Analysis of perception and community participation in forest management at KPHP model unit VII-Hulu Sarolangun, Jambi Province

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Abstract. The concept of forest management at the site level in the form of forest management units (KPH) implemented by the government in an effort to improve forest governance in Indonesia. Forest management must ensure fairness for all stakeholders, especially indigenous and local communities that have been the most marginalized groups. Local communities have become an important part in the efforts to achieve sustainable forest management. Public perception as one of the stakeholders in forest management need to be analyzed to determine their perspectives on the forest. This study aimed to analyze the perception and the level of community participation in forest management activities in KPHP Model Unit VII- Hulu Sarolangun, as well as examine the relationship between these two variables. Perception variables are divided into three categories: good, moderate and bad, while the participation variable is also divided into three categories: high, medium, and low. Data was obtained through semi-structured interviews with the key informants and questionnaires to randomly selected respondents. Statistical analysis was conducted to determine whether there are differences of perception and participation between the two villages and the relationship between perceptions of participation or not. The results showed 90,16 % of people have a good perception and the remaining 9,84% have a moderate perception. In general, community participation is at a low level that is as much as 76,17 % and only 1,55% had a high participation rate. The analysis showed differences in levels of participation between the two villages and there is no relationship between the perception and the level of community participation in forest management. The results of this study can be taken into consideration for KPHP and other stakeholders in forest management policy in the region KPHP.

1. Introduction
Deforestation in Indonesia is a reflection of the failure of the management of forest resources. The rate of deforestation in Indonesia in the period 2009-2013 is estimated to reach approximately 1.13 million hectares per year [1]. Jambi province alone in the period 2012-2013 has recorded a deforestation rate of 91248.3 ha / year. This figure is the second highest after the province of West Kalimantan with a deforestation rate of 273 355 ha /year [2]. The high pressure by activities outside the forest sector such as agriculture and mining, poor forest management performance and weak supervision are several factors that cause more damage to forests. Improving forest governance through the concept of forest
management at the site level in the form of forest management units (KPHP) is one way to overcome this problem. KPHP Model Unit VII- Hulu Sarolangun is one of 17 KPH region in the province of Jambi. The decline in the condition of forest resources and poverty in forest communities encourage the strengthening of forest management approaches that involve the community. As a forest management organization at the site level, KPHP required to accommodate the interests of local communities. It is in line with the increasing recognition of the rights of local communities and their ability to manage their environment. Authority devolution to the local people in the management of natural resources and the environment is a response to the poor performance of centralized management system and communities are given the authority to be involved in decision making [3]. Emphasis participatory approaches in natural resource management aims to align the conservation efforts with the achievement of sustainable development goals. Community based natural resources management is a popular approach in environmental management in order to achieving towards the objectives of economic, social and environmental [4]. Some studies indicate that the involvement of local communities in forest management encourage them to utilize their resources sustainably [5], gives significant impact on the improvement of forest conditions biologically and household income levels [6].

The public perception as one of the stakeholders in forest management need to be analysed to determine their perspective on the forest area. Public perception of the environment affects their attitudes and behaviours. There is a positive correlation between public perceptions with their level of participation [7]. The success of a project or program is determined by the support of local communities highly affected by perception and their opinion on the perceived impact of these activities [8]. There was a tendency where the community choose to defer involved in a project until they can see favourable results from it [9]. Increased public awareness and active participation is required to support the achievement of sustainable forest management. This study aims to determine the perception and public participation in the management of forests in the region KPHP Model Unit VII- Hulu Sarolangun and to analyse the relationship between perception and level of community participation.

2. Literature Review

2.1. Perception
Perception is the way a person sees and assessing an object or event. Someone will act in his perception, so the perception has a very important role in affecting a person's behavior [10]. Someone who has a perception always through a certain process that begins upon receipt of the stimulus through the receiver, and then transmitted to the brain. Psychological processes that occur in the brain cause a person aware about what happened. During the process of perceiving an object, individual is influenced by internal factors and external factors. Internal factors are factors that exist within the individual, such as experience, feeling, thinking abilities, and motivation. External factors such as the stimulus itself and environmental factors in which the perception takes place [11]. Differences in perception can also influenced by the level of intelligence and expectations about the perceived object [12], age and livelihood typologies [13].

