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Comparative Analysis of the Use of Google My Maps and the Regional Spatial Plan (RTRW) in Agricultural Land Development in Palaran Sub-district, East Kalimantan

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Abstrak

Penelitian ini bertujuan untuk menganalisis secara komparatif pemanfaatan My Maps dan Rencana Tata Ruang Wilayah (RTRW) dalam mendukung pengembangan pertanian di Kecamatan Palaran. My Maps digunakan sebagai alat pemetaan digital berbasis spasial yang mampu menyajikan informasi lokasi lahan pertanian secara lebih fleksibel, interaktif, dan mudah diperbarui, sedangkan RTRW berperan sebagai pedoman kebijakan tata ruang wilayah dalam pengelolaan dan pemanfaatan lahan secara berkelanjutan. Metode penelitian yang digunakan adalah deskriptif komparatif dengan pendekatan analisis spasial melalui pengumpulan data sekunder, observasi wilayah, dan interpretasi peta. Hasil penelitian menunjukkan bahwa My Maps lebih efektif dalam visualisasi data lapangan, identifikasi potensi lahan, serta aksesibilitas informasi bagi masyarakat dan pemangku kepentingan. Sementara itu, RTRW memiliki keunggulan dalam aspek regulasi, legalitas, dan perencanaan pembangunan jangka panjang. Integrasi antara My Maps dan RTRW dapat meningkatkan efektivitas perencanaan pertanian, optimalisasi penggunaan lahan, serta mendukung pembangunan pertanian yang berkelanjutan di Kecamatan Palaran.

Kata kunci: My Maps, RTRW, Pertanian, Tata ruang, Palaran

Abstract

This study aims to comparatively analyze the utilization of My Maps and Regional Spatial Planning (RTRW) in supporting agricultural development in Palaran District. My Maps serves as a digital spatial mapping tool, capable of presenting agricultural land location data more flexibly, interactively, and with easier updates. Meanwhile, RTRW functions as a regional spatial policy guideline for sustainable land management and utilization. The research method employed is descriptive-comparative with a spatial analysis approach through secondary data collection, regional observation, and map interpretation. The results indicate that My Maps is more effective in field data visualization, land potential identification, and information accessibility for communities and stakeholders. Meanwhile, RTRW demonstrates advantages in regulatory, legal, and long-term development planning aspects. The integration of My Maps and RTRW can enhance the effectiveness of agricultural planning, optimize land use, and support sustainable agricultural development in Palaran District.

Keywords: My Maps, RTRW, Agriculture, Spatial planning, Palaran

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INTRODUCTION

Agriculture is a key sector that plays a significant role in driving economic growth, ensuring food security, creating jobs, and enhancing the quality of life for people, particularly in developing regions. In the context of regional development, the agricultural sector plays not only a role as a provider of food, but also as a driver of local economic activities through various sub-sectors such as staple crops, horticulture, plantations, and livestock. In Indonesia, developing the agriculture sector is an important part of efforts to achieve sustainable development, considering the country's characteristics, which include potential land resources, a tropical climate, and biodiversity that support agricultural activities. However, the dynamics of population growth, expansion of residential areas, development of industrial sectors, and increasingly intensive changes in land use pose unique challenges in maintaining the sustainability of productive agricultural areas (Rajagukguk, 2021).

One of the basic elements in developing the agricultural sector is planning the use of space based on the characteristics of the area. Good space planning allows land to be used in the best way possible, taking into account the physical characteristics of the area, how easy it is to get to the place, the availability of infrastructure, and the long-term needs of development. From a geographical perspective, agricultural development cannot be separated from spatial analysis because the distribution of resources, land use patterns, topography, transportation networks, and proximity to distribution centers all directly affect the productivity and efficiency of agricultural activities. That is why spatial information becomes an important tool in supporting more accurate, systematic, and data-based decision-making processes (Ardiansyah *et al*., 2025)

As digital technology continues to advance, the use of web-based mapping platforms like Google My Maps is growing because they offer easy access, flexible data management, and interactive, easy-to-understand spatial visualization that is useful for many groups, including academics, government officials, and the general public (Marsujitullah & Asis, 2022)).

