

MAPPING OF AREAS BASED ON *SOCIAL MAPPING* USING *GOOGLE EARTH* AS AN UPDATE OF PUBLIC DATA IN TILENG HAMLET, KEPEK VILLAGE, SAPTOSARI DISTRICT

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Abstract – *This research aims to serve the community of Tileng Hamlet, the collaborative KKN group of UIN Sunan Kalijaga and UIN Sunan Gunung Djati 136, in the form of making a social mapping-based regional map in Tileng Hamlet to find out the boundaries of the area per RT with the Google Earth application. Tileng Hamlet is a hamlet located in Kepek sub-district, Saptosari district, Gunung Kidul regency. The area of Tileng hamlet is 3011 m. Tileng hamlet consists of 8 RTs and 1 RW. This area mapping activity employs a qualitative research method, specifically exploratory descriptive approach that takes data directly in the field by conducting surveys. The activities of this work program can be concluded including: First, producing the latest map of the hamlet area with map standards that have been met as a determination of location points to find out the boundaries of the area through the Google Earth application. Second, community cooperation and the 136 collaborative KKN Group succeeded in obtaining the latest public data on the condition of the community in Tileng hamlet through a Google Form survey based on social mapping.*

Keywords: *Data, Regional Mapping, Social Mapping*

1. INTRODUCTION

Students as agents of change (*Agent Of Change*) carried out through community service that can contribute in the form of Real Work Lectures (KKN) which are expected to be useful in helping the community solve development problems for regional sustainability and the development of dynamics in society. KKN is a community development and learning process that includes community service (Luis et al., 2021). The community service provided is by determining the objectives of the work program, determining the goals and benefits, implementation, preparing resources, and implementation strategies of the work program in the form of mapping the area in Tileng Hamlet.

Tileng Hamlet is a hamlet located in Kepek sub-district, Saptosari district, Gunung Kidul regency. The area of Tileng hamlet is 3011 m. Tileng hamlet consists of 8 RTs and 1 RW. Based on the results of a survey conducted on July 14, 2024 in Tileng Hamlet, the number of residents living in Tileng hamlet is 743 people, dominated by men with a percentage of 50.7% and 49.3% for women. The majority of residents in Tileng hamlet work as farmers. The boundary of Tileng Hamlet in the south is directly adjacent to Gondang Hamlet and to the east is adjacent to Bulurejo Hamlet.

Map area mapping is a sheet of all or part of the earth's surface on a flat plane that is reduced using a certain scale. According to Setiawan et al. (2018), a map is simply a description of the area where there is information placed in the form of symbols. Maps are made and used to provide information in the form of location point limits, infrastructure, buildings, roads, and others (Article 240). Territorial boundaries as part of the village map or in a smaller scope, namely hamlets, need to be mapped in more detail to find out the state of the hamlet area and the community and update the data to avoid territorial disputes. The Hamlet Mapping used is by *Social Mapping technique* (Destaniel et al., 2023).

Social Mapping is an activity that aims to understand the social conditions of the community in an area, *social mapping* activities are important to carry out because each community in an area has different social conditions so that the needs and problems faced are certainly different. Social mapping is a systematic process that aims to describe society through the collection of data and information that includes demographic, geographical, and social issues in a region (Sahdu et al., 2021). The *Social mapping* technique is a relevant approach, because it is able to identify and describe social conditions, aspects of people's lives including demographics, economic conditions, and social dynamics that can be better identified (Halawa et al., 2022).

The application of Geographic Information System (GIS) in social mapping in Tileng Hamlet provides a new dimension in spatial data management and analysis. GIS allows the integration of geographic data with social information obtained from survey results, resulting in maps that not only show the boundaries of the region, but also display socio-economic information in more detail (García et al., 2022). With

GIS, the data analysis process becomes more efficient, allowing for more informed decision-making based on accurate and up-to-date information (Utomo et al., 2022). GIS also facilitates the visualization of complex data to be easier to understand by various parties involved in the decision-making process, including local governments, local communities, and the private sector.