2.2. Participation
Perception is the way a person sees and assessing an object or event. Someone will act in his perception, so the perception has a very important role in affecting a person's behavior [10]. Someone who has a perception always through a certain process that begins upon receipt of the stimulus through the receiver, and then transmitted to the brain. Psychological processes that occur in the brain cause a person aware about what happened. During the process of perceiving an object, individual is influenced by internal factors and external factors. Internal factors are factors that exist within the individual, such as experience, feeling, thinking abilities, and motivation. External factors such as the stimulus itself and environmental factors in which the perception takes place [11]. Differences in perception can also
influenced by the level of intelligence and expectations about the perceived object [12], age and livelihood typologies [13].

3. Methods
KPHP Limau Unit VII-Hulu Sarolangun has been established as KPHP Model in 2011 with an area of 121 102 ha. This research was conducted at two the village in around the KPHP region. Both villages (Sungai Bemban and Temalang) are part of some villages that were targeted implementation of collaborative forest management program drafted by the KPHP and both have different distances to the forest area. Temalang directly adjacent to the forest area, while the Sungai Bemban within 3-4 km. Data was collected through semi-structured interviews and surveys. Interviews were conducted with key informants who are considered to have understanding of and influence in the decision-making from respective stakeholders include village apparatus, provincial forestry agencies, the head of KPHP, NGOs, and academics. The interviews were conducted to determine their role in management, perception of the existence of local communities in forest management and aid to understand the factors that affect the community participation. While the method of the survey done by giving questionnaires to 193 respondents who are patriarch and randomly selected. Against the questionnaires were distributed to test the validation and reliability to generate the valid and reliable research instruments. Each question from questionnaire of the variable perception and participation using 3 points of measurement scale.

| Variable | Criteria          | Parameter                                                                 |
|----------|-------------------|---------------------------------------------------------------------------|
| Perception | Good              | Have a high level of dependency on forest resources and desire to preserve it |
|          | Moderate          | Have a high dependency on forest resources, but do not realize that it needs to be preserved |
|          | Bad               | The forest does not need to be preserved                                    |

Public perception variables analyzed and grouped into three categories: good, moderate and bad (Table 1). The public has a good perception if they realize that they depend on forest resources and desires that these resources are managed sustainably; moderate perception if the community realizes his dependence on forest resources, but do not understand if the resource should be managed sustainably; and included in the category of bad perception if people have other interests that make them inclined to think that preserve the forest is unnecessary [18]. To assess the level of community participation, the analysis conducted on the frequency of community engagement at every stage of management from planning, implementation, benefit sharing, monitoring and evaluation. Variable levels of community participation are grouped into three categories: high, medium, and low. If they more involved in every stage of these activities, then they will have a high participation rate and vice versa. Analysis using the Mann-Whitney U-test was conducted to determine whether there are differences in perception and public participation between the two villages or not where the research was conducted. Correlation between perception and participation were analyzed by using Chi-square test. The entire statistical analyzes were performed using IBM SPSS Statistics software Ver. 22.

4. Results
Analysis of the perception showed that 90.16% of respondent have a good perception and no one has bad perception. Meanwhile 76.17 % of respondent have a low participation rate and only 1.55 % have a high participation rate (Figure 1). The community perception is affected by the experience, livelihood typologies, and expectations about the perceived benefits from the forest resources. Forests have a role in the hydrological cycle to ensure the availability of water in the dry season and prevent flooding in the rainy season. People who work as farmers desperately need water to irrigate their fields and communities in Sungai Bemban feel the impact of the destruction of the forest. During the dry season arrived they started to feel the shortage of water for irrigation due to decreasing river flow. Many forests are converted to plantation region rural communities around the forest. Meanwhile in Temalang village
there is an increased frequency of flooding in their area. Formerly big floods occurred in 3-5 years, but now a year has occurred 3 times. It happened because of the destruction in the upstream area due to rampant illegal gold mining activities. Figure 2 shows that 89.12% respondents are farmers which some of them have agricultural land in the forest area. Besides from the farming, their needs largely derived from the utilization of forest areas such as wood, rattan, bamboo, wooden boards, honey, gum, etc. Most of them depend on the use of forest resources for a long time and they hope still can get the benefits in the future. Some of the conditions that cause the majority of them have a good perception about the existence of the forest. They assume that forests need to be preserved for the sake of their lives.

