

Assessment of the Villagers Perception on Forest Resource Management within the Khammouane Provincial Protected Area, Lao PDR

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Abstract: This study aims to assess the perception of villagers in two villages for forest resources management and analyzes the forest resources uses patterns of the people residing surrounding the Khammouane provincial protected area (PPA), Khaymaeb and Houayhaed villages, Boualapha district, Khammouane province. The research findings revealed that: the involvement of the villagers in forestry resources management was somewhat limited, just only 1 or 2 times per year. Forestry resources management prior the year 2000 was at the medium level of 59.91%. Forestry resources management after the year 2000 is at the good level of 52.72%. Compliance level with laws and regulations of the villagers is about 69.09. Established the management regulations by the government is 69.09%, the concept of establishing the provincial protected area is 61.82%. Forestry resources management is very important for livelihood and 49.09% said that it has improved their livelihoods. The forestry resources management regulations set by the government is said to be 74.44% appropriate. Construction activities that need less than 5 cubic meters of wood, 94.55% of them have asked permission from village authority. Construction activities that need above 5 cubic meters of wood, 64.45% of them have asked permission from village authority and 34.55% requested from district authority. The sources of wood for construction about 61.82% taken from the village collective forest. 50.91% of the fire wood also collected from the village collective forest and 10.91% from village protected area. For the prohibition on utilizing the non timber forest products (NTFPs) is that it is prohibited to collect NTFPs unlimitedly covered 87.27%. the sectors hat monitored and inspected the forest resources in the village areas, 60% will be done by the security and defense units based in such 2 villages, 43.73% of the interviewees did not receive the data/information on forestry resources management, the benefits of involvement in forestry management is 43.34% which is highly feasible.

Keywords: Forest resource management, villagers' perception, socio-economic status

Introduction

Formerly, Laos was one of the richest in forest heritages, biodiversity and ecologically unique in Southeast Asia and across the world. However, the rate in natural resources has rapidly decreased in a period of times. In the 1940's forest covered over 70% of the total land area of about 16.6 million ha. This figure has decreased steadily to 47% in 1992 with an area of 11.2 million ha, and 41.5% or 9.7 million ha in 2006 (Ministry of Agriculture and Forestry, 2005). Recently forest cover examines in 2010 showed that the Lao forest cover rate remains only 40.3% with about 9.5 million ha (Ministry of Agriculture and Forestry, 2010).

According to Prime Minister's decree 164/PM, in 2008, 21 National Protected Areas were established,

covering 3.5 million ha or 14% of the total land area. In addition there are 76 areas with 643,922 ha that have been designated as Protected Areas at the provincial levels.

Khammouane Province is located in the central part of Laos with a total area of 16,315 square kilometers and covers 6% of the country's land area. Khammouane is divided into 2 ecological zones as the highlands and lowlands where each special character varies from another on different natural resources. Khammouane has covered three of National Protected Areas (NPA) with an area of 584,200 ha which includes Nakai - Namtheun NPA covered 352,200 ha, Phouhinpoun NPA covered 150,000 ha, Hinnamno NPA covered 82,000 ha and also covered by Khammouane PPA of 44,500 ha.

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PPA is considered one of the outstanding landscapes of geographic, Natural views and value of biodiversity, the natural ecosystem and environment; in addition, there is abundant and natural value, especially in biodiversity, plants and wildlife. Furthermore it creates environment for education research, maintain unique cultures and tourism to ensure the forest resources are used wisely for sustainable livelihood (Department of Forestry, 2010).

It is also important by means of providing ideas to other researchers who are interested to study the perception of population for forest resources management of the people surrounding the PPA in Khammouane province.

Although the PPA management has many forms but since the encroachment and destruction of forest resource which occurs traditionally, the task of forest resource management is complicated because the PPA consists of large area which makes it very difficult in accessing the area. Most people that live especially in the forest around the PPA are poor and naturally depend on the forest. These people come

from many ethnic groups that have beliefs in different religions; thus, in this study may be one approach to explain the understanding about the management and conservation of forest resources of local people who live around the Khammouane PPA.

This study aims to assess the perception of population in the two villages for forest resources management and also analyzes the forest resource use patterns of the people around the Khammouane PPA (Khaymaeb and Houayhaed villages) of Boualapha district in Khammouane province.