My Maps offers a new way to participate in mapping and perform simple spatial analysis without needing complex GIS software. Using this platform, users can add location points, draw polygons, integrate attribute data, and visualize spatial relationships between objects in real time. In the context of agricultural development, My Maps can be used to identify the spread of farmland, access to road networks, proximity to markets,

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availability of production facilities, and potential land use conflicts. This advantage makes My Maps a flexible geographic technology option that supports region-based development planning (Zahara *et al*., 2026).

On the other hand, in Indonesia's development planning system, the formal use of space refers to the document known as the Regional Spatial Plan (RTRW), which is prepared by local governments as a guide for organizing spatial structure and the pattern of the regional area. RTRW plays a strategic role in guiding the use of space in line with long-term development goals, maintaining ecological balance, and managing land use conflicts between different sectors. Through RTRW, the government sets aside zones for protected areas, cultivation areas, residential areas, industrial areas, and agricultural areas, which serve as the legal basis for implementing regional development. Thus, RTRW functions as a spatial policy instrument that is normative, regulatory, and binding in the management of space (Kurniawan, 2026).

Even though RTRW has strong formal legitimacy in urban planning, its implementation often faces several challenges, such as delays in updating data, limited public access to spatial information, and the fact that existing conditions change faster than the revision process of the planning documents. This situation can lead to a mismatch between the land use guidelines in the RTRW and the actual conditions on the ground. At the same time, digital mapping platforms like My Maps offer more dynamic, easy-to-update data that can better represent the current real-world conditions. The differences in characteristics between the two approaches create a need for a comparative study to understand the effectiveness, advantages, and limitations of each in supporting the development of the agricultural sector (Muammar & Amrullah, 2023).

Kecamatan Palaran is one of the areas that has a geographical profile with good potential for developing the agriculture sector. This area has a mix of farmland, residential areas, transportation networks, and is close to the main economic activity centers, making it a good place for developing agricultural products. However, as an area experiencing urbanization and expansion of development, Palaran Subdistrict also faces pressure from changes in land use that could potentially reduce the area of productive agricultural land. Therefore, accurate and flexible spatial planning is needed to ensure that agricultural sector development can continue sustainably without ignoring the dynamics of regional development (Mentari *et al*., 2025).

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Previous studies have explored the application of geographic information systems in regional planning and the advancement of the agricultural sector (Ginting *et al*., 2024).Other studies also show that spatial plans play an important role in managing land use and protecting cultivated areas(Subroto & Witjaksono, 2022).However, studies that specifically compare the use of web-based digital mapping platforms with formal land use documents in the context of agricultural development at the district level are still quite limited. This limitation shows there is a research gap that needs to be explored further, especially regarding how digital technology-based spatial data can support or even supplement the existing formal spatial planning functions (Zahara *et al*., 2026).

Based on this situation, this research offers a new approach by comparing the use of My Maps as a digital web-based mapping platform with RTRW as a formal spatial policy tool in the development of agriculture at the local area level. This study aims to examine the suitability of agricultural land use, area accessibility, potential for regional development, and the effectiveness of both approaches in supporting decision-making for agricultural development in Palaran District. The research results are expected to contribute theoretically to the development of applied geography studies and geographic information systems, and practically to local governments and stakeholders in formulating more effective, data-based, and sustainable agricultural development strategies (Fauzi *et al*., 2022).

MATERIALS AND METHOD

This study employs a qualitative research design using a comparative method, which involves comparing two or more objects to identify similarities, differences, and the degree of alignment between them (Sugiyono, 2013). The approach used is descriptive-comparative, which involves describing and comparing the conditions of agricultural land use in Palaran Subdistrict with the provisions of the applicable spatial plan in a systematic and factual manner.

