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**National and international standardization of geographical names:
names collection, office treatment, national authorities, features beyond
a single sovereignty and international**

**Local government initiatives in geographical names data
acquisition: the Natuna Regency archipelago of Indonesia**

Submitted by Indonesia **

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Summary

The Natuna Regency is an archipelago of 272 islands located in the Natuna Sea. Administratively, it is a regency within Kepulauan Riau Province of Indonesia. Natuna Regency continues to develop its territory as both the outermost and most advanced regency. The road network, buildings and various facilities continue to be constructed and show that Natuna is serious about being a new economic centre. The local government has prepared an action plan to acquire geographical data and thus support regional planning and development.

The Indonesian Geospatial Information Agency (Badan Informasi Geospasial) supports the initiative undertaken by the local government to conduct a toponymic survey. In 2020, Natuna Regency started an initiative to collaborate with the Agency to collect named and unnamed roads (including alleys) using the SAKTI (Sistem Akuisisi Data Toponim) mobile application for toponym data acquisition.

In the course of two weeks, surveyors of the Agency and the Regency conducted a toponymic survey of six kecamatan (districts). They examined the functionality of the application in online and offline modes to collect road network features in vector data (geometric lines) geometry. The challenges and opportunities of a toponymic survey for named and unnamed roads in Natuna Regency will be discussed in the full report.

Introduction

The Natuna Regency is the outermost and most advanced regency in Kepulauan Riau Province of Indonesia. The National Government plans the Natuna district to become one of Indonesia's new economic centres because of its strategic location. This plan has made infrastructure development in Natuna increase. To support this program, the local government has compiled several work programs to support national government programs, including data acquisition on geographical names.

The local government's initiative to collect geographical name data in collaboration with Geospatial Information Agency (Badan Informasi Geospasial - BIG) has started several years earlier and has been consistent. The first activity was carried out in 2012 to collect geographical names for the natural feature. This activity covers the entire district area consisting of 15 districts and 272 islands.

The collaboration continued in 2016 with a focus on collecting geographical data on the man-made feature. For activities in that year, data on road features were not collected. In that year, most of the roads in Natuna still did not have names.

In 2020, the local government featuring BIG continued to collect geographical names specifically for road and alley data. During the field survey, the coordinates of road and alley features not named were also taken and then given names by the community and local government. Initially, the activity was scheduled to collect data from all districts in Natuna. However, due to the Covid-19 pandemic, which impacted the budget, survey activities were carried out for only two weeks and covered 6 out of 15 districts in Natuna.

Method

Before BIG developing the SAKTI application, Indonesia's geographical names data acquisition relied on handheld GPS equipment and manual point geometry forms. The data will then be converted to table format and verified with GIS (Geographic Information System) software. This method was used to collect geographical names data in Natuna in 2012 and 2016.

In 2016-2017, BIG built the SAKTI (Toponym Data Acquisition System) application. This system consists of an android application on a smartphone used for data retrieval and a web GIS used for data verification. The Android version of SAKTI can display online maps from several services and

display vector data (kml and kmz extension formats) and raster (tpk extension format) offline by opening files from the smartphone.

Geographical names data collection for road feature in Natuna Regency in 2020 using the SAKTI application. There are six acquisition teams, each team consisting of two people: one BIG person and one local government person. The acquisition team was also accompanied by representatives from each village surveyed as resource persons. Survey activities using motorbikes to facilitate the tracking process through narrow roads and alleys. There are 6 *kecamatan* surveyed, namely Bunguran Timur, Bunguran Timur Laut, Bunguran Utara, Bunguran Selatan, Bunguran Tengah, and Bunguran Batubi. The area surveyed is 1.333 km².

All objects of roads and alleys, whether named or unnamed, are included in the data set. The data collected is in the form of vector data in the form of geometric lines. The roads and alleys were digitized on a smartphone and use satellite image data as an offline base map (to avoid relying on an internet connection). During the survey, the team photographed the object and recorded the pronunciation of the names. Each village representative will directly discuss with the local community to provide the name for unnamed roads.

Following the toponymic field survey on Android with the SAKTI mobile application, the data was uploaded to BIG's server for verification with the WebGIS version of SAKTI. The verification was performed on the same day as the survey to ensure that the information collected was complete. This action was carried out as an evaluation to aid in planning with a daily system.

Challenge and Solution

The following challenges arose during the toponymic survey activities:

a. Weather

Weather is a significant impediment to field survey activities. Field surveys using motorcycles cannot be conducted when it rains because smartphones can be damaged when exposed to water. Field survey transportation can be changed to cars as a solution. When it rains, this is the best option for continuing the survey. However, it will be more expensive and will not be able to reach narrow roads or alleys.

b. Internet Network

Natuna Regency's internet network infrastructure is still limited. The available internet speed is increased at certain times of the day. Because the WebGIS version of the SAKTI application requires a stable internet connection, this slows down verification data. As a possible solution, the review is usually done in the morning, a few hours before the survey.

The SAKTI application is a comprehensive system that starts with data collection and supports verification. The integrated system aids in the speeding up of the process of standardizing geographical names. Also, the SAKTI application can retrieve data in line and area geometry to describe an object's geometric shape.

Conclusion

The Natuna Regency government's initiative and consistency in standardizing geographical names should be appreciated. The team collected 954 data for roads and alleys from 6 *kecamatan* in Natuna during the survey activity. The availability of standardized geographic name data can support government programs at the national and regional levels. The Natuna Regency Government intends to continue this activity in nine other districts in 2021.

The group of experts is invited to express its view on the technical paper.