

**COMMUNITY NEEDS FOR PARTICIPATION ON PEAT SWAMP  
FIRE PROTECTION IN KOUN KRENG  
NAKHON SRI THAMMARAT**



**A THESIS SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR  
THE DEGREE OF MASTER OF EDUCATION  
(ENVIRONMENTAL EDUCATION)  
FACULTY OF GRADUATE STUDIES  
MAHIDOL UNIVERSITY  
2004**

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was submitted to the Faculty of Graduate Studies, Mahidol University  
for the degree of Master of Education (Environmental Education)

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## ACKNOWLEDGEMENTS

The success of this thesis can be attributed to the extensive support and assistance from my major advisor, Asst.Prof.Wasin Pluemcharoen.and co-advisor, Assoc. Prof. Rachanon Suppamongpichet and Dr. Pattaraboon Pichayapaiboon. I deeply thank them for their valuable advice and guidance in this research.

I would like to thank Assoc. Prof. Sukhum Poothong thesis defense committee, for valuable advice and guidance in this research. In addition, I wish to thank Arjarn Saowapa Somwiwatkul teacher of Cha-uad school, Mr. Kasem Yodkaew Mr. Sawat Samakr-pong Communities for their facilitation of data collection. Thanks also go to all the fathers who were the samples in this study for their participation.

Finally, I am grateful to my family for their financial support, entirely care, and love. The usefulness of this thesis, I dedicate to my father, my mother and all the teachers who have taught me since my childhood.

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COMMUNITY NEEDS FOR PARTICIPATION ON PEAT SWAMP FIRE PROTECTION IN KOUN KRENG NAKHON SRI THAMMARAT

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ABSTRACT

The purpose of this research was to make an assessment of community needs in participating in peat swamp fire protection in Kuan Kreng Nakhon Sri Thammarat province, and the influencing factors of community needs for participation in peat swamp fire protection in Kuan Kreng Nakhon Sri Thammarat province.

The targeted groups consisted of 2 groups (a) the community leader group and (b) the villagers' representative group.

The research implementation was an in – depth interview and a workshop arrangement based on the adaptation of future search conference process. The process is made to know history, present and needs for community participation in peat swamp fire protection in the future.

The community needs set groups for acts of fire control, fire prevention and detection, community fire attack and control line. The social factor was the problem of the community.

The recommendations from the research was that strong support should be given to community members by providing knowledge in regard to Eco – system and peat swamp fire prevention. All related government sectors should assist and coordinate with the community regarding equipment, materials, and items used for fire prevention. This is to help the community to effectively operate the self – prevention of future fire occurrence.

KEY WORDS : PATICIPATION/FOREST FIRE/PEAT SWAMP FOREST/  
COMMUNITY

131 pp. ISBN 974 – 04 – 5215 – 9

ความต้องการมีส่วนร่วมของชุมชนในการป้องกันไฟไหม้ป่าพรุควนเคร็ง จังหวัดนครศรีธรรมราช (COMMUNITY NEEDS FOR PARTICIPATION ON PEAT SWAMP FIRE PROTECTION IN KOUN KRENG NAKHON SRI THAMMARAT)

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คณะกรรมการควบคุมวิทยานิพนธ์ : วสิน ปลื้มเจริญ, ศษ.ม., รัชชานนท์ สุขพงศ์พิเชฐ, พบ.ด., ภัทรบุรณ์ พิชญ์ไพบุลย์, Ed.D.

บทคัดย่อ

จากการที่ป่าพรุมีปัญหาไฟไหม้ในการศึกษาวิจัยครั้งนี้มีวัตถุประสงค์ของการวิจัยคือ เพื่อศึกษาประเมินความต้องการมีส่วนร่วมของชุมชนในการป้องกันไฟไหม้ป่าพรุควนเคร็ง จังหวัดนครศรีธรรมราช และศึกษาถึงปัจจัยที่มีอิทธิพลต่อความต้องการการมีส่วนร่วมของชุมชนในการป้องกันไฟไหม้ป่าพรุควนเคร็ง จังหวัดนครศรีธรรมราช

วิธีดำเนินการวิจัยครั้งนี้มีกลุ่มเป้าหมายเป็นกลุ่มผู้นำชุมชนจำนวน 3 คนและตัวแทนประชาชนในชุมชนจำนวน 12 คนจากตำบลเคร็ง อำเภอลำดวน จังหวัดนครศรีธรรมราช โดยเครื่องมือที่ใช้ในการดำเนินการวิจัยครั้งนี้เป็นรูปแบบการสัมภาษณ์เชิงลึก และการจัดประชุมเชิงปฏิบัติการแบบมีส่วนร่วม โดยประยุกต์ใช้กระบวนการมีส่วนร่วมการสร้าอนาคตร่วมกัน ( Future search conference) ซึ่งเป็นกระบวนการที่จะทำให้ทราบถึงความเป็นมา ปัจจุบันและความต้องการในอนาคตของชุมชนโดยตัวชุมชนเองในการป้องกันไฟไหม้ป่าพรุ

การศึกษาวิจัยพบว่า ความต้องการการมีส่วนร่วมของชุมชนในการป้องกันไฟไหม้ป่าพรุควนเคร็งนี้ ชุมชนมีความต้องการมีส่วนร่วมโดยการจัดตั้งกลุ่มดูแล ตรวจสอบ ระวังไฟ และการทำแนวกันไฟเพื่อการป้องกันไฟไหม้ป่าพรุแต่ยังคงมีอุปสรรคในการเข้ามีส่วนร่วมของประชาชนส่วนใหญ่ในชุมชน ก็คือปัจจัยทางด้านเศรษฐกิจ ส่วนสิ่งที่ผลักดันให้เกิดความต้องการการมีส่วนร่วมในชุมชนก็คือปัจจัยทางด้านสังคมและการได้รับผลประโยชน์จากทรัพยากรธรรมชาติในป่าพรุที่ทุกคนในชุมชนการได้รับอย่างยุติธรรมและเท่าเทียมกัน

ข้อเสนอแนะจากการศึกษาวิจัยครั้งนี้ พบว่า ควรมีการส่งเสริมให้ความรู้แก่ชุมชนในเรื่องระบบนิเวศและการป้องกันไฟในป่าพรุ หน่วยงานราชการต่าง ๆ ที่เกี่ยวข้องควรให้ความช่วยเหลือและประสานความร่วมมือกับชุมชนในเรื่องเครื่องมือ วัสดุ อุปกรณ์ในการป้องกันไฟไหม้ป่าพรุ เพื่อให้ชุมชนสามารถดำเนินการป้องกันไฟไหม้ป่าพรุได้ด้วยตนเองอย่างมีประสิทธิภาพ