In qualitative research, the term “population” is not used; instead, the concept of “social situation” is employed, comprising three elements: place, actors, and activity, which interact synergistically (Sugiyono, 2018). The place element refers to Palaran Subdistrict, the actor element refers to agricultural land use, and the activity element refers to the process of comparing spatial data from Google My Maps with the RTRW on the Gistaru ATR/BPN portal. In this context, the researcher serves as a key instrument who directly observes, analyzes, and interprets data to determine the degree of alignment or

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discrepancies between on-the-ground conditions and applicable spatial planning regulations (Miles & Huberman, 1994).

Data collection techniques utilized secondary data obtained from official documents and government digital portals, employing two data collection methods. First, digital observation, which involves monitoring land use conditions through Google My Maps visualizations. Second, documentation, which entails collecting spatial data and regulations from the RTRW via the Gistaru ATR/BPN portal as a normative reference, which is then compared with existing conditions on the ground.Data analysis uses the interactive analysis model by Miles and Huberman (1994), which consists of three stages.

First, data reduction, which involves filtering and summarizing land-use data from Google My Maps and Gistaru relevant to the agricultural sector in Palaran Subdistrict. Second, data presentation, where the comparison results are presented in the form of comparative tables and overlay maps to identify points that align with or deviate from the spatial plan. Third, drawing conclusions, which involves describing the alignment or gaps between actual land use and the spatial plan as the basis for recommendations on agricultural development in Palaran Subdistrict.

RESULTS AND DISCUSSION

Digital observation using Google My Maps, combined with a review of spatial planning documents from the Gistaru ATR/BPN portal, provides a comprehensive overview of current agricultural land-use patterns in Palaran Subdistrict. The analysis follows the interactive model proposed by Matthew B. Miles and A. Michael Huberman (1994), encompassing data reduction, data display, and conclusion drawing to identify patterns of spatial conformity (Bingham, 2023).

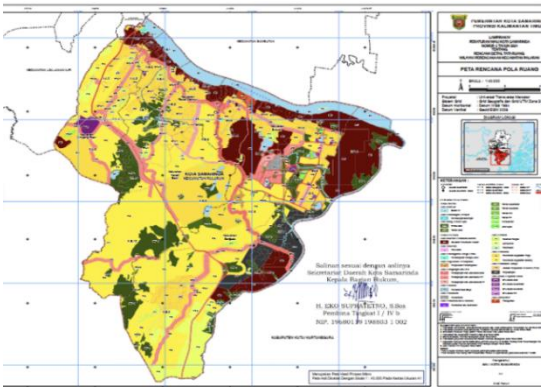

Figure 1. Spatial distribution of land use in Palaran Subdistrict based on regional spatial planning map
(Source: Processed from Gistaru, 2026)

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The findings reveal three principal categories of land-use conformity. First, areas that remain aligned with the Regional Spatial Plan (RTRW) are predominantly characterized by stable agricultural functions, including rice fields and mixed cropping systems. These areas are generally located at a relative distance from urban centers and industrial zones, thereby experiencing lower development pressure. Spatial visualization indicates that such areas maintain functional continuity, supported by adequate access to local road networks, which facilitates agricultural production and distribution. The spatial distribution of these agricultural areas can be more clearly observed through digital mapping, as illustrated in Figure 1 (Arisma Wardhani *et al*., 2025).

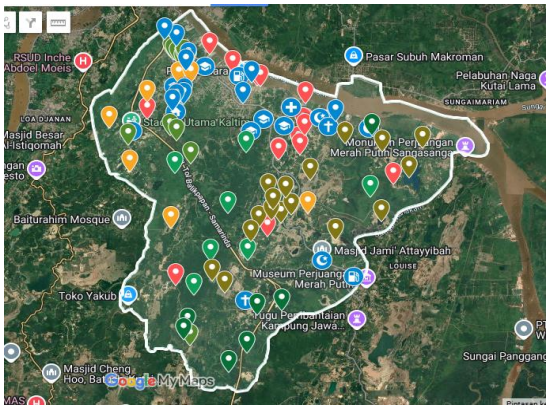

Figure 2. Spatial distribution of land use in Palaran Subdistrict based on Google My Maps
(Source: Processed from Google My Maps, 2026)