Based on Table 2 can be seen that the community participation in each phase of activity is at low level. The community who have a good level of participation is the village officials, administrators of farmer groups, and community leaders. Community as participants not directly involved to determine or to influence in the decision making process. They were just execute the program that predetermined by KPHP. Based on these conditions, the participation is a tool that is used by KPHP to achieve their goals. The low level of public participation is caused by ineffectiveness of the communication that occurred between KPHP with the community, low capacity of human resources in the community, and the benefits that have not been felt by them. The lack of interaction that was built by KPH and communities can be marked from the number of people who are not know the existence of KPHP itself. There are still many members of the community who do not know about the existence of KPHP including its tasks and functions. Good program but is not clearly understood by the community or the program that has been unable to fulfill needs of the community give effect to their interest in the activity.
Limitations of the funds and human resources in KPHP be one reason for the lack of interaction undertaken by KPHP with the community. 77.72% of community have low level of education and this condition affects to their confidence to be further involved in the program. KPHP operational are relatively new so the benefits of the program implemented yet significantly perceived by the public. It cause the low interest of the community to get involved in it.

Table 2. Percentage of community participation in each phase of activity.

| Level of Participation | Phases of management activities | Planning | Implementation | Money | Benefit Sharing |
|------------------------|---------------------------------|----------|----------------|-------|-----------------|
| Low                    |                                 | 75,65    | 73,06          | 81,35 | 80,83           |
| Medium                 |                                 | 11,92    | 21,76          | 18,13 | 14,51           |
| High                   |                                 | 12,44    | 9,84           | 0,52  | 4,66            |

The analysis showed there is no difference in community perceptions both villages but differ in the level of participation. The level of community participation in Temalang is still better than the communities in Sungai Bemban, as shown in Table 3. Temalang villager have higher activity in the forest area compared to Sungai Bemban because most of them have livelihood that derive from it. The existence of customary institutions in Temalang also affects the level of their participation where the levels of adherence to customary rules is still high enough. Generally, community participation at the local level is still quite good compared to their overall participation at the participatory forest management.

Table 3. Percentage of community participation

| Village       | Level of participation | Low | Medium | High |
|---------------|------------------------|-----|--------|------|
| Sungai Bemban |                        | 86,67 | 12,67  | 0,67 |
| Temalang      |                        | 51,16 | 44,19  | 4,65 |

The analysis showed that the value of Pearson Chi-Square is smaller (0,905) than the value of the table (5,991). It means that there is no correlation between perceptions of the community with the level of their participation in forest management activities. This is different with the results of research conducted by Ayunita and Hapsari [8] that show a positive relationship between these two variables. This is because most of the people on their research have benefited from the activities of management and these conditions encourage them to be actively involved in it. Meanwhile in forest management activities in the area of KPHP the community have not felt a significant benefit.

5. Conclusions

Based on the above analysis it can be concluded that the community has a good perception of the forest area in the region KPHP, but has a low level of participation in forest management activities. Community has a good perception because they are aware of the importance of forests for their lives, so they felt it necessary to maintain its sustainability. Several factors indicated to provide influence in management activities, among others, economic factors and communication. The principle of equality, trust, and learning should be emphasized in every process followed in this activity. Efforts should be made to provide insight to community about their important role in forest management. Participatory approach through NGOs, local extension workers, and community leaders could become a solution in order to bridge communication between KPHP and society. Limited human resources owned by KPHP can be solved by optimizing the existing role of forestry extension and to note is the skill of the facilitator also needs to be improved in accordance with the dynamics that occur in the community. Transparency in every stage of activities needed to build a relationship based on mutual trust. Government support in terms of funding and human resources required to assist KPHP in program implementation.

Assisting and training programs have been conducted by both NGOs and government agencies to improve community skills. The program is done in order to reduce community dependency upon forest
resources in fulfilling their needs, but the program has not had a significant impact for improving the welfare community. The program is generally implemented on the project-oriented and sometimes it can only benefit a handful of parties. The conditions made possible a reluctance of people to participate in management activities, so that future needs to do a paradigm shift in programming for the communities where the program is offered in accordance with what is required by community.

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