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## CHAPTER 1

### INTRODUCTION

#### 1.1 HISTORICAL BACKGROUND

Forestry is one of considerable natural resources which provide a great deal to human beings. If the forest is resplendent, it also helps maintaining the balance of the earth. However, the perfect woods, in these days, are increasingly destroyed both by men and wildfire (Shusak KongInn, 2545:1). As a result, it has certain impacts on the natural resources and life cycles. Thailand itself is forced to face the decadent of natural resource as well as environment pollution that apparently effect the citizens' quality of life. These are caused by over-usage of natural resources in ratio, quantity and length of time. (Suan Dusit Ratchaphat Institute). Forest fire is not only a vital reason for causing the decreasing of forestry but it demolishes the balance of the forests. Forest fire can make a perfect forest become a desert one. (Pranai Somwong, 2543 : 1)

Furthermore, each wildfire damages florae, wild animals and other living things, for instance, microorganism. The mentioned disaster changes the quality of the soil and the water and brings break down to the property and human beings themselves. (Chaiyan Kaweewon, 2544:1). Wildfire in each area not only damage that place but also harm the environment and world ecology. (Siri Akka-ake, 2540 : 10). Forests around the world is burnt approximately 175,000,000 acres ( or 442.6,000,000 rais) a year and 80 % of them are in tropical countries. (Word, D., 1998- is refered in Chaiyan Kaweewon, 2544:2).

Thailand is largely damaged by forest fire. According to the survey of Thailand Forestry Department in 1995, the forests are harm 19,5000,000 rais yearly. (Royal Forest Department)

The Forestry Department has not assigned any particular section to be responsible for the forest fire elimination in the high-risk areas. Instead, the Fire Control Centers,

a total of 6 centers nationwide are in charge through the Forest Fire Control Station, which is located in different regions of the following (The Forestry Department, 1998: 42-43)

The Forest Fire Control Center for the upper north is located in Chiangmai Province, lower north is located in Pitsanulok Province, northeast is located in Nakornrachasima Province, central is located in Kanchanaburi Province, south is located in Chumporn Province, Huay Kha Khang is located in Utaithani Province.

The survey report on the areas under the responsibility to perform fire elimination of the Forestry Department reveals that there are a lot of fire burning areas yearly i.e. in the budget year of 1998, 323,940 rais of land or 1.87% of the total of 17,327,980 rais was burnt while 172,931.5 rais or 0.59% of 29,203,672 rais was burnt in 1999 (The Office of Forest Fire Control, 1999 a).

In the budget year of 2002, Nakhon Si Thammarat Province discloses the forest fire occurrence of 45 times with the burnt area of 6,345 rais or 0.01% from the total area of 6,379,037.50 rais. It is considered the biggest burnt area in the south.

The budget year of 2004 shows the burnt area in the south of 1,398 rais during October 1, 2003 to March 14, 2004, as demonstrated in table 1.1 ([www.forest.go.th](http://www.forest.go.th))

The burnt forest area as the estimation of the Fire Control Office in the budget year of 2004 reveals that there is 7,71.65 rais in Nakhon Si Thammarat Province alone. The main cause is the farm burning of 663 times with the total burnt area of 8,459.5 rais. Other causes include the seeking of wild materials from the forest that creates the burning of 2055 times with the destruction of 30,458.5 rais of land. Other causes that lead to the occurrence of forest fire have not been recorded in details. More information can be found in table 1.2 below.

The duration of fire in Nakhon Sri Thammarat during October 01,2003 to March 30,2004 is (a) the peak time is between 1400-1600 hours (b) 2400-0000 hours is the lowest time as there is no fire occurrence. More detail is shown in table 1.3.

Table 1 the burnt area of each province during the budget year of 2003 (Effective October 01, 2003 to March 14, 2004)

Province	time	Rai
Naratiwat	-	-
Prachoupkirikhon	15	318
Chumporn	11	697
Ranong	8	298
Pung-nga	-	-
Nakhon Si Thammarat	-	-
Satul	-	-
Krabi	2	9
Yala	-	-
Songkhla	-	-
Suratthani	-	-
Pattani	-	-
Trung	1	6
Pattalung	-	-
Phuket	1	70
<b>Total of Southern</b>	<b>38</b>	<b>1,398.00</b>
<b>Total of Thailand</b>	<b>5,681</b>	<b>83,016.65</b>

<http://www.forest.go.th/forestfire>

Table 2 shows the statistical demonstration of the forest fire occurrence recorded by the Provincial Forest Fire Control Station, Nakhon Sri Thammarat for a period of October 01, 2003 to March 30, 2004.

Cause	Forest Fire Stats		Forest Fire Stats Gathers	
	frequency (time)	damage area (rai)	frequency (time)	damage area (rai)
1. farm burning	663	8459.5	663	8459.5
2. seeking of wild materials	2055	30458.5	2055	30458.5
3. hunting	948	14406.5	948	14406.5
4. animals feeds	2032	6197.5	2032	6197.5
5. tourist	32	364.5	32	364.5
6. conflict	50	1752	50	1752
7. smuggle logs	80	745	80	754
8. accident, careless	24	178	24	178
9. not been recorded in details	0	0	0	0
10. another	83	6678.4	83	678.4
<b>Total</b>	<b>8018</b>	<b>71711.65</b>	<b>8018</b>	<b>71711.65</b>

<http://www.forestfire>

Nakhon Sri Thammarat Province is considered to have a maximum area of forest but the forest land has been continuously invaded and destroyed that presently the availability is only 12.36% while 63,000 rais of wetland forest is replaced by prawn farm. On the other hand, an agricultural sectors as well as industrial sectors widely use various

chemical substances that further create not only dirt and dust particles for environment but also problems in managing and correcting the environment. In 2017 this province sets an objective for a task to efficiently preserve and care for natural resources and environment which include soil, forest, water sources, mineral and energy. The plan also includes the caring and preserving of natural environment both rural and urban, academic rubbish disposal method as well as pollution management. All these arrangements will be under the provincial plan of natural resource preservation and development with the participation of communities, local administrations and other academic organizations. In order to seriously care for the environment, law enforcement in regard to environment must be strictly complied along with other related plans such as city planning, clear boundary line of the area as well as different environment campaigns of both public and private that are continuously operated. Other topics included in the plan are (a) the determination of a clear boundary line for all forests to avoid further trespassing (b) The arrangement of a system for water source development to suitably covers different required areas (c) the creation of awareness of environment and energy preservation within every targeted groups (d) the arrangement for a project of the preservation and development of natural environment among mountain, plain and seashore areas and (e) the importance of peat swamp forest in term of Eco-system ([www.nakhonsicity.com](http://www.nakhonsicity.com)).

