS:

- "Ejidos" and "comunidades" registered with the National Agrarian Registry
- Individual land and commonly used property rights also exist within the "ejidos"

CLEAN ENERGY INVESTMENT IN MEXICO EXAMPLE



Wind Farms
Formally recognized lands
Comunidad
Ejido

ACCESS TO LAND IN COLOMBIA

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COLOMBIA: ACCESS TO LAND

• 3% own 60% of registered rural land





EXAMINING ACCESS TO LAND AND DRIVERS OF CONFLICT

Most recent displaced populations are Afro-Colombians and Indigenous People, who comprise an estimated 15% of Colombia's population



TAKEAWAY #I

Geospatial data and technology **play a critical role** for clarifying and strengthening land rights

TAKEAWAY #2

There are a number of considerations associated with spatial land

data collection and management to secure tenure

TAKEAWAY #3

Opportunities exist for linking spatial data to existing frameworks and guidance

TAKEAWAY #4

Technology development and web mapping allow for **improved access** to geospatial land data

RESOURCES

Learn more:

- USAID Land Links resources
- Additional Resources on Geospatial data/emerging technologies

E3/Land and Urban Office www.LandLinks.org landmatters@usaid.gov #landmatters #landrights Construction
Construction