The study was conducted in 2 villages (Khaymaeb and Houayhaed villages) which are located around the PPA of Khammouane province. Khaymaeb village located between the coordinates latitude $17^{\circ}09'00''\text{N}$ and longitude $106^{\circ}10'00''\text{E}$ and 172 meters in height above sea level. It is far away from Khammouane province central to the south along road 12th about 70km. The total area is 619.13 ha. Houayhaed village is also far from the Khammouane province central along road 12th about 80km. It is located between $17^{\circ}07'00''\text{N}$ and longitude $106^{\circ}08'00''\text{E}$, averaged of 182 meters in height above sea level.

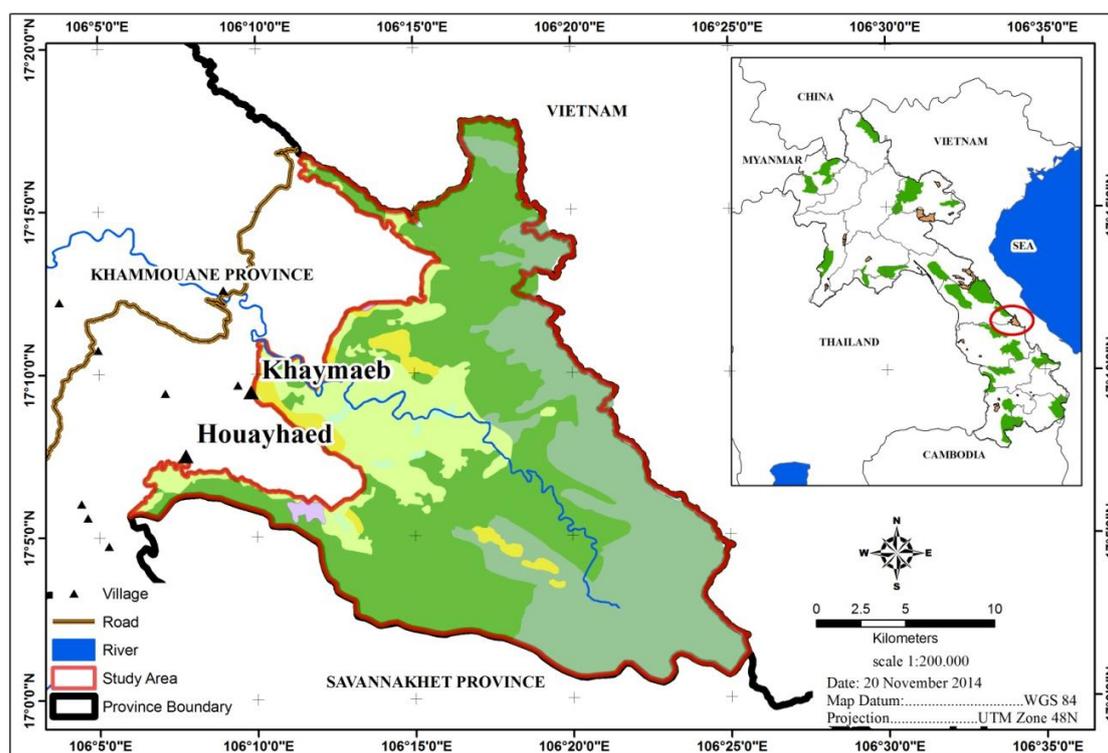


Figure 1: Map of Study Area

METHODS

• Research design

The research methods will be following this chart.