Peat swamp forest in Nakhon Si Thammarat Province is a preserved area of 4 locations with the total parameter of 165,825.50 rais. However, there area many swamp forests that are not referred as the preserved area, as shown in table 4

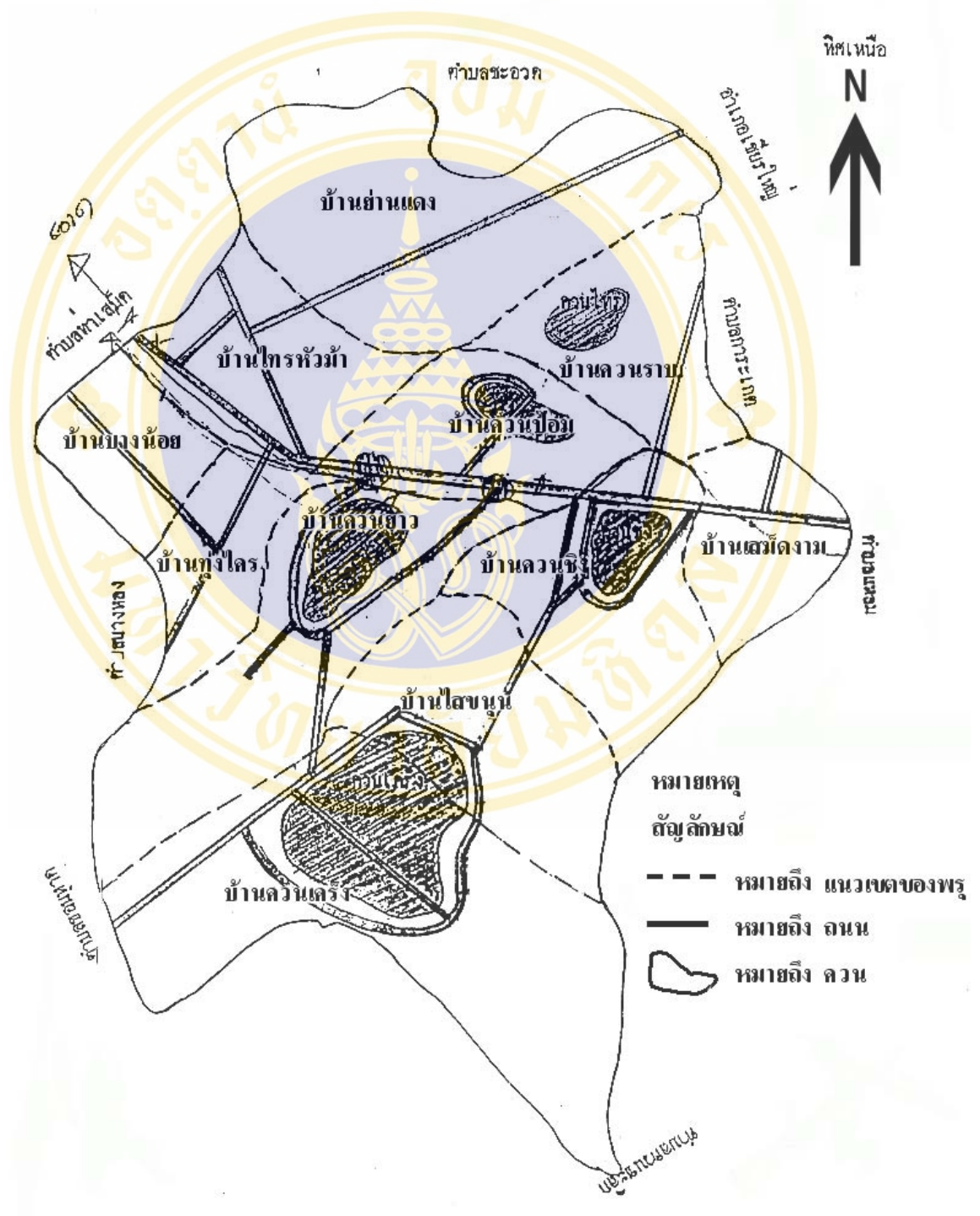


Table 3 The duration of fire occurrence from October 1, 2003 to March 30,2004.

time	Forest Fire Stats		Forest Fire Stats Gathers	
	frequency (time)	damage area (rai)	frequency (time)	damage area (rai)
00:00 - 02:00 น.	14	349	14	349
02:00 - 04:00 น.	6	320	6	320
04:00 - 06:00 น.	13	1099	13	1099
06:00 - 08:00 น.	54	984	54	984
08:00 - 10:00 น.	480	8226	480	8226
10:00 - 12:00 น.	597	9416	597	9416
12:00 - 14:00 น.	1010	16422	1010	16422
14:00 - 16:00 น.	1175	16171.7	1175	16171.7
16:00 - 18:00 น.	607	16171.7	607	16171.7
18:00 - 20:00 น.	496	16171.7	496	16171.7
20:00 - 22:00 น.	255	16171.7	255	16171.7
22:00 - 24:00 น.	64	16171.7	64	16171.7
24:00 - 00:00 น.	0	0	0	0
<b>Total</b>	<b>4771</b>	<b>70445.65</b>	<b>4771</b>	<b>70445.65</b>

The Forest Fire Control Division under the National Park, Wildlife and Plant Conservation Department.

Table 4: The legitimate areas of peat swamp forest in Nakhon Sri Thammarat Province.

forest name	national forest ตามมติ กรม. B.E. 2504 area (rai)	Permanent national forest ตามมติ กรม. B.E.2516 area (rai)	national preserved forestตาม กฎกระทรวง area (rai)	National preserved forestรับ คืนจาก สปก. area (rai)
Donsai and Glong forest	93,343-0-0	61,517-0-0	52,987-2-0	29,701-2-28
Forest number 102 plot 1	182,025-0-0	55,590-0-0	54,221-0-0	44,651-0-0
Klongkong forest	42,170-0-0	31,206-0-0	29,949-0-0	15,447-0-0
Ta Changkham forest	36,801-0-0	29,962-0-0	28,668-0-0	19,826-3-0
Total	354,339-0-0	178,275-0-0	165,825-2-0	109,656-1-28

Note: National reserved forest fix in order B.E. 2521,2529,2517,2517

Most of peat swamp forests in Nakhon Sri Thammrat Province are in bad condition that leads to the occurrence of fire every year. Forests in Thailand normally contain low moisture content unlike swamp forests that have high moisture content, yet, forest fire today occurs in any types of forests. This is because an average temperature of swamp forest is around 28 C while its soil consists of 2 levels of wetland underneath and dry surface on the top. The wetland contains sulfur and the accumulation of decay from plants, animals and other organic substances such as wood, leaves. The lengthy accumulation in water area creates slow digestion that it becomes an organic soil. Although, swamp forest is a water existing area but in the dry season the water dries up and the area is replaced by dryness that when fire occurs, all organic substances become a good fire source that slowly and firmly spreads throughout the area. The nature of this

fire is non-vital; instead, it slowly continues and expands underneath with thicker smoke than other burnt sources. Such fire is very difficult to eliminate because the elimination can be done only on the surface but not the underneath level so it may look like the fire is stopped but actually it is continuing, waiting to burn further (Pokkrong Tongnuetae, 1998:99).

