Potential Development of Green Open Space and Forest of Pahandut Seberang Village, City of Palangka Raya

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Abstract. The research location is located in the village of Pahandut Seberang as a new village developed by Pahandut Village. Pahandut Seberang Village has vacant land in the form of forests and swamps that have not yet been developed as one of the potential development areas. Identification of a new green open space potential area is using figure ground analysis and history of place analysis. The purpose of this study is to identify the potential of the green open space and the development of urban forest tourism. The potential location is expected Pahandut Seberang Village, District of Pahandut, City of Palangka Raya. This location is closed to the Kahayan riverside area as a pilot project to environmental management and sustainability area in the future. The method uses qualitative methods through observation, surveys and interviews. Physical analysis is to identify green open space area in Pahandut Seberang Village using field observations such as: (1) land use development, (2) green open space area, and (3) built up area. Non-physical analysis is using of indepth interview from Pahandut Seberang community as a part of real participation to maintain the green open space and forest area in the future.

Keywords: green open space, forest, Kahayan River, Pahandut Seberang Village

1. Introduction
Central Kalimantan is an example of a Province in Indonesia which has many rivers. Palangka Raya City as a city in Central Kalimantan is crossed by the Kahayan River. Typography of majority the people live on the river for their livelihood. The river is a main economy as a source of Dayak livelihood, as a place to live as well as a community transportation infrastructure that has a influence on the social and cultural patterns of the community, so that the city of Palangka Raya is known as the "City of Water" [1].

Characteristics of the setting of the uniqueness of the daily activities of residents who live on the riverside area are mostly riverside communities pattern such as community of Dayak. Physically, the pattern of settlement in riverside area is organic pattern by developing of natural settlements community. Kahayan riverside settlements in the city of Palangka Raya are natural settlements pattern, having unique settlement patterns by the natural river's pattern. The orientation of the house is to the river as part of its residential environment and as an attractive place to live [2].

Pahandut is one of the old villages in the city of Palangka Raya. Pahandut is the first settlement before growth to the city of Palangka Raya. Pahandut Village is an area that has developed into one of the centers of economic activity in Palangka Raya City. The number of new buildings have been built in this area with the existence of unplanned riverside settlements. The research location is located in the village of Pahandut Seberang. Pahandut Seberang Village is a part of Pahandut Village in the past.
Pahandut Village has vacant land in the form of forests and swamps that have not yet been developed as one of the potential development areas [2].

The green open space area plans from the initial condition, namely the plan for planting up to green open space planning stage, will involve the community, namely women organization in Pahandut Seberang Village. The function of Green open space is the implementation of the planting trees and various of flower and vegetable that is planting of local community. This requires the involvement and participation of the community from planning until implementation of green space environment. It is a synergy between the community of Pahandut Seberang Village and the researcher team from University of Palangka Raya.

The purpose of this study is to identify the potential of the green open space and the development of urban forest tourism. The potential location is expected Pahandut Seberang Village, District of Pahandut, City of Palangka Raya. This study analyzes the potential of the green open space and the potential of urban forest tourism in Pahandut Seberang Village as a solution for environmental development and sustainability of the Kahayan riverside area in the future. There are two analysis in this research, namely: (a) Physical analysis is to identify green open space area in Pahandut Seberang Village using field observations such as: (1) land use development, (2) green open space area, and (3) built up area. (b) Non physical analysis is using of indepth interview from Pahandut Seberang community as a part of real participation to maintain the green open space and forest area in the future.

2. Method

This type of method uses a qualitative method [3]. A qualitative method used a case study on the potential for green open space in Pahandut Seberang Village, Pahandut District, Palangka Raya City [4] as shown in Figure 1. Location selection was chosen with consideration including: (1) Location of Settlement of Pahandut Seberang Village. (2) There is already public awareness in the environment about the need for green open space, this can be seen from the existence of tree plants and flower plants and that have been cultivated by the community in their residential environment.

![Figure 1. Location of research activities in Pahandut Seberang Village](Source: Citra Quickbird, 2017)

Data used in research activities are primary data and secondary data. Primary data were obtained through location sampling with direct observation of the existing potential in the Pahandut Seberang Village. Secondary data, obtained through a variety of literature as part of a literature review.
Community participation are carried out with community informants in the Pahandut Seberang Village starting from proposals to implementation through community activities in this research.

3. Result and Discussion
This research divided into three stage [5]: preparation, implementation, and post implementation. The analysis was carried out in several stages of the implementation of community participation as a part of research activities.

3.1. Analysis of the Preparation Phase: Audience with Head of Pahandut Seberang Village
Before carrying out the activities of the community participation to conduct this research, team from the Faculty of Engineering, University of Palangka Raya held an hearing with the head village of the Pahandut Seberang to get information about a planning of green open space and forest tourism as shown in Figure 2. Hearings to equalize the perception of greening and as a synergy between community expectation, the village government and team of researcher’s, University of Palangka Raya to assist a common goal can be achieved in Pahandut Seberang Village area.