Previous research conducted by Ferdinandus et al. (2023) explained the mapping of the Village Administrative Area which was updated in the context of community service to determine village map information (Ferdinandus et al., 2023). What distinguishes it from the research conducted by the author is the place of research and only focuses on the map of the hamlet. Lita et al. (2022) in their research explained that village development requires information supporting data in the form of village maps with a Geographic information system. The difference with the research carried out is the updating of data in the form of making regional maps using *Social Mapping* with the Google Earth application.

Based on the above explanation, the community service of Tileng Hamlet, the collaborative KKN group of UIN Sunan Kalijaga and UIN Sunan Gunung Djati 136 carried out a superior work program in the form of Social Mapping-based social mapping in Tileng Hamlet. Thus, the purpose of making this Mapping is to determine the location of a certain point of demarcation of each RT, can help or become a reference as a development planning and to know the characteristics of the people of Tileng hamlet as well as information on updating public data.

2. METHOD

This research is a type of qualitative research with an exploratory descriptive approach. This approach was chosen because the research aims to identify and map the boundaries and socio-economic conditions of the community in Tileng Hamlet, Kepek Village, Gunung Kidul Regency. Through an exploratory descriptive approach, this research focuses on collecting in-depth data to comprehensively understand field conditions (Kathirvel et al., 2012).

A. Tools and materials

The tools and materials used in this study include:

1. **Google Earth app:** Used for accurate geographic coordinate data capture.
2. **Computers/Laptops with GIS Software:** For spatial data processing and analysis. GIS software used in research.
3. **Google Form Application:** Semi-structured questionnaires are used to collect social data from the public using the Google Form application.

B. Work procedures

1 Social Data Collection through Questionnaires:

- **Interview:** The questionnaire was compiled in the form of a Google Form and asked directly to all residents of Tileng Hamlet. This questionnaire includes questions related to social data, such as

personal data, employment, economic conditions, education level, and health conditions.

- **Questionnaire Filling:** Each citizen is interviewed according to the list of questions in the questionnaire. The collected data is automatically stored in Google Forms and can be accessed for further analysis.
- **Data Verification:** After filling out the questionnaire, the collected data is verified to ensure that no data is missing or inconsistent.
- **Data Visualization:** The processed data is then transferred to Google Looker Studio for more in-depth analysis and visualization in the form of interactive reports.

2 Territory Mapping:

- **Direct Observation:** The research team conducted direct observations to strategic locations in Tileng Hamlet to identify the boundaries of the area. This observation aims to ensure that the geographical conditions and existing administrative boundaries are appropriate and indicate the location of facilities and infrastructure in Tileng hamlet.
- **Interviews with Hamlet Heads and Citizen Representatives:** Interviews are conducted with hamlet heads and resident representatives who are considered to have in-depth knowledge of the boundaries of the area. This interview was conducted to confirm the results of observations and obtain additional information related to facilities and infrastructure as well as more accurate determination of territorial boundaries.
- **Mapping with Google Earth:** Data obtained from observations and interviews is then processed using the Google Earth application (Yuniawatika et al., 2022). This application is used to map predetermined coordinate points and redraw the boundaries of the area with a higher level of accuracy as well as mark the location of facilities and infrastructure in Tileng hamlet.

3. RESULTS AND DISCUSSION

3.1 Village Profile

Tileng Hamlet is the closest hamlet to the Kepek sub-district office. Tileng Hamlet consists of one RW and eight RT. Kepek Village, especially in Tileng hamlet, has a source of livelihood in the agricultural sector, especially cassava. Tileng Hamlet with the geographical position of Tileng hamlet is at 8°3'26.69"S (Latitude) latitude and 110°30'48.64"E (Longitude) longitude, Heading -65.000000° and tilt 27.000000°, and has a territorial boundary in the north, namely Kepem Hamlet, the south is Gondang Hamlet and Wareng Hamlet, and the east is Bulurejo Hamlet.

The majority of the residents of Tileng hamlet work as farmers and selfemployed. The number of people who work as farmers is very dominant, namely

318 people, because the community depends on agricultural land in Tileng hamlet. Meanwhile, jobs in the industrial sector or other fields are still minimal and relatively rare. The people of Tileng hamlet have business skills other than in agriculture, namely business skills engaged in building, electronics, fashion, automotive, culinary and administration.

