AFRICAN DEVELOPMENT BANK GROUP
GROUPE DE LA BANQUE AFRICAINE DE DÉVELOPPEMENT

Enhancing Innovations for Efficient Land Use Planning and Climate Risk Management: The Case of ZOREDI Project - Tanzania

SIDE EVENT: INCLUSIVE AND TRANSPARENT LAND GOVERNANCE PRACTICES FOR BUILDING EFFECTIVE LAND ADMINISTRATION INSTITUTIONS AMID CHANGING CLIMATE

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15 May 2024

Presentation outline

01 Introduction: Context governing Bank's work on land

02 How the Bank supports the land sector

03 Case Study: ZOREDI- LUPs Tanzania

- Utilization of Land Information Technologies and Innovations
- Implementation status
- Emerging Issues and Lessons

04 Conclusion

1. Context Governing Bank's Work on Land

Ten-year strategy and high 5s

TYS-strategic objectives:

Accelerating inclusive green growth

Driving prosperous and resilient economies

High 5s

Feed Africa

Integrate Africa

Improve the quality of lives of African people

Industrialize Africa

Light up Africa

Sustainable Development Goals

SDG 1 Poverty Eradication

SDG 5 Gender Equality

SDG 11 Sustainable Cities

SDG 15 Life on Land

AU Declaration on Land

Signed by AU Heads of State (Sirte Libya 2009)

Urges member states to develop comprehensive land policies and capacities (human, financial and technical)

African Land Policy Centre

AU-Bank-UNECA joint mandate

Supports implementation of AU Declaration

Global Agreements and declarations

Land Rights as Human Rights

Paris Agreement

Kunming Montreal (incl. SPF 2030)

UNCCD conventions

Global Land Degradation Neutrality (LDN) Target Setting Programme

AU Declaration on Land Rights highlights *"…the centrality of land to sustainable socio-economic growth, development and the security of the social, economic and cultural livelihoods of [Africa's] people."*

2. How does the Bank support land rights in Africa?

Knowlege generation and policy analysis

Land tenure reforms

Land use planning

Promoting gender equality

Knowledge management

Lending operations

Agri-business, agroforestry, nutrition and climate resilience

Land rights

Land restoration

Capacity building on land issues

Best practices on land use and governance

Africa Land Policy Conference

Knowledge sharing events

Country and regional dialogue

Policy Dialogue and Advocacy

Technical assistance

Training and policy advice on land rights and conflicts

Training programmes for RMC policy officials

Internal training on land governance

Land recourses are influenced by economic, social, and political factors, which requires the Bank to take a multifaceted approach that covers lending operations, knowledge management, policy dialogue, and technical assistance support.

3. Case study: ZOREDI- LUPs Project , Tanzania

National Plans and Programmes:

- Vision 2025 & FYDP (2021-2025) reduce poverty and enhance well-being (inclusive economic growth & industrialization;
- ASDP II to enhance smallholder farmers' productivity, commercialization, and income.

Bank's Strategy:

- Ten-Year Strategy - accelerating inclusive green growth and driving prosperous and resilient economies;
- High 5s- creating the enabling environment for investments to facilitate economic growth in an environmentally sustainable manner, emphasizing good land governance and efficient use of land resources.

ZOREDI:

- Three-year project (2023-2025)- TA through NLUPC.
- *Primary objective: Develop land use plans for agro-industrialization at the zonal, regional, district, and village levels.*

Project Components:

- Development and Implementation of land use planning framework for agro-industry.
- Establishment of Geospatial, Statistical, and Research Infrastructure for Industrialization (GSRII).
- Capacity Building, Empowerment, Monitoring, and Evaluation.

Utilization of Land Information Technologies and Innovations:

- Data Collection and Analysis is used to assess current conditions and model future scenarios.
- Spatial Analysis and Modeling using GIS and remote sensing tools.
- Scenario Planning and Decision Support, Community Engagement and Participatory Mapping.
- Risk Assessment and Early Warning Systems, Capacity Building, and Knowledge Sharing.

Experts training on Geospatial Fields and GIS, Geospatial Communication Model, Geospatial Data and Information and Geospatial Communication process

Implementation : Utilization of Land Information Technologies and Innovations:

The integration of GIS and Remote sensing in land use planning provided real-time spatial data on land cover changes, environmental conditions, and climate risks, enhancing decision-making.