![Figure 2. Photo hearing with the village government](Source: Documentation of the Researcher’s Team, University of Palangka Raya, 2019)

3.2. Analysis of the Implementation Phase carried out a Survey and Field Observation
Based on information from the head of Pahandut Seberang village government. An initial survey was carried out as shown in Figure 3. Community participation was carried out to get a data in the field, interview to the family head (RT) and the community of the Pahandut Seberang Village in location. The result of research refers to the data of the Pahandut Seberang Village area based on field conditions, namely: (1) land use development, (2) green open space area, and (3) built up area.
Figure 3. Photo of the Initial Survey activity and interview to Head of Family (RT) in Pahandut Seberang Village (Source: Documentation of the Researcher’s Team, University of Palangka Raya, 2019)

3.3. Analysis of the Implementation Stage, which is the Continuing Survey

In this continuing survey, it was conducted during the smoke season, carried out together with the Pahandut Seberang village program, head family programs (RT’s Programs) and also residents as shown in Figure 4. The continuing survey carried out measurements and data collection, three, flowers, and vegetation inventory as a data collection that could be used as green plants area.

Figure 4. Photo of continuing survey activities on the Pahandut Seberang Village (Source: Documentation of the Researcher’s Team, University of Palangka Raya, 2019)

After conducting the survey, field data processing was carried out on the Pahandut Seberang Village. The field survey processes the field data in 5 (five) road segments as shown in Figure 5. The design of each segment has its own characteristics. To facilitate the implementation in the field, each segment made superior themes including:

a) 1st Segment: mural themes
b) 2nd Segment: pergola park themes
c) 3rd Segment: Garden themes

d) 4th Segment: colouring Park themes

e) 5th Segment: mural themes

Figure 5. Map of 5 (fifth) segment to the Pahandut Seberang Village
(Source: Documentation of the Researcher’s Team, University of Palangka Raya, 2019)

3.4. (iv) Post-Service Analysis Analysis with Design Exposure
The results of the design per segment (five segments) are presented to the community the Pahandut Seberang Village and facilitated by the head of Pahandut Seberang Village as shown in Figure 6. The design exposure received input on the desires of the community towards each segment, so that for the perfection of design the desires of the community were reprocessed respectively segment into the design.
Figure 6. Photo of the initial exposure activity of the Pahandut Seberang Village (Source: Documentation of the Researcher’s Team, University of Palangka Raya, 2019)

4. The Segment Analysis
The input results are from the community of the Pahandut Seberang Village in the first presentation of each theme segment. The community of the Pahandut Seberang Village proposed for Green Open Space, vegetation used and ease of vegetation maintenance. This proposal has beneficial to the community, which is implemented into a 3D (three-dimensional) design. Each segment has a featured theme.

4.1. 1st Segment: Mural Themes
Existing photo and Segment 1 (One) plan with a mural and garden theme as shown in Figure 7.

Figure 7. Existing photos and plans for Segment 5 (five) with a mural theme (Source: Documentation of the Researcher’s Team, University of Palangka Raya, 2019)

4.2. 2nd Segment: Pergola Park Themes
Existing photo and Segment 2 (two) plan with the theme of pergola park as shown in Figure 8.

Figure 8. Existing photo and Segment 2 (two) plan with the theme of pergola park
4.3. 3rd Segment: Garden Themes

Existing photos and Segment 3 (three) plans with the aquaphonic theme as shown in Figure 9.

![Figure 9](image9.png)

**Figure 9.** Existing photos and Segment 3 (three) plans with the theme of Garden Theme
(Source: Documentation of the Researcher’s Team, University of Palangka Raya, 2019)

4.4. 4th Segment: Colouring Park Themes

Existing photos and plans for Segment 4 (four) with colorful themes as shown in Figure 10.

![Figure 10](image10.png)

**Figure 10.** Existing photos and plans for Segment 4 (four) with colorful themes
(Source: Documentation of the Researcher’s Team, University of Palangka Raya, 2019)

4.5. 5th Segment: Mural and Garden Themes

Existing photos and plans for Segment 5 (five) with a colorful mural theme as shown in Figure 11.

![Figure 11](image11.png)

**Figure 11.** Existing photos and plans for Segment 5 (five) with a mural theme
(Source: Documentation of the Researcher’s Team, University of Palangka Raya, 2019)
The results of input from the community of the Pahandut Seberang Village, in the first presentation, a 3D (three-dimensional) design was conducted. The overall design of the segment, which is an improvement from the initial design, was presented by a presentation to the community of Pahandut Seberang Village, District of Pahandut, Palangka Raya City.

The green open space and forest areas planning can be functionally there are several conditions for selecting plant species for open space along the Kahayan riverside area. The tree plants that function to strengthen the soil from abrasion, and also beneficial to the local community in the long term.

5. Conclusion
Community participation is an important key to success the research. The community activities need synergy of all parties, such as Regional Government, Universities, Private Parties and the Community in terms of making the city friendly and comfortable to live in. The potential of green open space area and forest tourism created by several components is expected to increase (1) green area, 2) security, and 3) can improve the welfare of people's lives. The involvement of all parties is carried out, so that it is hoped that the community will have the awareness to maintain and care for it because it gets immediate benefits so that it can increase work productivity.

6. References
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