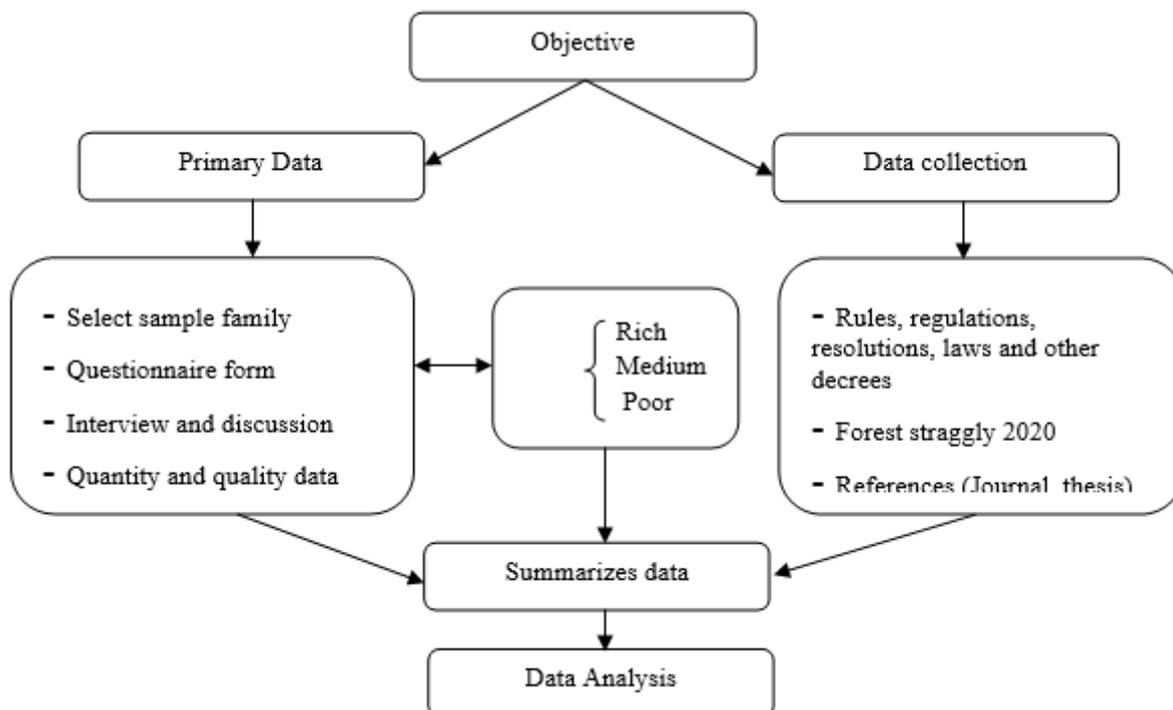


Figure 2: Chart of Research design

Sample of Research study

In a research to assess the perception, understanding levels of forest resource management of people around the PPA; there are 107 households in which the number of household will be selected by using the sampling random techniques, 55 households will be interviewed.

In this research, several methods were used to investigate the village and villager household. Such activities as open discussions, survey around the villages, semi-construction interviews and intensive household interviews were conducted during the investigation period. In order to clarify the situation in the villages, several general and specific questions were asked during meeting with the head of the village and representative of each household in the villages.

Data Analysis

Descriptive statistics (qualitative method), where study data were collected in the questionnaire form of statistical distribution are frequency, percentage, mean. These are essential information required to examine the perception of population in the forest resource management surround the PPA (qualitative data). The analysis method ranked the perception into four levels:

- 1-2 = low/ fair/ never/ decrease
- 2.1-3 = medium/ normal/ well
- 3.1-4 = more/ better/ more increase
- 4.1-5 = most/ best/ most increase

The formula to calculate the Percentage

$$Pe = \frac{f_i}{n} \times 100$$

Where, Pe : percentage (%)
 n : the total number of samples
 f_i : frequency

The formula to calculate the Mean (Mean \bar{X})

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n}$$

Where, \bar{X} : Mean of population
 $\sum_{i=1}^n X_i$: Sum of population
 n : The total number of sample

RESULT AND DISCUSSION

The Socio-economic status

The study found that the Khaymaeb village with 313 people; 65 households which 164 are female. Houayhaeb village has 42 households, 247 people, and 117 female most of the population sample is male, which represents 96.3% because the head of households are men, with female only 3.64% of the head of household under widowed. The average of age of those interviewed was 42 years old. These two villages are originally located and have been there in the provincial development project area. The people have participated in the conservation and management of forest resource in the PPA. The two villages are representatives of two clusters and all villages located around the PPA, to study the population perception, understanding levels of the forest resource management. If they understand, the perception of natural resource will be better and the forest status in PPA will not be disturbed or decrease by destruction. The sample of the study found most were between 25-40 years old or 43.64%. Followed

by the age range 41-55 years accounted for 41.82%. Older than 55 years old accounted for 9.09% and younger than 25 years old accounted for only 5.45%. Most of people were married and families accounted about 96.36% and widowed cover only 3.64%.

The perception of population for forest resources management

The study found that most of the population participates in the PPA management are low level, covered 56.3%. Secondly non participants' level covered 34.55% and participants in the intermediate level covered 9.09%.