Enhanced Data Analysis scrutinized climate data for Improved Spatial Planning, aiding in identifying vulnerable areas and developing targeted adaptation strategies.

Efficient Resource Management through IT streamlined processes, optimized allocation, and enhanced adaptation effectiveness.

Long-term benefits included reduced vulnerability to extreme weather and improved community resilience, highlighting the significance of incorporating GIS, Remote sensing, Enhanced Data Analysis, and Efficient Resource Management in land use planning.

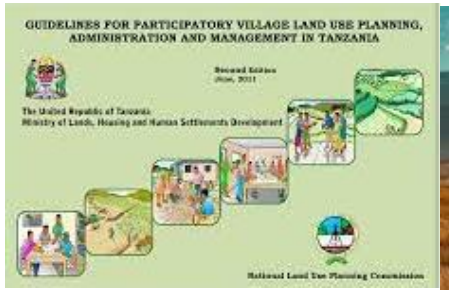
Implementation: Climate Change Adaptation Strategies

alternative renewable energy sources and designated areas for private and public forestry to benefit from UN-REDD initiatives.

resilience, sustainable use of land resource, emission reduction, and community ownership

Climate change adaptation and community resilience chapters in land use reports

Involving communities in incorporating measures to adapt and mitigate climate change effects into land use planning.



Implementation status

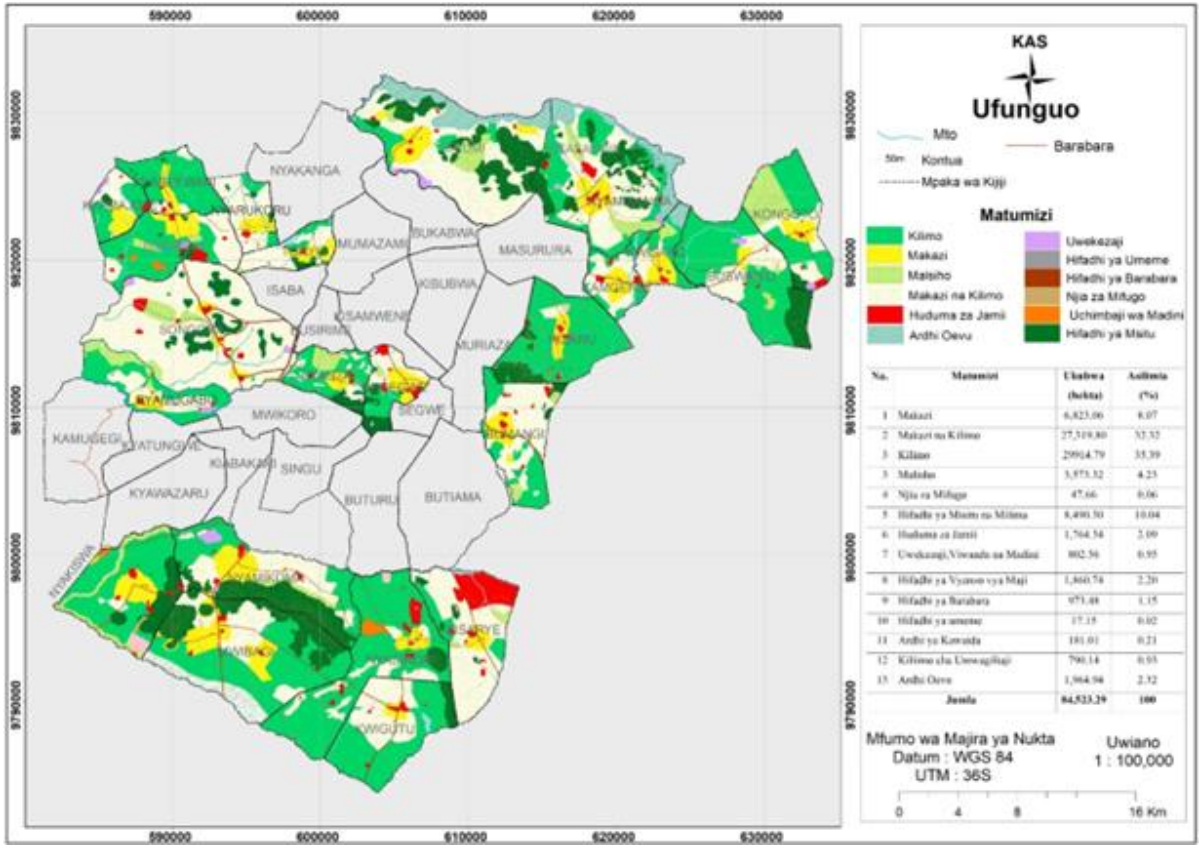
- **Integration of SCPZ Locations and Climate Resilience Measures:**
  - SCPZ locations are incorporated into village land-use plans and titling programs.
  - Measures are taken to address the loss of land and social services caused by climate change along Lake Victoria's shoreline.