Kuan Kreng Peat Swamp Forest is an area of a swamp forest in Pak Panang Watershed. Kuan Kreng swamp forest covers the area of 5 districts i.e. Chienyai, Chalermphrakiat, Huasai, Cha-uad and Ronpiboon. Its 4 parts of the area has been declared as the national preservation forest which are (1) National Preservation Forest Ban Koompae, Ban Nailoom and Kuan Kreng (2)Ta Changkham National Preservation Forest (3) Klongkong National preservation forest and (4) The National Preservation Forest Donsai and Glong. All these national preservation forests are not a one big piece of land connected but they are the spread lands. The natural disasters of 1962, 1975 and 1988 cause the poor condition of the forests. Moreover, other causes such as the increasing number of the population, the economic expansion, the changing of life style can be directed to the illegal tree cutting, forest burning for land possession as well as animal hunting, all lead to the bad condition of the forest. This is the unnatural forest situation but it creates dryness and fire in the forest that, as previously mentioned, spread out and is difficult to stop. The non-balancing Eco-system is consequently occurred with unavoidably impact to people's living condition as well as others' living conditions (The Project of Preservation and Development for Kuan Kreng Peat Swamp Forest, Nakhon Sri Thammarat Province, the budget year of 2003, 2003). The natural deterioration problems in Kuan Kreng Swamp Forest are divided by the intellectuals of Prince of Songkhla University (2002) into 3 main points of (a) a problem of fishery that includes an improper equipment for fishing such as the use of electric shot method, the use of toxic substances and etc. (b) a problems of bulrush and (c) a problem of forest fire.

The problem of forest fire, based on the forest fire statistic of Kuan Kreng Peat Swamp Forest for 2002, shows that fire occurs most frequently at the area of Kreng Sub-district in Cha-uad District.

Other rich and complete peat swamp forest like Toh Daeng in Naratiwat Province provides less chance of fire when being compared to Kuan Kreng. The question is “why” and the simple reason is because the destruction is done by the community members around Kuan Kreng areas. Their destructive activities include tree burning in the agricultural land located around the swamp forest or the area nearby such as rice field, rubber field, farming field and etc that is an open space but difficult to control the fire as well as weed burning for new fresh weed in the animal farming area i.e. cow or buffalo farm, yet, fire is again uncontrollable and fishing which starts by burning the swamp area in order to conveniently walk into the water area to catch fish, turtles, etc. Wildlife collection such as bee collection for honey or a collection of red ants, hornets and etc. through burning fire can be another simple cause of destruction as well as the unsatisfied attitude of the locals toward the government officials.

Forest fire prevention, according to the National Economic and Social Development Plan, issue 9 for 2002-2006, is referred as an important topic for community participation in the Community Preservation and Management of Natural Resource and Environment Project that is established for the creation of strength of community. The Thai Constitution 1997, additionally, supports people’s activities to participate in local management for natural resource with a simple reason that problems occur by the locals so it is necessary to have them be part of the legal corrective measure, the maintenance and the application for the sustainable existence of nature and environment. The previous fire that occurred in the swamp forest areas of the sub-districts of Ban Tool, Cha-uad, Kreng in Cha-uad district and other areas in the district of Chalermphrakiat, Chienyai and Huasai had received the coordination of various sectors, both government and private, as well as media to help in fire fighting and elimination of fire. The outcome of the fire is the destruction of the forest and the changing of natural resource, environment and Eco-system, which impact directly with locals’ living conditions.

The examination of Cha-uad Forestry Office (Cha-uad Forestry Office, 1999) reveals that the cause of fire consists of various elements and factors, but, the most

important factor is the construction of water channel to allow water out of the swamp area to dry the land and the organic substances become a fire source and the ongoing of the aforementioned burning process occurs. In order to prevent this occurrence, it is essential to reserve part of the water in the swamp area to maintain the wetland and the nature of swamp forest.

It can be clearly seen that the cooperation from the locals is imperative to achieve the corrective measure. Therefore, it is a valid reason for this research study to focus on the participation of the community members in Kuan Kreng Peat Swamp Forest Fire Prevention, Nakhon Sri Thammarat Province.

## **1.2 OBJECTIVE OF THE STUDIES**

1. To assessment of community needs for participation in Kuan Kreng peat swamp fire prevention Nakhon Sri Thammarat Province.
2. To Influent factor of community needs for participation in Kuan Kreng peat swamp fire prevention Nakhon Sri Thammarat Province.

## **1.3 SCOPE OF THE STUDIES**

This research study to assessment of community needs for participation in Kuan Kreng peat swamp fire prevention Nakhon Sri Thammarat Province. The area encounter forest fire often form Kuan Kreng peat swamp forest fire statistic, Nakhon Sri Thammarat Province, 2002. The area is Tumbon Kreng Aumpure Cha-aud Nakhon Sri Thammarat Province.

## **1.4 OPERATIONAL DEFINITION**

**Participation** refers to people in community participation behavior to needs, activities, decision, gain an advantage, and evaluation to fire control and prevention in the community.

**Decision** refers to consideration and find to fire prevention and control.

**Activities** refer to act of forest fire control and prevention such as fire prevention, get ready to attack a fire, detection, attack fire, and activities evaluate.

**Gain an advantage** refers to people in community can use the area for agricultures make living of commune forest fire.

**Evaluation** refers to check of activities success and forest fire damage in order to data based for forest fire improve and fire prevention not happen later.

Peat Swamp Forest refers to the lowland forest. Swamp of Kuan Kreng, soils of peat is so long collecting the humus and carcass.

**Communities** refers to people group on location and near have the communication, relationship, tradition, niche, and value alike them.

**Forest fire control** refers to control activities to not forest fire or expand such as attack fire, control line, early burning including rule performance or agreement.

**Detective** refers to make to know where the forest fire and attack a fire later.

## 1.5 ADVANTAGE FROM THE STUDIES

1. This research perceives to character and level of community needs participation in Kuan Kreng peat swamp fire prevention Nakhon Sri Thammarat province.
2. Perceive to community needs for participation in Kuan Kreng peat swamp fire prevention Nakhon Sri Thammarat province problem and objections.
3. Research can take to community participation substantial support plan.

## **CHAPTER 2**

### **LITERATURE REVIEW**

The research of the community participation in fire prevention of Kuan Kreng peat swamp forest in Nakhon Sri Thammarat Province includes the study of documents, perspectives, theories and related research papers by making them as the basic foundation and guidelines with the following key points.

- 2.1 Perspectives and theories of the participation
- 2.2 Views of participation action research.
- 2.3 Views on the topic of forest fire.
- 2.4 Policies and legal act related to forest fire.
- 2.5 The related research studies.
- 2.6 The research frame of thought

#### **2.1 PERSPECTIVE OF THE PARTICIPATION**

In order to have the correct understanding in the community participation of forest fire prevention in Kuan Kreng peat swamp forest as well as to identify the problems and activities that benefit the people of the community, it can be described with various following perspectives and related theories.