3.2 Realization of activities A. Preparation for Service Activities

Before the service activities regarding the mapping of the area in Tileng hamlet, of course make preparations including:

1. Ask for permission from the head of Tileng Hamlet

KKN students as immigrants who do not know the condition of Tileng Hamlet as a whole and do not know what problems can be overcome through the work program, the first thing to do is to ask for permission from the head of Tileng Hamlet before the implementation of the area mapping work program.

2. Set up a question through Google Forms

Questions presented through google forms are the main source of data in running social mapping-based work programs. The final result of the questions that have been prepared is expected to collect the latest data about the people of Tileng hamlet as administrative data and data updates.

3. Conducting a Survey

Survey or *self-administered* is a method of collecting primary data by giving questions to individual respondents. The purpose of the survey in the mapping work program of the Tileng hamlet area is to collect accurate data and information about the condition of the people of Tileng hamlet. The survey was conducted by visiting each RT head's house starting from RT 01 to RT 08 to find out the regional boundaries per RT and the number of family cards contained in each RT.

B. Implementation

The Social Mapping-based area mapping activity began by digging up information to the village apparatus, namely the head of Tileng hamlet. Based on the results of a survey carried out on July 11-14, 2024 in Tileng Hamlet, several problems were found, namely the unavailability of a Hamlet map depicting Tileng Hamlet in accordance with Geography and the update of Tileng Hamlet community data. After getting information as a basis, the next activity is to visit each house of the head of RT and RW to explain the work program that will be implemented(Andhikawati, 2020).

Community involvement in mapping the hamlet area is also very helpful by providing enthusiasm and support for the Social mapping-based area mapping program because it is considered to be helpful in updating community data and mapping the location of Tileng hamlet(Maula et al., 2023). Data collection was

carried out through a google form survey consisting of several questions in general for the people of Tileng hamlet starting from RT 01 to RT 08 starting from July 1426, 2024, the data collection was carried out by each family member.

3.3 Results of Activities

The results of the implementation of service activities in the form of this work program are the latest administrative map of the Tileng Hamlet area from the survey results and meet administrative data collection standards and meet map standards. This final map was created using the google Earth app. The following are the results of the mapping map of the tileng hamlet area that has been completed shown in Figure 1.



Figure 1. Mapping of the Tileng Hamlet Area

The part of the Map that is given in white is the part of the residential area in the Tileng Hamlet area, which is given a white line is the Tileng Hamlet area as a whole. The part of the map that is given a yellow line is the residential area of RT 01, a pink line of the RT 02 area, a red line of RT 03 settlement, a purple line of RT 04 settlement, a green line of RT 05 settlement, a blue line of RT 06 settlement, a neon green line of RT 07 settlement and an orange line of RT 08 settlement.

Based on the results of the mapping, the restriction line for each RT in Tileng Hamlet, Public Facilities and locations on the map makes it easier for the public to access and know the location boundaries, public facilities in Tileng Hamlet such as Schools, namely SDN 2 Trowono and Iknu Abbas Kindergarten, Mosques, Patrol Posts, Cemeteries, Fields, Hamlet Head's House, Kepek Village Office, Padukuhan Hall, and Kartiwinoto Traditional House.

The service activities carried out are able to provide knowledge and skills for Hamlet Apparatus such as Hamlet Heads, RW, and Rt as well as sub-districts in regional development and updating Administrative data as a public database(Fagerholm et al., 2022). In addition to producing regional mapping, it can

be obtained from the results of a survey of the people of Tileng Hamlet, the potential they have, especially in the economic sector, namely engaged in agriculture.

4. CONCLUSION

The mapping of the Hamlet Area which was prepared in the context of community service in Tileng Hamlet that has been carried out can be concluded including: First, produce a map of the latest hamlet area with map standards that have been met as a determination of location points to find out the boundaries of the area through the Google Earth application. Second, community cooperation and the 136 collaborative KKN Group succeeded in obtaining the latest public data on the condition of the community in Tileng hamlet through a Google Form Survey based on *social mapping*. It is hoped that in the future the results of the research can be a guide and benchmark for the sustainability of the Tileng Hamlet community as well as follow-up on the creation of more accurate regional boundaries.

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