Project Impact and Achievements (September 2023 to March 2024):

- 72 villages reached; 50 villages assisted in preparing land use plans.
- 10,666.68 hectares of reserved community forests designated.
- 3,595.719 hectares proposed for open forest use.
- Contribution to national restoration strategy aiming to restore 5.3 million hectares of degraded community forests by 2030.
- Generating income and employment opportunities for villagers through these strategies.

Emerging Issues and Lessons

- Land conflicts in Tanzania result from multiple planning authorities and land categories: Central government, LGAs, and village governments often clash over overlapping powers.
- Land law distinguishes General, Village, and Reserved land with unique regulations.: Unclear boundaries between land categories lead to overlapping claims and disputes.
- Conflicts arise from jurisdictional complexities, unclear boundaries, and competition.
- Addressing these challenges requires integrated approaches to governance, land tenure, and resource management to build resilience to climate change impacts effectively.



Combined Land Use Plans – Butiama

Key Lessons

- Land use planning: reduced conflicts, enhanced water and forest protection, and increased land tenure security.
- Perceived consequences: fears of land loss, relocation concerns, and enforcement uncertainties.
- Effective factors:
  - community education, widespread participation, and resource availability influenced adherence to regulations.
  - Positive perceptions of benefits motivated compliance, while negative impacts fostered resistance

Village Land Use Planning Committee meeting in Kigera Etuma, Musoma DC

4. Conclusion

LIT plays a pivotal role in managing land use, guiding development decisions, and preparing for climate challenges. However, for these systems to function effectively, collective efforts and investments in new technologies are necessary. It's crucial that these systems are adaptable, practical, and conducive to societal advancement. Collaboration and technological investments are imperative for addressing climate change. By aligning land use planning with the AU Declaration's principles, we can foster sustainable development, ensure equitable land access, and bolster climate resilience, paving the way for a more resilient and sustainable future.

THANK YOU

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POLICY PAPER

LAND INFORMATION TECHNOLOGIES AND INNOVATIONS FOR EFFICIENT LAND USE PLANNING AND CLIMATE RISK MANAGEMENT- ZOREDI PROJECT IN TANZANIA

Purpose of the policy paper: This paper highlights the views that will be shared by AfDB during the side event on "inclusive and transparent land governance practices for building effective land administration institutions amid changing climate". The event is organized by the Bank in collaboration with the International Land Coalition (ILC) and the International Development Law Organization (IDLO) and will take place at the margins of the World Land Conference (13-17 May 2024). AfDB's intervention will focus on Innovations for Efficient Land Use Planning and Climate Risk Management, using the case of the AfDB Technical Assistance Project in Tanzania (The development of land use plans to catalyze agro industrialization -harnessing digital innovation – ZOREDI).

1. INTRODUCTION

1.1 Context

The African Development Bank (AfDB) is providing support for the development and creation of the Special Agro-Processing Zone (SAPZ) as a flagship project of the Bank's Feed Africa initiative in several Regional Member Countries (RMCs). Tanzania is one of the countries receiving this support, and it is implementing the Tanzania Vision 2025, a 15-year plan that aims to guide its efforts to reduce poverty and enhance the well-being of its people. As part of this vision, the country uses the Five-year Development Plan (FYDP, 2021-2025) to achieve inclusive and competitive economic growth through industrialization and human development. The plan prioritizes critical interventions for accelerating industrialization, such as the application of science, technology, and innovation to improve productivity and yields in the agriculture sector, manufacturing, mining, construction, environmental and natural resources management, science, technology, and innovation, tourism, financial services, and the blue economy. The Government of Tanzania launched the Agriculture Sector Development Programme Phase II (ASDP II) to implement the FYDP. The programme aims to improve the agricultural sector, including crops, livestock, and fisheries. The ultimate goal is to enhance productivity, commercialization, and the income of smallholder farmers. The government is focusing on priority commodities and high-potential district clusters to promote industrialization and efficiency in the agriculture sector. As part of this effort, the Tanzanian government is developing SAPZs and seeking support from the AfDB.