##### **2.1.1 The definition of the participation**

Shadid and others (1982, as referred in the research of Siriwanna Dechwitee, 2001: 15) has concluded the character of participation as “The participation is not mostly considered in terms of theory but in term of behavior detail concerning the role of the participation.” This includes the following definitions.

Suriya Khoonyee (2000: 19) has defined the people’s participation as the cooperation of either an individual or a group of people who agrees and holds responsibility in an activity for social benefit in order to develop and alter to the required direction, through the action of the group or organization.

Jaroen Pasra (1997: 1) has described the people's participation into 4 categories.

1. The participation of a group of people or of people process that, in the past, these people have been the outsider of the public work but they can now increase their responsibility in controlling resources and institutions based on the social conditions.

2. The participation that people or community can develop the range of their abilities in managing and controlling the utilization of resources and the producing factors in the society for the economic and social benefit of a good living. As a member of society, being part of people participation can make an individual develop the awareness and skills, which may reveal in the form of a decision making for a life of oneself.

3. The participation that is a process to allow people to be involved in the development operation as well as to think and to make one's decision, which includes the use of creative ideas, skills along with the use of proper technology to evaluate the performance of the organization and its staff.

4. The participation that is a process to offer a targeted group of people to obtain and utilize the opportunity to express ideas, abilities, feelings and problems as well as the corrective measures and the implementation of ideas with the least assistance from outside functions.

Berntnard (Berntnard, A., 1985:7) has defined the meaning of social participation as a social interaction toward the group situation.

Pairat Techarin (1984: 6-7) has given the meaning and the principle of the policy of community participation for community development that it is a process that is supported, led and created by the government for its citizen which includes individual, groups, clubs, associations, foundations and different volunteer organizations to participate in one or many operational activity.

The United Nation (The United Nation, 1978: 4) has defined the people's participation in a development process that it is "people's enthusiastic and powerful participation" in the process of decision making to determine the social target, to arrange the resource in order to achieve the target and to willingly operate as plan or projects.

The International Labour Office (The International Labour Office, 1971:7) has provided the meaning of the participation as the cooperation in doing something, which includes the responsibility in such doing.

“Participation” is a word that has been used for a long period of time. Douglas (1970: 89-90) has pointed out the importance of the participation that its characters and roles can make the differences in its meaning.

It can be concluded, from the above mentioned definition that participation is a joining in a process that does not only include planning, decision making, operating, following up and evaluating but also the self-benefit both direct and indirect and individual as well as organization. For this research study, the definition of the word “participation” is the community people’s cooperation behavior where people share the same need and the same decision. These people additionally share the same operational activity, benefit and evaluation in controlling and preventing forest fire of peat swamp forest in the community.

### **2.1.2 The style and the character of participation**

Siriwanna Dechwitee (2001: 18) concludes the format of participation that it must consist of the participation in planning and decision making, operating, benefit obtaining as well as the participation in following up and evaluation.

M.R. Akin Rapeepat (as referred in the research paper of Anurak Panyanuwat, 1997: 28) offers the idea of “people participation” under the Thai rural society into 2 following characters.

1.The character of activity participation of various rural developments which includes;

1.1 To search and to sequence the problems as well as to find the cause of problems

1.2 To look for the corrective measure and to implement it.

1.3 To evaluate the result of the development.

2.The character of the conditions in activity participation as the reasons of people participation in rural development which are;

2.1 Unwillingness, being forced or sudden motivation.

2.2 Understanding and accepting of the objective of the development.

2.3 Agreeing that the activity can be a lengthy benefit to individual as well as the public.

Pakwimon Pienlum and Kanoksak Kaewtep (1992: 16) reveal that the level of people participation, in general, that can create maximum benefit, consists of 4 steps of (a) collective decision making (b) negotiation (c) consultation and (d) information.

Pairat Techarin (1984: 6-7) expresses that "participation" is a process that is supported, led and promoted by the government in creating the opportunity for people both individual and groups, which include clubs, associations, foundations and various volunteer organizations, to join in any or many operations. This aims to achieve the development objective and the policy to have the following characters of participation.

1.To jointly study problems and causes of the community including the community requirement.

2.To collectively think and create a development format and method in order to reach the corrective measure and to reduce the numbers of problems as well as to create new things for the benefit of the community and to respond to the community needs.

3.To jointly set the policy or the plan or the project or the activity in order to eliminate and correct the problems as well as to respond to the community needs.

4.To collectively make decision in the utilization of the existing limited resource to maximum benefit the public.

5.To collectively arrange or improve the development management system to be more effectively and efficiently.

6.To jointly invest in the activity of the community project to the maximum level of oneself and one's firm.

7.To jointly operate according to policy, plan, project and activity to succeed the set objective.

8.To collectively control, follow up, evaluate and maintain the ongoing project and activity of both private and state firms for the sustainable benefit of the community.

Foranoff (Foranoff.A. 1980: 104) has proposed that the process of participation must consist of one of four following categories.

- 1.Planning. This includes the planning in target setting, strategy, utilized resources as well as following up and evaluation.
- 2.Implementation.
- 3.The utilization of services of the project.
- 4.Benefit sharing.

Yadav (Yadav.R.P. 1979: 3) has categorized participation into 4 following steps.

- 1.The participation in decision making.
- 2.The participation in implementation.
- 3.The participation in project control and evaluation as well as evolution.
- 4.The participation in development benefit.

It is obviously seen from the above mentioned perspectives regarding the people participation that the style and the character of the participation are mostly initiated from the step of planning or decision making on to the step of implementation, benefit obtaining and finally following up and evaluation step. It is accordingly arranged in this study to set the steps of the people participation for fire prevention as planning, decision making, operating, benefit obtaining, following up and evaluation.

### **2.1.3 Methods and steps of participation.**

Winai Samart (1997) has concluded the participation into 5 steps.

- 1.Searching for problems and their causes.
- 2.Planning.
- 3.Implementation.
- 4.Benefit obtaining.
- 5.Following up and evaluation.

Cohen & Uphoff (as referred in the research of Sanchai Sootipanwiharn, 1996: 14-15) has divided participation into 4 steps.

1. Decision making, which consists of;
  - 1.1 The initiation of decision making.
  - 1.2 The operation of decision making
  - 1.3 The decision in implementation.
2. Implementation, which consists of 3 steps;
  - 2.1 Resource promotion
  - 2.2 The management.
  - 2.3 The coordination.
3. Benefits, which consists of;
  - 3.1 Social benefit.
  - 3.2 Personal benefit.
4. Evaluation.

Lawdermilk and Laitas (as referred in the research of Owart Soottanarak, 1988: 24) have additionally proposed 7 steps of participation.