The perception of people for forest resource management before the year 2000 was intermediate level covered 50.91% followed by the good level, covered 5.45% and the best level covered only 1.82%. Thus, the forest resource management after the year 2000 until present is in the Good level, covered 52.72%. The best level is 43.64% and the intermediate level covered 3.64%.

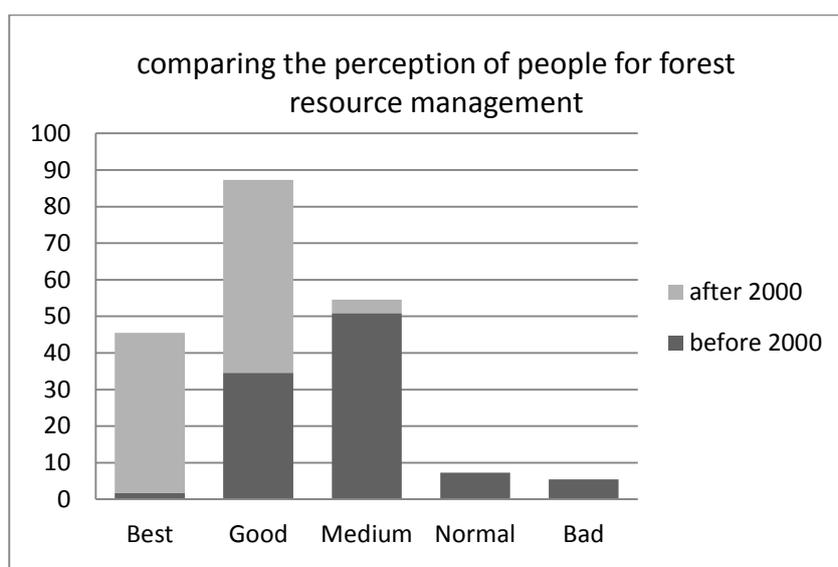


Figure 3: comparing the perception of people for forest resource management before the year 2000 and after 2000.

The contribution of people to manage forest resources in the village shows that the good level covering 34.64% then followed by certain intermediate 38.18%, the best level representing 12.73% and in the normal covers 5.45%.

In action of law (interviewee) found that Population Sample who were interviewed most respondents action of law at a good level covering approximately 50.91%, followed by the intermediate with 45.45%, the best cover 1.82% and in normal covers 1.82%.

To establish the regulation with several parties to manage the forest resources representing a good level

with 58.18%, followed by the intermediate with 25.45%, and at best 16.36%.

The regulation of the government to manage the forest resources shows most people have to answer in the best level, covered 69.09%, and good level covered 30.91%. To establish the village regulation for forest resources in village areas, the idea at a good level cover 56.36%, followed by the best level with 29.09%, and the intermediate on 14.55%.

Most of sampling population was suggesting establishing the PPA at a good level of covered 61.82% and intermediate level, covered 10.91%.

A benefit that people receive from forest resources management at a good level covered 49.09%, followed by very good level with 25.45%, and then the term fair level with 18.18% and the normal level on 7.27%.

The study to conception, knowledge and understanding of the people, in the present, the forest resources in village areas has increase or decrease that is still in normal level, covered 43.64%, followed by the forest resource to increased with 36.36%, then the resource forest to declined on 18.18%. Forest resources increase at less level covered 1.82%, wild animals and squalid animals declined covered 100%, the among of NTFPs ever used at normal level covered 61.82% followed by increase level covering 5.54% and less increasing covering 1.82%.

The model for using forest resources by people.

Base on the study found the population sample that are using forest resources model get permission step by step covered 52.73%, using for traditional model covered 27.27% and using partition model covered 20%. The Forest unit and other organizations of village monitoring of the forest use accounted for 60%. Defense/Security of village and local area as monitoring the use of forest resource covered 40%.

If whoever that violate the village's regulation found in the Population Sample in the study often answer they should be punished in the village covered 56.36%, education and warning covered 40% and policies covered 3.64%. The implementation rules, cases of the people from other village that violate the regulations should be punished by the village's rule issued covered 87.27% and warning covered 12.73%.

The use of wood for construction or repair of houses is 5 cubic meters. The villagers had to get permission from the villages covered 94.55%, and permission from district covered 5.45%. The using of wood for construction or repair of houses more than 5 cubic meters, the villagers had to get permission from the district organization covered 65.45%, and permission from village covered 34.55%

The request on using wood for the event of village to be permitted by the district covered 90.91%, while permit from the province covered 5.45% and from the village covered 3.64%.