As illustrated in Figure 1, land use in the study area exhibits a heterogeneous spatial pattern, characterized by the coexistence of agricultural land, industrial areas, and public facilities. Agricultural zones tend to be distributed in peripheral areas with relatively lower development intensity, whereas industrial and service-related activities are more concentrated along major transportation corridors. This spatial arrangement indicates that accessibility plays a significant role in shaping land-use patterns.

Areas located near primary roads show a higher concentration of non-agricultural activities, particularly industrial sites, reflecting the influence of accessibility on land conversion processes. While improved accessibility supports economic development, it simultaneously increases pressure on agricultural land, especially in strategically located areas. Based on the spatial patterns illustrated in Figure 1, the analysis identifies three principal categories of land-use conformity.

A notable degree of non-conformity is identified in several locations where designated agricultural zones have undergone conversion into residential or other non-

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agricultural uses. Overlay analysis demonstrates that these transformations are strongly associated with high-accessibility corridors, particularly in proximity to primary roads and emerging economic hubs. This pattern reflects increasing spatial competition and highlights the vulnerability of agricultural land in strategically located areas.

Transitional zones exhibiting potential land-use conflicts are also observed. These areas are characterized by fragmented spatial patterns, where agricultural land coexists with newly developed structures. Such fragmentation indicates an ongoing process of gradual land conversion and suggests weakening control over spatial utilization.

From an accessibility perspective, most active agricultural lands are situated within reasonable proximity to transportation networks. However, the level of integration with distribution infrastructure remains uneven. This finding highlights the dual role of accessibility as both a supporting factor for agricultural productivity and a driver of land-use transformation (Wang *et al*., 2022).

The findings reveal a discernible gap between actual land-use practices and the normative framework established by the RTRW. This discrepancy arises from the contrasting characteristics of the two analytical approaches: dynamic digital mapping and formal spatial planning. As a web-based platform, Google My Maps offers significant advantages in terms of flexibility, user accessibility, and real-time data representation. These features enable a more responsive depiction of spatial dynamics, particularly in capturing rapid land-use changes driven by urban expansion. In the context of Palaran Subdistrict, My Maps effectively reveals patterns of agricultural land conversion that are not yet reflected in official planning documents. Conversely, the RTRW functions as a legally binding instrument that guides long-term spatial development and ensures land allocation in accordance with policy objectives, including the protection of agricultural zones (SAMARINDA, 2023). However, its inherently static nature and the procedural complexity of revisions limit its responsiveness to rapid spatial transformations.

Rather than being contradictory, these two approaches are inherently complementary. Digital mapping platforms such as My Maps can serve as adaptive monitoring tools, while the RTRW provides the regulatory framework necessary for spatial governance. Integrating these approaches would support a more responsive and evidence-based planning system capable of balancing development pressures with the need to sustain agricultural land.

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Furthermore, accessibility emerges as a critical factor shaping land-use dynamics. While improved access enhances agricultural efficiency and market connectivity, it also increases land value and accelerates conversion pressures. This duality aligns with classical land-use theory, which posits that proximity to economic centers intensifies competition for land resources (Sarastika *et al*., 2023).

SUGGESTION AND CONCLUSION

In conclusion, both My Maps and RTRW play significant roles in agricultural development planning in Palaran District, each with distinct strengths. My Maps offers practical advantages in real-time spatial visualization, accessibility, and field-level land analysis, while RTRW provides essential regulatory frameworks and strategic guidance for sustainable regional development. The comparative analysis reveals that combining digital mapping technologies with formal spatial planning policies creates a more comprehensive and effective approach to agricultural land management. Therefore, integrating My Maps with RTRW is highly recommended to improve decision-making, optimize agricultural land utilization, and promote sustainable agricultural growth in Palaran District.

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