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Update and Confirmation of the Boundary Map for Braja Yekti Village, Braja Selebah Subdistrict, East Lampung Regency

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ABSTRACT

The Community Service Program (KKN) was carried out as a community service activity implemented in Braja Yekti Village. This program aims to improve the previous village map because there was a discrepancy between the map and the original area and to improve the quality of village development planning through accurate mapping of infrastructure and natural resources which makes "village map making" one of the main work programs to support village development planning. The method used in community service is a qualitative approach with a descriptive-explanatory model, and data is obtained through field surveys with the local hamlet head. The stages of this program begin with discussions with village officials to determine the type of map to be made and scheduling a survey with the hamlet head. The implementation stage involves a survey of hamlet boundaries carried out directly in the field. Furthermore, the post-implementation stage includes the creation of a village map in A0 format that displays the survey results in detail. The results of this program show that village maps can be an important instrument in facilitating communication between the village government and the community, while encouraging more effective and efficient development planning. From the results of the evaluation carried out through questions and answers, the implementation of this village mapping work program shows great potential to provide long-term positive impacts on village development and community welfare in Braja Yekti Village.

1. Introduction

A map represents the earth's surface depicted on a flat plane. The features presented in a map serve as a valuable source of information for the government as policymakers and planners to make informed decisions during the development process. Maps created with the most recent data provide factual and up-to-date information, ensuring that policies enacted by local governments are viewed as credible and trustworthy (Lui et al., 2021).

Empowering regional potential generally begins at the village or subdistrict level to boost regional development. The division of village/subdistrict areas is a common phenomenon. The creation of boundary maps is expected to help prevent boundary conflicts and optimize development in village areas (Lui et al., 2021).

The availability of village maps is crucial for villages, as maps are more than just tools to illustrate locations or boundaries. The benefits of having a village map can be felt by local residents, visitors, and the government. For local residents, a village map helps them understand the condition of their living area. For visitors, the map serves as a navigation guide to avoid getting lost and stay within the village's limits, as well as to locate specific buildings within the village. For the local government, a village map acts as a database of the village area and provides a foundation for decision-making and policy development. Moreover, a village map ensures legal clarity and certainty regarding a village's boundaries (Adiman, Y et al., 2024).

This community service activity aims to map the village as a foundation for regional development. Improving village welfare requires support from various parties, including higher education institutions. Hence, this activity is a form of support to enhance village welfare through the optimal utilization of geospatial information (Lui et al., 2021).

According to the National Coordinating Agency for Surveys and Mapping (Bakosurtanal, cited in Alpiana, 2022), maps serve as a medium for storing and presenting data on environmental conditions and can act as a source of information for planners or decision-makers at different stages of development. Administrative maps are particularly important as they contain administrative information about an area, including facilities and infrastructure within the mapped region (Ferdinandus et al., 2023).

Regional maps play a significant role in various aspects of life, especially in understanding and managing geographical spaces. They assist in navigation, land-use management, determining locations for buildings and infrastructure, providing public services, ensuring sustainable development, identifying resource locations, and marking administrative boundaries. Overall, regional maps are essential tools for understanding, managing, and planning space use in physical, social, and economic contexts (Mirwansyah et al., 2020).

Community service initiatives are often part of academic or professional programs aimed at connecting the knowledge and skills of individuals or institutions with the real needs of the community. The update and confirmation of the boundary map for Braja Yekti Village aim to improve the previous map, which had discrepancies between the map and the actual area. This initiative also seeks to enhance the quality of village development planning by accurately mapping infrastructure and natural resources, making "village map creation" one of the main work programs to support village development planning.

2. Methods

2.1 Metodology

The article employs a qualitative approach using a descriptive-explanatory model. The descriptive model aims to depict or describe a phenomenon or specific condition based on collected data. Descriptive research focuses on what happens without attempting to explain the reasons behind the phenomenon. Conversely, the explanatory model focuses on explaining why or how a phenomenon

occurs, involving an analysis of cause-and-effect relationships between variables. This approach provides a detailed account of the article related to the work program for creating village boundary maps during the KKN (Community Service Program) of Unila, including explanations of the preparation steps, implementation, and the output and outcomes of the Village Boundary Map Creation Program.

The village boundary data were collected through field surveys conducted alongside the hamlet heads of Braja Yekti Village. The pre-implementation stages of creating the village boundary map included:

1. Discussions with village officials regarding the type of map to be created.
2. Coordination with hamlet heads to determine the survey schedule for village boundaries.
3. Preparation of applications for creating the village boundary map.

The implementation stages involved conducting surveys in each hamlet with the respective hamlet heads. The post-implementation stages for creating a village boundary map in A0 size were as follows:

1. Preparing tools, materials, and vehicles for use during the survey.
2. Using the Avenza application at the village boundary locations to mark each boundary point surveyed.
3. Processing the collected boundary point data in the ArcGIS application to visualize and confirm the boundaries.
4. Providing the soft copy of the village boundary map to the respective hamlet heads for verification.
5. After verification, printing the village boundary map for the village's inventory purposes.

Evaluation of the Village Boundary Mapping

The evaluation of this mapping activity revealed inefficiencies in data collection for village boundaries due to a lack of personnel available for boundary surveys. This limitation resulted in a prolonged time frame for completing the data collection of each village boundary.