1. Preliminary reconnaissance.
2. Priority problem identification studies.
3. Search for solution.
4. Assessment of solution.
5. Project implementation.
6. Formal project evaluation
7. Project reconsideration of completion.

Jermisak Pintong (1982: 148-50) has divided people participation into 4 steps of;

1. The participation in searching for problems and their causes.
2. The participation in planning.
3. The participation in investing for operation.
4. The participation in following up and evaluation.

Studying from different steps of participation, the author ultimately concludes the participation into 4 steps.

1. Decision-making.
2. Implementation

3.Benefit obtaining.

4.Evaluation.

#### **2.1.4 Factors effecting participation.**

There are various studies and proposals regarding factors effecting participation that can be concluded as the following.

William W. Reeder (1989 as referred in the research of Siriwanna Dechwitee, 2001: 20) has concluded factors effecting people participation into 11 following points.

1.The factor of self-performance to match with one's basic belief, that is, when a person or a group of persons choose the act to correlate and resemble with his/her fundamental belief.

2.The factor of standard value. This is when a person or a group of persons seems to act in a manner that agrees with self-standard value.

3.The factor of objective. It is when a person or a group of persons seems to support, protect and maintain self-target.

4.The factor of the unusual experience. This correlates with the personal behavior that sometimes reflects from the unusual experience in the past.

5.The factor of expectation. This is the behavior of a person or a group of persons that is expressed in an expected manner for the particular situation. It also includes the treatment towards others in the way of expecting others to do in return.

6.The factor of enforcement. This is when a person or a group of persons has to do things unwillingly but with the feelings of enforcement.

7.The factor of self-center. It is when a person or a group of persons does things based on self-thought.

8.The factor of habit and tradition. This is when a person or a group of persons does things habitually in the particular situation.

9.The factor of opportunity. It is when a person or a group of persons participates in the form of social operation, especially in the situation concerning numbers and types of opportunities that the social structure allow him/her.

10. The factor of ability. This is when a person or a group of people is allowed to participate in the activity based on his/her ability in the particular situation.

11. The factor of supporting. A person or a group of persons is bound to implement the task when he/she feels that he/she is being supported.

Brown (as referred in the research of Suree Tansrisuroj, 1988: 12013) reveals that social participants, both willingly and unwillingly, are mostly different in status and views that relate to behavior, tradition and ideas of being expected to join. People of higher social status (higher education, career and income) normally participate in the activity more willingly than those of lower status.

As for people participation to improve the condition of family, neighbourhood, community and society, Nirund Jongwootiwes (1984: 183) states that it effects from 3 following ideas.

1. Collective interest and concerns. This is the individual interest and concern that coincident with others to become the collective idea.

2. The collective unsatisfied feelings toward the existing situation can lead to the togetherness of grouping, planning and implementing.

3. The joint agreement can change and force the group toward the required direction. The collective decision making must be strong enough to create the response of the majority of people who are concerned with the activity.

From the above 3 ideas, it can be further stated that the strong unsatisfied feelings with the existing living condition can lead to the changing that further continues to the collective willingness for development. Moreover there are also other factors for the participation, as follow.

1. The feeling of trust for persons or sacred images can invite people to participate in various activities i.e. the cooperation work in the rice field, public work, temple building work and etc.

2. The caring feelings toward the respected person(s) and honour person(s) or person(s) with ranks that can make people want to please them i.e. when some of these people ask for some favour, people do it for them.

3. The force from the powerful people can also enforce others under them to participate i.e. the slave work in places.

It can be concluded that the reason why a person or a group of persons wants to be a part of forest fire prevention can be from various factors including social status, economic status, career, domicile (Narong Srisawat, 1982: 43), the correlation of self performance with the fundamental belief, standard value, objective, experience, expectation, enforcement, self-center, habit, tradition, opportunity, and support. The author has brought some of the factors that are expected to create the participation i.e. social status and economic status to be added in this paper.

### **2.1.5 The measurement of the level of participation.**

The study of people participation must include an index to measure the level of participation clearly. There are various studies on this topic previously, as following.

Chaiyan Kaweewon (2001: 19) states the measurement of level of people participation in forest fire control that it is the behavior that people express to join in various activities concerning the fire control. Any expression that people show in this regard is considered the participation in fire control and, on the other hand, non-expression is non-participation.

Kasperon and Breitbat (Kasperon R.E. & Breitbat. 1977: 36) have proposed 3 following points.

1. An action of an individual, not of a group. The individual's expression in a participation process reveals popular value, acknowledgement and personal behavior, that is, an action of participation is the action that the person expresses toward the effect of that performance directly.

2. A frequency of an action. This demonstrates by a number of actions, the length of action, the correlation and the motivation.

3. The quality of the participation to consider the effect and the impact of the basic action i.e. the responsibility, the decision making, the wide acceptance of ability, the idea acceptance and the evaluation.

From the above statement, it can be pointed out that the measurement of the level of people participation can be measured from the frequency of the expression for numbers of participation in activities. And as for this research on people participation in forest fire prevention at Kuan Kreng peat swamp forest in Nakhon Sri Thammarat

Province, the author uses the adapted research method of the participation process, therefore, the data received from the workshop for participation reveals information that focuses on the experiences that the community people express which include the collective decision making, the implementation, the benefit and the evaluation.

### **2.1.6 Participation Theory.**

There are many theories for the participation and the following are some that will be used in this study.

#### **2.1.6.1. Concept and theory of roles.**

Chaiyan Kaweewon (2001: 20) states the definition of “role” that when human beings perform any role, there must be the position to act as a determination along with society and personal belief. Thus, having the position in the society can motivate the people participation.

Ralph (Ralph.L, 1964: 113-114) has stated the relationship between position and role that position determines the role, therefore, when the position occurs, the role is consequently follows. There must be a role in every position. The role and position must always go together that it can be said that there cannot be a role without a position or there cannot be a position without a role.

Bloom and Phillip (Bloom.L. & Phillip.S, 1963 34-35) have categorized the roles into;

1. The socially prescribed or ideal role. This is a role that determines the right and duty of social positions.

2. The perceived role. This is a role that everyone believes should be done in the position, which can be varied for each person.

The performed role. This is a role that everyone had acted based on belief, expectation and opportunity in the society.

The participation occurs by base on the role that everyone in the society expresses in the same direction that leads to the action and effect as targeted.

The conclusion can be stated that everyone’s role will have position, society and belief as the determination to direct each individual to play the role in the direction as required by the society.

### **2.1.6.2 Theory of exchange.**

Chaiyan Kaweewon states that anybody who wants to gain any benefit from an activity must participate in the interaction and the feeling in order to reach to the target. Therefore, the participation in an activity occurs in order to fulfil the need of the person.

Sanya Sanyawiwat (1980: 203) reveals that human behavior in the society consists of 3 important elements, as follow.

1.Activities. This is the performance that humans are aiming for rewards.

2.Interaction. This is a process that is related to the element of activities, which is done to obtain reward and to avoid punishment from others.