The source of the use of wood and repairing of house is from village's community forest covered 61.82% and the other area covered 38.18%. The sources of fire wood used as fuel are from village's community forest covered 50.91%, from other forest area represented 21.82%. from other sources accounted for 16.36% and from village protected area cover 10.91%.

The source of use of bamboo for basket handmade and other activities are stated as follows. The people used bamboo to craft baskets and other activities mostly are from the village's community forest accounted for 41.82%. From other sources accounted for 16.36% and from village protected area covered 9.09%. Prohibition to keep the NTFPs by extinction covers 87.27%, reckless prohibition covers 7.27% and Commercial prohibition covers 5.45%.

The Use of forest resource sustainability is as stated. Every party should manage forest resources accounts for 49.09% followed by the forest use management which covered 36.36% and used traditionally accounted for 14.55%.

Benefit from the forest

Results on benefiting from the forest. A forest is protecting the source water streams with highest level covered 58.18% and 41.62% in the good level. Forest is the sources of wildlife habitat in the best covered 90.91% and 9.09% good level cover. Forest is the sources of herbal medicine at good level covered 61.82%, at the intermediate level covered 20%, 12.73% of the best level and 5.45% of the lowest level. The Source of wood use and building in the best level represented 78.18%, 20% represented good level and intermediate level covered 1.82%. The forest is the sources of firewood at best level represented 52.73%, followed by good level representing 45.45% and in the intermediate cover 1.82%. Source of NTFPs as best level covered 72.73% and 27.27% cover good level. Source of food for people and animals as best level representing 69.09% and 30.91% cover as good level.

Benefiting from the Khammouane PPA of water resources in the most level covered 56.36% and 43.64% on good level. A source of food at the best level represents 52.73% and 47.27% on good level. Sources of herbal medicines in very good level covered 56.37% followed by 23.64% of intermediate level and the lower level cover 5.45%. As the natural tourism area covered 47.27% with most level on 40%, 9.09% on medium level while the less level covered 3.64%. The sources of Habitat's wildlife most cover 87.27% and 12.73% on more level. A source of firewood on intermediate level cover 49.09%, 25.45% of more level while with less level covers 21.82% and the most level on 3.64%.

Benefits received from participation in the forest resource management of people who utilize forest resource has been on sustainable foundation with an average 4.60 and beneficial to communities with average 4.20

Conclusion

The study to assess the villagers' perception on forest resources management around the Khammouane PPA, Khaymaeb and Houayhaed villages, Bualapha district, Khammouane province can be concluded with the objective set out as detailed below:

Evaluation of the villagers' perception on forest resources management in two villages appears: the population participates in the PPA management involving lower level for about 1-2 times per year, which accounted for 56.36%. The perception of people for forest resource management before the year 2000 was intermediate level covered 50.91%. After the year 2000 until present is in the Good level covering 52.72%. Management of forest resources in the village areas represents 43.64% on good management and 38.18% is the intermediate level of management. In actions of those who were interviewed most respondents action of law at a good level covering approximately 50.91%. To establish the regulation with several parties to manage the forest resources representing a good level with 58.18%. The regulation of the government to manage the forest resources shows in the best level with 69.09%. Suggesting establishing the PPA at a good level covered 61.82%. A benefit that people receive from forest resources management at a good level covered 49.09%.

Model use of the forest resource of Khaymaeb and Houayhaed villages around the Khammouane PPA is as stated. The use of herbal cure disease is 72.73% of which little quantity is used. Results in using bamboo were 72.73% used in large quantities. Wood as fuel in everyday life was at 74.55% in volume and use of wood for construction and repair homes on 60% less use.

The use of forest resource model of people is 52.73% who get permission on stage. Whoever that violates the village regulation and should be punished in the village covers 56.36%. The implementation rules, especially cases of the people from other village that

violate the regulations, 87.27% should be punished by the village's rule issued. Prohibition to keep the NTPFs by extinction covers 87.27%. Reckless prohibition and the use of forest resource sustainability shows the parties should manage the forest resources covers 49.09%. The concept of benefits from forest found that 58.18% forest preserve water source. 90.90% forest is the animals living; 61.82% is an herbal medicine, 78.18% forest resources are used up and building houses, 52.73% a source of firewood, 72.73% is the source of NTFPs and 69.09% forest provides food for people and animals.

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