1.2 Background

The Tanzanian government has taken steps to identify areas for establishing SAPZs and has developed regional investment guidelines. However, these guidelines only highlight investment areas without providing comprehensive information that helps investors make informed decisions.[1] Additionally, the guidelines lack spatial information that could provide the size and proximity of the investment areas. Such information needs to be included in documents approved by Planning Authorities and incorporated into the Land use framework plan at the regional and zonal levels.

The Land Use Planning Act No. 6 of 2007 grants autonomy to the National Land Use Planning Commission (NLUPC) as a national, zonal, and regional planning authority[2]. The NLUPC also facilitates the development of district land use framework plans and village land use plans. The NLUPC partnered with

[1] Interview with Tanzania Land Use Planning Commission's Director general, Prof Magigi, Dodoma, Tanzania, June 25, 2022
[2] Government of Tanzania. Land Use Planning Act, 2007 (Act No. 6 of 2007).

other organizations such as the Tanzania Investment Centre (TIC), The Ministry of Industry and Trade, the Economic Processing Zone Authority (EPZA), the Office of Regional Administrative Secretary (RAS), and District councils to demonstrate the importance of developing comprehensive zonal, regional, and district land use framework plans. These plans will help to identify, quantify, and qualify potential investment areas, and the information will guide the identification of investment opportunities and projects, including agricultural processing economic zones, industrial processing economic zones, tourism, and art zones, as well as strategic projects for different sectors.

Land use planning is of utmost importance in Tanzania due to the country's high vulnerability to climate change. Changing rainfall patterns, increasing temperatures, and extreme weather events such as droughts and floods have a significant impact on agriculture, water resources, infrastructure, and ecosystems. However, Tanzania is committed to addressing climate change through national policies and international agreements like the Paris Agreement. The Tanzanian Environmental Policy for the year 2021 acknowledges the importance of Land Use Planning in conserving the environment and land resources. As per this policy, Land Use plans must include climate change and environmental conservation concerns. The objective of this policy is to protect citizens' intellectual property, enhance Citizens' and Stakeholders' knowledge of appropriate and effective land utilization, and develop plans to restore degraded land. Additionally, various policies and laws related to the country's conservation and environmental management issues have emphasized the importance of conserving the environment and managing land resources. The country has adopted an approach that incorporates climate adaptation into land use planning to fulfill its commitments and support the implementation of national policies and strategies related to climate change adaptation and sustainable development.

2. OVERVIEW OF LAND INFORMATION TECHNOLOGIES (LIT)

LIT are crucial in land use planning and climate risk management. They provide essential tools and data that help decision-makers make informed decisions.[3] LIT facilitates the collection, integration, and management of various spatial data related to land cover, land use, topography, hydrology, infrastructure, and climate variables[4]. This data is vital to assess current conditions, identify vulnerabilities, and model future scenarios related to land use and climate change impacts. LIT helps identify high-risk areas, prioritize intervention strategies, and simulate the potential impacts of climate change on land use dynamics. It improves the efficiency, effectiveness, and inclusivity of land use planning and climate risk management efforts by providing data-driven insights, modelling capabilities, decision support tools, and opportunities for stakeholder engagement. These technologies are crucial for building resilient communities and addressing the complex challenges of climate change.

3. CASE STUDY: ZORED PROJECT

3.1 The Project

ZORED Project is a three-year (2023-2025) Technical Assistance support the Bank provides to the Government of Tanzania through the NLUPC. This project costs 822200 USD and is funded by the Korea Africa Economic Cooperation Fund (KOAFEC). The project’s primary objective is to create zonal, regional, district and village land use plans to promote agro industrialization. The project aligns with the AfDB's Ten-Year Strategy, whose objectives are to accelerate inclusive green growth and drive prosperous

[3] Papaskiri, T & Burov, M & Ananicheva, E & Shevchuk, A & Popova, E. (2021). Information and technological support of digital land management. IOP Conference Series: Earth and Environmental Science. 867. 012174. 10.1088/1755-1315/867/1/012174.