3.Sentiments. This is the feeling within a person for activities and interaction, which can be in a form of feeling, liking and disliking.

Moreover, there can be other related factors for the theory of exchange, which include value, quantity, price, capital and etc.

Eventually, it can be concluded that participation will occur if the concern person(s) receives a response to fulfil his/her need in the form of benefit from exchanging in the activity.

### **2.1.6.3 Communication Theory.**

Wutichai Jamnong (as referred in the research of Chaiyan Kaweewon, 2001: 22) mentions regarding the receiving information and the communication that the two issues are very important because humans are social animals that require communication to exchange ideas as well as needs. Communication is also required to exchange experiences and understandings, it can be said that information is one of the main factors that humans use as part of decision making.

Roger (Roger E. 1971: 45) reveals that the acceptance of the new things depends on the communication process, which includes the source of

information, the channel of communication and the receiver of the information. The channel of communication is the inter personal channel that is connected for informing the news between the sender and the receiver. It also includes the mass communication i.e. newspaper, television, radio and etc. The mass media can be important in term of knowledge gaining and personal attitude changing.

Communication is a process that makes humans exchange and spread information including the creation of mutual understanding. The communication is very important in the participation process because if the communication is proper, the participation can happen very easily that will consequently lead to people's mutual objectives.

#### **2.1.6.4 The theory of Leadership.**

Amnaj Anantachai (1991: 126-130) reveals that the theory of leadership will motivate others to follow. The status of leadership is one of the important factors for people grouping to complete the activity or to share the same objective. A leader must be responsible, negotiable and he/she must not be a type of people who chooses violent methods to solve problems. Of course, the leader must accept and share ideas with others.

The effect of utilizing the theory of leadership results in the participation to work morally, creatively and responsibly which subsequently causes the good quality of work.

Therefore, having a good leader can guide to better participation and assistance in activity operation, which consequently makes the work run smoothly and reach the target toward the required direction. Thus leader leads to the participation in the community activity.

## **2.2 VIEW OF PARTICIPATION ACTION RESEARCH.**

### **2.2.1 Participation action research – PAR**

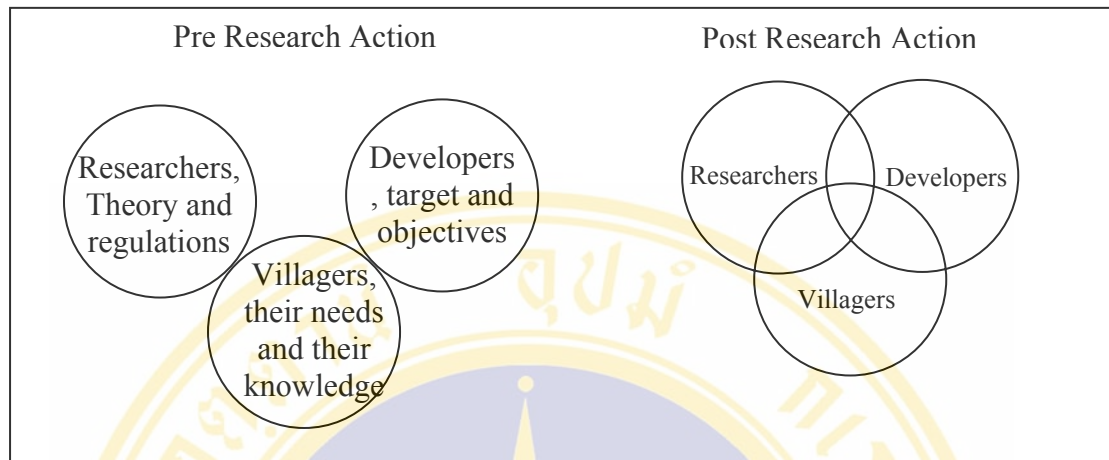
PAR is a process that the number of people in the organization or the community joins together with researchers through the researching process from the beginning on to the completion of result presenting and research discussion to study

problems. This is the beginning of problem people working together with researchers to search for problems, which is the process that people in the organization or community are not being worked at, but they are the participants whose responsibility is to collectively complete the research activity (Whyte, 1991:20 as referred in the research of Sittinat Praputnitisarn, 2003: 20)

### **2.2.2 The philosophy of Participation action research**

PAR is developed from the frame of thought of the participation development and the action research that many intellectuals try to bring together the philosophy, ideas and nature of people participation into development, as the statement of Mikkelsen (as referred in the research of Sittinat Praputnitisarn 2003: 22). This includes various questions of “who are the participants?”, “who determines or gives the definition of who/what involves in the participation?”, “who will take action?”, “who’s for?” and “why?” The questions may continue toward the basic morale in the development participation that can lead to the equality. However, if the process of giving a definition or meaning still limits within a particular group who controls knowledge and resource for the development then it will be very difficult to expect an equal improvement.

Certain groups of intellectuals who encourage the PAR believe in the philosophy that villagers are the people who live with information and truth. They know as much as the researchers or may be even more. Therefore, it must start from the villagers to choose the action that can lead to the development of living quality as the researchers or developers’ assumptions alone are not adequate. All concerns which include villagers, researchers and developers should jointly have the equal roles to set the problems and to choose the operational direction that can lead to the changing and the developing. It can be clearly seen that this type of research is the learning of a mixture between theoretical knowledge and the regulation of research method along with target and development objective as well as the community needs. This can be demonstrated as the following diagram.

**Figure 2 Participation Action Research Format**

From the diagram, it shows that each circle represents one view or one way of looking at a problem of each group of people who is concern with the research. The view of each group is different based on the frame of thought each believes. After the participation action research, the three groups share “one view” and one understanding toward the development, which is the main basic foundation for knowledge and understanding development from doing the development research together (Sittinat Praputnitisarn, 2003:23).

### 2.2.3 Steps of Participation Action Research.

Suchada Taweessit concludes PAR into 5 steps, which are the mixture steps of community organization and problem based learning, as follow.

1. Pre-research phase. This step consists of;

- 1.1 An action of choosing and approaching a community.
- 1.2 Placing the researchers in the community.
- 1.3 Primary survey the community
- 1.4 Spreading the PAR idea to the community.

2. Research phase. This step includes;

- 2.1 Analysing study problems with the community.
- 2.2 Providing training for local researcher team.
- 2.3 Analysing problems that may occur in the PAR process

and looking for the corrective measure.

- 2.4 Determining a research style and data collection style.

