Improving Community Services and Infrastructure in Remote Areas by utilizing Community Need Assessment (CNA) Approach.  
(Case Study: Kampung in Mahakam Ulu Regency)

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Abstract. The remote area is defined as a remote (rural / settlement) location within an area. One of the remote area locations is Mahakam Ulu Regency. One of the problems faced in remote areas is the availability of community services and infrastructure. This research explores the condition of community services and infrastructure in the Kampung Lutan, Long Hurai and Muara Ratah which are being the priority villages in the Mahakam Ulu Regency. Exploration results are expected to provide input for determining the needs and hopes of village community services and infrastructure by involving community participation. Community Need assessment (CNA) approach was applied in this study involving process of collecting, analyzing and reporting information about community needs and the amount of capacity or strength that exists in the community to fulfill those needs. By understanding the needs and hopes of village community service and infrastructure, it can facilitate the government in establishing the priorities of village development to observe the social aspects of the community. CNA analysis addressing a number of facilities and infrastructures in the three villages tended not to require additional units, but to improve the quality of the community services and infrastructure.

Keywords: village, remote area, community services-infrastructure, community-needs-assessment

1. Introduction

Infrastructure development becomes one of the important aspects in regional development, with the increasing number of infrastructure that can support the community's economy. The construction of physical infrastructure especially in villages has a vital function, in supporting community in daily life and accelerating development in order to improve the socio-economic life of the community [1]. Republic of Indonesia Law number 6 of 2014 [2] concerning Villages emphasizes the importance of infrastructure development and empowerment of village communities to increase access for services and economic activities. One factor behind the village's lagging was also influenced by the lack of availability of community service and infrastructure. As a result, the government authorizes and manages the development directly to the village [3] the minimum availability of community services and infrastructure, one of which is in the remote area. Remote area is defined as a remote (rural / settlement)
location within an area [4]. One of the remote area locations is Mahakam Ulu Regency, which is a new autonomous region ratified on December 14, 2012 and also included in the border area. Mahakam Ulu Regency is a proliferation of a district of West Kutai Regency. Unlike in Java, accessibility between villages tends to use water transportation requiring longer time.

In order to achieve equitable development, it is not possible to do it simultaneously at the same scale. Central and regional governments have limited human and financial resources. Therefore, development always has a priority scale. Mahakam Ulu Regency has a priority development village. The village is a growth pole for other villages in the district. This study was intended to determine the needs of community services and infrastructure in the priority villages in Mahakam ulu Regency with a community participation approach, such as Lutan (Long Hubung District), Long Hurai (Long Bagun District), and Laham (Muara Ratah District).

1.1 Literature Review
Village in general means that a community consists of a variety of diverse ethnic or ethnic communities who live in one area and in groups with a simple lifestyle that has wisdom and its rules and are being practiced in daily life. Village is a subsystem of a broader whole area called a country. Village as a system has components in physical, human, and social institutions. Muhammad [5] detailed the components of the village as follows:

- a. Agricultural and environmental resources
- b. Economy of rural areas
- c. Social institutions
- d. Human Resources
- e. Physical facilities and infrastructure

![Figure 1. Goals of infrastructure development](image)

In this study, in order to determine the needs and hopes of the community, the Community Need Assessment approach was applied. Based on the Participant Workbook, CNA or Community Need Assessment [6] defined as identifying community needs in providing services to fulfill the needs. Other sources define community assessment as a process of collecting, analyzing and reporting information about community needs and the amount of capacity or strength that exists in the community to fulfill those needs. Community Need Assessments has objectives to give community leaders an overview of current local policies, systems and strategies for environmental change and help identify areas for improvement. With this data, communities can map to create strategies to make positive and sustainable changes in their communities. The application of CNA is a form of accommodation for community participation in development. Thus, the objectives of rural development, called bottom up planning can be achieved. The results from CNA expected to deepen the government programs and policies to achieve target.