[4] Tsypkin Yu A and Feklistova I S 2019 Assessing the efficiency of management and land use in the agrarian sector of municipalities IOP Conference Series: Earth and Environmental Science 012089

and resilient economies. Through this project, economic growth will be facilitated in an environmentally sustainable manner by promoting good governance and efficient use of land resources. The project's goals and indicators are aligned with several of the Bank's strategies to achieve the Bank's High 5s. The primary objective is to create detailed and comprehensive land use plans at the zonal, regional, district, and village levels. This includes the development of digital geospatial infrastructure to guide the development of various economic processing zones, such as those focused on Agriculture, Livestock, Tourism and Nature, Industrial Development, Mining Sector, Social Services, Real Estate, Commercial Centers, Transportation and Mobility, Fisheries, Hotels, Recreational Facilities, Education Centers, Finance, and Banking. The project achieves these objectives through three main components: (i) Development and Implementation of a land use planning framework to guide agro-industry development; (ii) Development and Implementation of Geospatial, Statistical, and Research Infrastructure for Industrialization (GSRII), and; (iii) Capacity Building, Empowerment, Monitoring, and Evaluation.

3.2 Implementation Approach and Status

As part of the land use planning exercise, the project employs strategies to adapt and mitigate the effects of climate change. These measures also generate income and employment opportunities for villagers. For instance, land management plans include projects focusing on alternative renewable energy sources. Additionally, the project designates specific areas for private and public forestry (agro) in order to benefit from UN-REDD initiatives for carbon sequestration. This helps mitigate the adverse effects of climate change, such as droughts, land degradation, floods, landslides, and more.

From September 2023 to February 2024, 72 villages were reached. Out of those, 50 villages received assistance in preparing land use plans and successfully designated 10,666.68 hectares of reserved community forests. In addition, 13 villages proposed 3,595.719 hectares of land for open forest use. These efforts have contributed to the national restoration strategy, which aims to restore 5.3 million hectares of degraded community forests by 2030. The land use plans developed through this project protected agricultural land from being converted into other uses, thus reducing agricultural land. To support industrialization, the SCPZ locations were incorporated into the village land use plans and titling program in consultation and participation of local communities. All land use reports for 72 villages have a complete chapter on climate change adaptation and community resilience. In addition, maps and remote sensing images showing different vegetation cover over time due to climate changes are provided for each project village. In some villages along the Lake Victoria shoreline, the rise in water due to climate change has caused the loss of land and social services due to submerged land. Facilities such as fishing land sites, Hospital schools and dispensaries are lacking in some villages. Measures were taken to resurvey some villages and remove submerged land. New areas were proposed.

The project utilizes LIT to promote sustainable land use practices and mitigate climate change impacts on vulnerable landscapes within project areas as it offers diverse solutions through:

- Data Collection and Analysis for assessing current conditions, identifying vulnerabilities, and modeling future scenarios.
- GIS and remote sensing tools to analyze land use patterns, environmental changes, and climate related risks, including prioritizing intervention strategies and simulating the potential impacts of climate change on land use dynamics.
- Scenario Planning and Decision Support to inform strategic decisions.
- Community Engagement and Participatory Mapping to ensure local perspectives are considered.
- Risk Assessment and Early Warning Systems to enhance preparedness and response capabilities.
- Capacity Building and Knowledge Sharing among planners, policymakers, and community members on the effective use of LIT for climate risk management and land use planning.

3.3 LTI and Innovations

To promote innovation, the project integrates geospatial technologies with emerging technologies and uses suitability analysis to determine different uses, including industries and investment. In addition, the project utilizes land Potential Knowledge System (PKS) capability analysis, a new mobile tool for sustainable land use planning and management, to determine land use classes and climate information. As part of the process, the project conducted a Soil health assessment by using an instant soil scanner kit and soil mobile laboratory to enhance and facilitate a detailed management plan for potential agricultural land. This was complemented by awareness creation and knowledge dissemination on relevant agronomical practices relevant to topographical variation in identified agricultural land, specifically Piloted Farms, Farmer's Field Schools, demonstration plots and Farm Blocks. The project also integrated M-Kilimo (a voice-based service where farmers spoke with helpline experts who dealt with any agricultural query raised by the user) and GSRII, digital platforms to coordinate financial inclusivity to farmers with security of land tenure owning land in potential agricultural areas.