2.2 Tools and Materials

The Village Boundary Map Creation Work Program utilized A0-sized banner paper. The tools and materials used in creating the village map included:

- *Laptop:* Used for processing geographical data from satellite sources, performing data analysis, and storing digital maps.
- *Smartphone*: Used for processing geographical data during village surveys.
- *Avenza:* A software application designed for working with digital maps through Avenza Maps. This tool allows users to download and utilize topographic and navigation maps and was used to survey village boundaries on foot.
- *ArcGIS:* A Geographic Information System (GIS) platform developed for creating, analyzing, visualizing, and managing geospatial data in various formats, such as maps, reports, and applications.
- *Frame:* Used to enhance the appearance of the map once printed.

3. Results and Discussion

The mapping of Braja Yekti Village boundaries was conducted from July 3, 2024, to August 2, 2024, with successful implementation. This activity, carried out by the KKN (Community Service) group in Braja Yekti Village, resulted in a geographic information-based map derived from direct surveys in the village, supported by the use of Google Earth Engine.

Figure 1. Discussion activities with village officials

Stages of the Mapping Process

1. *Initial Data Preparation*
   The first stage involved gathering initial data, including Indonesia's topographic maps, shapefile (shp) data of village boundaries, and Google Earth.
2. *Implementation*
   - Discussions and Surveys: Discussions were held with local village officials and hamlet heads to outline the mapping program and determine administrative facilities to include.
   - Preliminary Surveys: Conducted to observe the site conditions before mapping. These surveys aimed to ensure the suitability of planning and work systems for effective and efficient execution (Richard & Lorenzo, 2022). A base survey map was created to clearly delineate the survey area's boundaries (Akhmad et al., 2018).
   - Data Collection and Analysis: Surveys included identifying village and hamlet boundaries and mapping administrative facilities. Braja Yekti comprises six hamlets (Dusun 1 to Dusun 6), and primary data collection was conducted with the respective hamlet heads.

Figure 2. Hamlet boundary survey with village officials.

3. *Map Preparation*
   The collected data were processed using ArcGIS to create a detailed map of village and hamlet boundaries and administrative facilities.
   - Verification: The map underwent verification in a follow-up meeting to ensure accuracy.
   - Printing and Framing: Once verified, the map was printed in a readable and user-friendly format and framed to preserve its quality (Figure 3).

The impact of the submission of this map for the community is enormous. The village map will be an important tool in regional planning and management, helping village officials map strategic locations for infrastructure development, spatial planning, and land allocation more effectively and efficiently. In addition, this map also facilitates data-based decision-making, such as in natural resource management policies, mapping disaster-prone areas, and developing village economic potential. With an accurate village map, the community will get direct benefits, especially in more targeted development planning and improving their welfare in the future.

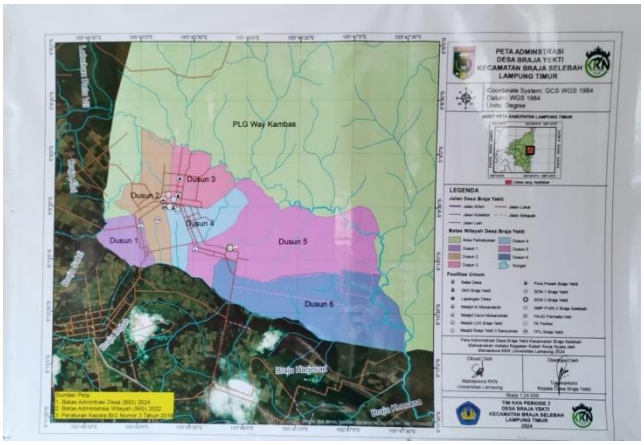

Figure 3. Map of Braja Yekti village

The finalized map was officially handed over to village officials to be used as a tool for various administrative and planning purposes in Braja Yekti Village.

The evaluation showed that mapping the boundaries of Braja Yekti Village had a positive impact on the local community. The map provided clarity on administrative boundaries at both village and hamlet levels, which were previously undocumented. It offers an accurate representation of the village's territory, supporting resource management, development planning, and dispute resolution regarding boundary issues.

From a technical perspective, the map adhered to established mapping principles, enhancing the quality and accuracy of the geographical information provided. However, the map remains relatively basic, covering only village boundaries, hamlet boundaries, and administrative facilities. It lacks details on smaller administrative units such as neighborhood associations (RW) and community units (RT). To address this limitation, future updates should expand the scope of information provided, incorporating RW and RT boundaries. Such improvements would enhance the usability of the map, facilitating navigation and access to administrative facilities and services for the community.

4. Conclusions

The conclusion of this article is that the village mapping program in Braja Yekti Village followed a structured process, starting with the preparation of initial data, including Indonesia's topographic map, village boundary shapefiles (shp), and Google Earth. The second stage involved location surveys and point determination, followed by the map creation process using ArcGIS software. Finally, the map was printed and handed over to village officials.

Village mapping, as a foundation for regional development, is expected to enhance the welfare of the village, supported by various stakeholders, including higher education institutions. This activity demonstrates our commitment to improving village welfare by optimizing the use of geospatial information. It also facilitates navigation and access to various facilities and services for the community while identifying more efficient transportation routes.

It is recommended to provide training to village officials on how to update and utilize the village map. This will enable them to make updates in the future, should there be any changes or additions to infrastructure.

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