2. Methods
In this study, the scope of the area studied covers 3 villages in Mahakam Ulu Regency, such as Lutan (Long Hubung District), Long Hurai (Long Bagun District), Muara Ratah (Laham District). These three villages are priority development villages in Mahakam Ulu Regency. As for the flow of this research, it begins by identifying the conditions of the research area and identifying problems. After the problem is identified, the next step is conducted through data collection. Data collection is gathered by primary and secondary surveys. Forum Group Discussion (FGD) with local communities are extracted from the information related to the direction of availability of village community services and infrastructure based on community perceptions. After the existing condition data and direction were obtained, an analysis of
the needs and hopes of village facilities and infrastructure were carried out. In accordance with the research objectives, the needs of community services and infrastructure are prioritized in Mahakam Ulu Regency with a community participation approach. To obtain the required data, a primary survey was conducted by semi-structured interviews, field observations, and FGDs. The researchers also observed the system or customary norms as the social side of society applied in a community. The analysis applied is an analysis of needs and hopes. In this analysis, a comparison was made among the existing conditions of village infrastructure, direction of the availability of village community service, infrastructure based on community perceptions, and consideration of important village leaders (key person).

3. Results and Discussion
3.1 Overview of the Village in Mahakam Ulu
Mahakam Ulu Regency is a part of Mahakam Ulu Regency which established based on Law Number 2 in 2013. Mahakam Ulu Regency consisting of 5 districts, such as Long Apari District, Long Pahangai, Long Bagun, Laham, and Long Hubung. Mahakam Ulu Regency has its capital in Ujoh Bilang District. As a new autonomous district in the border areas, it is a challenge in development and infrastructure needs for settlements. In this study, the location of the studio was divided into three villages located in different districts which are Lutan, Long Hurai and Muara Ratah. Lutan located in the Long Hubung District and divided into 4 Neighborhood Units (RT). Long Hurai is divided into 2 Neighborhood Units (RT). Muara Ratah is located in the Laham District area and divided into 2 Neighborhood Units (RT). Main referred access to the village is mainly by air transportation. Basically the village is a Dayak tribe community in Long Hurai and Lutan, whereas, Dayak tribe in Muara Ratah mainly consists of the Bahau Dayak tribe.

3.2 Conditions for Community Services and Infrastructure
3.2.1 Condition of Community Services
Community services are the most important supporting tools in social activities or economic activities. Therefore the existence of community services in an urban or rural area is required to build the social and economic structure of a settlement [7]. Meanwhile, infrastructure is defined as the basic necessity to fulfill the principles of a healthy and comfortable environment [7]. The condition of community services and infrastructure in the research area coverage can be explained by the following table.

| Community services | Lutan | Long Hurai | Muara Ratah |
|--------------------|-------|------------|-------------|
| Education facilities | 4 educational facilities consist of 2 Kindergaerten units, 1 elementary unit, and 1 junior high school unit. | 2 educational facilities, consist of 1 kindergarten unit and 1 elementary school unit. | 3 educational facilities consist of 1 kindergarten unit, 1 elementary school unit and 1 junior high school unit. |
| Health care facilities | 1 unit of auxiliary local health center and 1 unit of Posyandu | 1 unit of auxiliary local health center and 1 unit of Posyandu | 1 village polyclinic unit |
| Government Community Service and Public Services | 1 unit of Village hall office, 1 “lamin adat” and 3 security post units | 1 unit of Village hall office, 1 “lamin adat” and 2 security post units | 1 office unit of the Village Head and 1 unit of the General Assembly Hall. and 1 unit of security post |
| Worship Community Service | 3 units of worship Community Service consist of 1 unit of mosque, 1 unit of Catholic Church, and 1 unit of Christian church | 2 units of church | 1 unit of mosque |
Community services

|                      | Kampung Lutan | Kampung Long Hurai | Kampung Muara Ratah |
|----------------------|--------------|--------------------|---------------------|
| Trade and Service of Community Service | 11 units of waroong | 2 units of waroong | 2 units of waroong |

Table 2. Conditions for the Existing Infrastructure

| Infrastructure                  | Kampung Lutan | Kampung Long Hurai | Kampung Muara Ratah |
|---------------------------------|--------------|--------------------|---------------------|
| Road infrastructure             |              |                    |                     |
| Road Pavement in Kampung Lutan in the form of cement roads and dirt roads. | 64% of Road pavement is in the form of concrete in good condition and lightly damaged. | Road Pavement in the form of concrete roads and dirt roads in good condition and lightly damaged. |
| Dock                            |              |                    |                     |
| there is a Dock located on RT 02 | there are 5 docks located on RT 01 and 02 | 2 unit of docks |
| Sanitation and Waste Disposal Infrastructure | 33 houses from 164 houses that do not have private sanitary installation. | There is no infrastructure for waste water treatment or communal WWTP | 1 communal sanitary installation in Kampung Muara Ratah and there are no retribution and waste water treatment. |
| Water supply                    |              |                    |                     |
| Each house in the kampung Lutan has water reservoirs and piping facilities which had been built in 2017. | The need for clean water in Kampung Long Hurai use pumping system. | Fulfilling the necessity of clean water from wells |
| Telecommunication               |              |                    |                     |
| BTS towers that emit signals are not found in Kampung Lutan. | Based on the survey results, 80% of the people in Kampung Long Hurai use mobile phones as telecommunication tools. | The condition of telecommunication distribution is served only by telephone and SMS. |
| Electricity                     |              |                    |                     |
| The utilization of communal and private generators. | The utilization of a personal generator set that is used between 18.00 - 00.00 WITA. | In Muara Ratah electricity is only available at 18.00-24.00. |