3.4 Immerging issues from implementation[5]

During the implementation of a project, several issues arose from the existence of three planning authorities and categories of land in the country. These issues became a source of conflicts over land. The national government has been made aware of these issues. The citizens have agreed on proposed land use plans, and have requested that the Village Committee (VLUMC) and Village Council be responsible for ensuring that citizens do not engage in activities that deviate from what is specified and excluded in the proposals until resolved at the highest levels of government. Apart from this, there is also a need to strengthen conflict resolution mechanisms, promote community ownership, ensure accountability in natural resource management, and provide more opportunities for scaling up land use planning interventions.

3.5 Key lessons learned

Three key lessons learned:

i. Citizen engagement in village land use planning, including the private sector, ensures zoning for various uses, preserving ecosystems, and enhancing resilience against natural disasters.
ii. Industrial planning integrated with regional land use planning facilitates the allocation of land for Special Economic Zones (SAPZs), driven by market demand and private sector involvement.
iii. Private sector investors will utilize Geographical Statistical Research Infrastructure for Industrialization (GSRII) if it supports public engagement and accommodates investment guides in land use plans.
iv. Land use planning offers numerous benefits: conflict reduction, water and forest protection, decreased illegal activities, and enhanced land tenure security.
v. Perceived consequences include land loss fears and relocation worries, with uncertainties hindering plan enforcement and investment.
vi. Effective factors like community education, participation, and resource availability influence compliance, with perceived benefits promoting adherence and resistance to negative impacts.

4 RECOMMENDATIONS

The government should:

i. Encourage the adoption of climate-smart village land use practices and technologies, such as agroforestry, sustainable agriculture, watershed management, and agro-processing areas. This includes

5 ZORED quarterly Project activity report, March 2024

providing incentives and technical assistance to farmers, landowners, and communities through initiatives like Farmer's Field Classes, Pilot Farms, and Block farms to implement climate-resilient land management practices.

ii. Integrate GSRII into existing land use planning frameworks, policies, and regulations to ensure that decision-making processes are informed by accurate and up-to-date dynamic spatial land information. This involves incorporating GSRII tools and techniques into land use zoning, land administration, and the development of planning processes at zonal, regional, district, and village levels.

iii. Invest in GSRII by deploying remote sensing technologies, data management systems, and GIS. This will facilitate the collection, analysis, storage, and dissemination of land-related information. Additionally, integrate technologies such as Drone to Map, blockchain technology, artificial intelligence, machine learning, and deep learning for enhanced effectiveness.

iv. Establish compliance, monitoring, evaluation, and reporting mechanisms to assess the effectiveness of GSRII interventions in improving participatory land use planning, agreed standards, criteria, land quantity and quality outcomes, and community climate resilience. This includes developing indicators, benchmarks, and evaluation criteria to track progress, identify gaps, and inform adaptive management strategies.

v. Implement capacity building initiatives aimed at youth and women to enhance the technical skills and knowledge of planners, government officials, and other stakeholders in effectively utilizing GSRII tools and applications.

vi. Foster community engagement and participation in GSRII initiatives by empowering local communities to collect, collate, and contribute to a national data bank, analyze, and utilize spatial data for land management and climate resilience activities. This includes providing training and technical support to community-based organizations and promoting participatory citizen science and mapping approaches.

4. CONCLUSION

The ZORED project has emphasized the importance of incorporating Land Information Technology (LIT) into various aspects of land management in Tanzania, such as land use planning, land administration, land tenure enhancement security, poverty alleviation strategies, and climate risk management efforts. The project has also demonstrated that remote sensing and geographical information system functionalities can provide valuable information for ensuring land tenure security while keeping up with emerging technologies. However, it is important to note that the lack of land tenure security is not simply a result of illegal invasion and squatting on public and private land. Outdated land tenure laws and inoperative cadastral and land information systems are also at fault. This means policymakers, practitioners, and stakeholders must collaborate to prioritize investment in Geospatial and Emerging Technologies that support LIT for sustainable development. Additionally, it is crucial to design and develop a land administration system that considers the dynamic nature of land. Failure to do so would render the system obsolete in a short amount of time and hinder societal development.

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