3.2.2 Community Needs Assessment (CNA) Analysis

The necessity of village community service and infrastructure was carried out through an analysis of Community Need Assessment involving the opinions of the community of Kampung Lutan, Long Hurai and Lutan through the Focus Group Discussion. The results obtained are as follows

Table 3. community assessment

| Community Services and Infrastructure | Kampung Lutan | Kampung Long Hurai | Kampung Muara Ratah |
|--------------------------------------|--------------|--------------------|---------------------|
| Education facilities                 |              |                    |                     |
| • No additional unit needed.         |              |                    |                     |
| • Renovation for kindergarten         |              |                    |                     |
| Assessment                           |              |                    |                     |
| • No additional units are needed.    |              |                    |                     |
| • Need to build a kindergarten building |              |                    |                     |
| • Renovation and widening educational buildings are required | | | |
| Community Services and Infrastructure | Kampung Lutan | Kampung Long Hurai | Kampung Muara Ratah |
|--------------------------------------|--------------|-------------------|-------------------|
| **Assessment**                       |              |                   |                   |
| Health care Facilities               | • No additional unit is needed. | • No unit is needed | • No additional unit is needed. |
|                                     | • Renovation of auxiliary local health center and adding some rooms | • Rooms renovation are needed as a supporting facility of posyandu | • Renovation and adding facilities of auxiliary local health center and adding some rooms |
|                                     | • Adding posyandu facilities | • Adding posyandu facilities |                   |
| Government Community Service and Public Services | • Repair / rebuild high-ranking offices | • Repair / rebuild high-ranking offices | • Construction of a one-roof government office |
|                                     | • Widening of lamin adat buildings | • Widening of Lamin Adat buildings | • Additional security post in each RT |
|                                     | • Addition of 1 unit of security post | • Addition of 1 unit of security post (at RT 1) |                   |
| Worship Community Service            | • Renovation of mosques and churches | • Additional mosques are needed | • Renovating mosque |
|                                     | • Adding complementary facilities and infrastructure | • Renovation of church buildings (RT 2) |                   |
| Trade and Service of Community Service | • Additional units are needed. | • Additional units are needed. | • Additional units are needed. |
|                                     | • Adding 7 store units and build 1 market and Koperasi | • adding 5 store units and construction of 1 BUMDES / Koperasi | • adding 4 shop units and construction of 1 market unit and Koperasi |
| Road infrastructure                 | • Building the main road from soil to concrete / asphalt. | • Building road RT 2 pavement from soil to concrete / asphalt. | • Building the main road from soil to concrete / asphalt. |
|                                     | • Adding the amount of street lighting lights on the main road | • Adding the amount of street lighting lights on the main road | • Adding the amount of street lighting lights on the main road |
| Dock                                | • Improving the facilities quality of dock | • Improving the quality of dock infrastructure | • Improving the quality of dock infrastructure |
|                                     | • Improving road access from the dock to the village | • Improving road access from the dock to the village | • Improving road access from the dock to the village |
| Sanitation and Waste Disposal Infrastructure | • Construction of communal sanitary installation in public service facilities, Private sanitary installation | • Construction of communal WWTP of the dock infrastructure. | • Construction of Waste Water Management Installation (WWTP) |
|                                     | • Provision of communal clean water managed by the Long Hurai BUMDES / BUMKAM | • Construction of new private sanitary installation for new settlements | • Construction of new private sanitary installation for new settlements |
| water supply                         | • Provision of communal clean water managed by the | • Provision of communal clean water managed by the Long Hurai BUMDES / BUMKAM | • Provision of communal clean water managed by the Muara Ratah BUMDES / BUMKAM |
The results of the two tables above are then carried out to determine the needs and hopes of the community service and infrastructure in each village. It is carried out to find the most required aspects of the development.

Table 4. The analyzes of needs and hopes

| Community Services and Infrastructure | Necessity                                                                 | Hopes                                                                 |
|--------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------|
| **Education Facilities**              | • In the three villages there is no need to add educational units.       | • need additional Elementary School teachers (Kampung Lutan)         |
|                                      | • improvement of the conditions for the construction of Kindergarten      | • construction of new buildings for kindergarten (Kampung Long Hurai) |
|                                      |   (Kampung Lutan and Muara Ratah)                                        |                                                                      |
|                                      | • construction of its own building for Mattandaup Middle School (Kampung |                                                                      |
|                                      |   Lutan)                                                                  |                                                                      |
|                                      | • improving the quality of elementary school buildings                     |                                                                      |
|                                      |   (Long Hurai Village)                                                   |                                                                      |
| **Health care facilities**            | • In the three villages there is no need for additional health facilities| • -                                                                  |
|                                      | • addition of facilities and auxiliary local health center rooms (Lutan,  |                                                                      |
|                                      |   Long Hurai and Muara Ratah)                                            |                                                                      |
| **Government Community Service and    | • Renovating / rebuilding high-ranking offices (Lutan and Long Hurai)    | • addition of a security post (kampung Muara Ratah and kampung Long |
| Public Services**                    | • Widening of “lamin adat” buildings (Lutan and Long Hurai)              |   Hurai)                                                            |
| **Worship facilities**               | • Renovating of churches and mosques (Kampung Lutan)                     | • improving the quality of mosques (Kampung Muara Ratah)             |
|                                      | • adding of mosques (Kampung Long Hurai)                                 |                                                                      |
|                                      | • improving the quality of church buildings (RT 2) (Kampung Long Hurai)    |                                                                      |
|                                      | • Adding of complementary facilities and infrastructure (Kampung Long     |                                                                      |
|                                      |   Hurai)                                                                  |                                                                      |
| **Trade Service of Community Service**| • the addition of 7 stores and the construction of 1 market and a         | • -                                                                  |
|                                      |   Koperasi (Kampung Lutan)                                               |                                                                      |
|                                      | • addition of 5 store units and construction of 1 BUMDES / Koperasi unit  |                                                                      |
|                                      |   (Kampung Long Hurai)                                                   |                                                                      |
Based on the results of the analysis, it could be concluded that for education and health facilities, the availability is sufficient; thus, there are no additions required. The direction of the two facilities is to improve the quality of buildings or supporting facilities. Facilities for trade services, government and public services, and worship need additional units because the existing conditions are still not available or still insufficient. The village community is bounded closely to relationships and social activities. Government and public services, and worship facilities are located in which they interact with the general public, the government, and religious leaders and worship. Besides, trade and services are absolutely necessary for them. At present the community is not too concerned about the price of goods. They need the availability of goods at the nearest stores.

The community needs to improve the quality of roads, the construction of WWTPs, the access from the dock to the village and BUMDES / BUMKam in the management of clean water and electricity. Moreover, the development of Koperasi (BUMDesa) will support and encourage the emergence of new economic activities. In line with the government's program on sanitation and waste disposal, it is important to protect the environment (because the villagers depend on nature). Communities are aware that bad sanitation and waste management can pollute the environment. Electricity is demanded to support social and economic activities. Even though there is electricity, its availability is still limited. By understanding the needs and hopes of village community service and infrastructure, it can facilitate the government in establishing the priorities of village development to observe the social aspects of the community. By the formation of community participation in the village planning process, communication was also built between the people as parties who felt the direct impact of the development and the government as policy makers [8].

4. Conclusions
From the identification results, the researchers concluded that there are still problems with the availability of community service and infrastructure in Kampung Long Hurai, Lutan and Muara Ratah,
mainly due to located in the remote area in East Kalimantan. When surveying the existing conditions, it was apparent that residential facilities tended to be completed but some facilities had unfeasible conditions. Besides, the infrastructure conditions present the main problems, such as telecommunications, electricity and roads infrastructure. The electricity in the three villages is still not available for 24 hours. The results of the identification were then delivered as the input into Forum Group Discussion (FGD) activities in each village and for the community participated in providing advices for village infrastructure in addressing the necessity and hopes. Based on the analysis, it can be summarized that the community of those villages needs the additional community service and infrastructure. They realize that the need for development is absolutely high compared to the conditions of village and the government financial capability. Thus, it is sensibly reasonable if the community proposes the improvements and completions of existing facilities.

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