2.5 Data analysis.

2.6 Data presentation to the community workshop.

3.Planning phase. This is the step for;

3.1 Training the local planning team.

3.2 Setting the project or action.

3.3 Studying the possibility of the plan.

3.4 Looking for budget and supporting firms.

3.5 Planning for the following up and evaluation.

4.Implementation phase. It includes;

4.1 Determining the volunteer operational team.

4.2 Training the volunteer team.

5.Monitoring and evaluation phase. This is the final step for;

5.1 Arranging a team to monitor and evaluate the community operation periodically.

5.2 Presenting the evaluation result to the community workshop for participation.

#### **2.2.4 Future Search Conference Technique (F.S.C.).**

Theerapong Kaew-havong (2000: 18) said to F.S.C. is the representative participation process by group experience to take vision and conscious together with agreement for accompany with the good future.

F.S.C. process make of 3 parts is the past situations analyze and present relate to the future effect. The analyst and synthesis present to understanding core conference, direction and influent factor. The future image of the principal conference for set accompany with opinion and action plan in the future.

##### **2.2.4.1 Objective**

1. Understanding past situation and present relation to the future effect.
2. Present the present perspective situation.
3. Suggestion and vote the future vision and set agreement for develop vision.

4. Collect of concept, understanding data based and action plan to accompany with the future.

#### **2.2.4.2 Future Search Conference Result**

1. Understanding factor. Past situation structure to present effect and future tendency.
2. Everybody has an idea of the image. Produce the future vision are full of hope and agreement.
3. Everybody has an idea of awareness. The new concept expand and exchange to network for setting relationship. Understanding and have an idea of value together. Everybody brain storming for awareness of participation to targets and have clearly plan.

#### **2.2.4.3 Future Search Conference Characteristic**

The Future Search Conference full format use time 2 – 3 days and usually involves 50 – 60 people. If the participant less than, the conference the less of idea and experience. If the participant more than, use more time the conference and difficult control. Hard to manage and check. Start the conference process to group relationship and group divide. No more 10 people each group. Group divide use often method have 2 format.

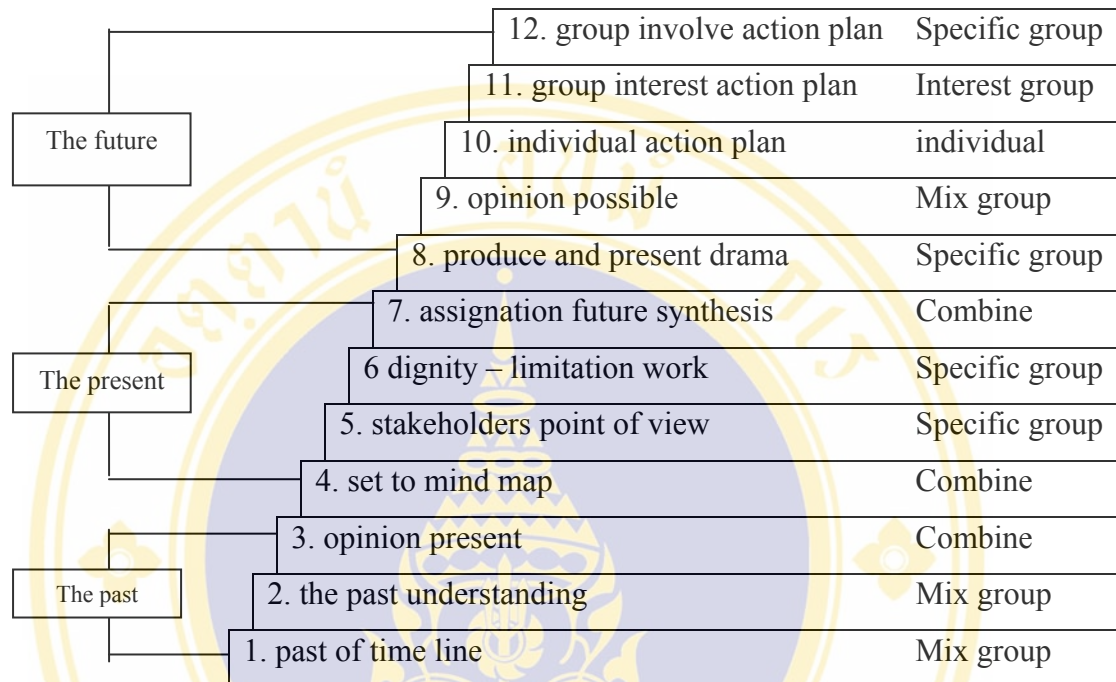
Mix group: several character member difference base and social structure each person is organization representative such as commune level, community organization, district organization or national organization level.

Specific group: specific characteristic member such as the same of social status level, responsibility, area or place, education based.

Some the conference activities usually mix group or another or combine. The process support participant idea exchange, experience, data of issue relate to the past present and future event. Summarize /check of clearly present event then search the future of group desire. Finally the conferences go to strategic plan, tactics and action plan for future group. The conferrer should diversity concern organization.

**2.2.4.4 Future Search Conference Procedure**

**Figure 3 Future Search Conference Procedures**



From the Future Search Conference technique the researcher applied Participation Action Research (PAR) and Future Search Conference (F.S.C.) together for cover objective this research too much.

**2.3 CONCEPT ON THE TOPIC OF FOREST FIRE**

**2.3.1 Definition and Type of Forest Fire**

There are many definitions of forest fire, which can be described as the following.

Chaiyan Kaweewon (2000: 29) concludes that forest fire is the fire that can be either natural occurrence or man-made, both intentionally and unintentionally, which further extends uncontrollable. Such fire expands to burn natural dried undergrowth in the forest or in the afforestation.

Apinan Plodpliew (1997: 2) reveals that forest fire means any types of fire, both natural and man-made, that freely expand, and uncontrollable which may burn only natural forest or even bush garden.

Davis (Davis K.P. 1980:2) states that making a fire while camping and burning grass in the specific area are not considered as forest fire unless that fire expands out of the limited area and unable to control it, then it becomes forest fire.

U.S Forest Survive (U.S. Forest Survive, 1956: 3) gives the meaning of the forest fire that it is the fire that burns natural resources in the forest and freely expands. The natural resources consists of tinder dried undergrowth, dead leaves, dead branches, dead grass, dead logs, dead bushes and some of the dead trunks of trees.

It can be concluded, from the above definitions that forest fire is the fire that freely burns natural resources in the forest or in the afforestation and further expand uncontrollable out of the required area. The fire can be both natural and man-made. This research will focus on the forest fire occurs in the peat swamp forest and freely expand. This includes both natural occurrence and man-made forest fire.

Apinan Plodpliew (1997: 2-3) categorizes the type of forest fire by base on the character of the burning resources, as follow.

1.Ground fire. This is the forest fire that burns the dried undergrowth that died on the surface of the ground. This type of fire slowly burns underneath the surface. This fire is mostly found in the warm countries or countries that locate high above sea level where there is low digestion of dried undergrowth.

2.Surface fire. This is the forest fire that burns the surface of the ground along the forest floor where the burning sources include grass, leaves, fruits, flowers, bushes and etc. This fire expands rapidly that can create other types of fire. The deadly burning depends on the thickness and the special character of the fire resources.

3.Crown fire. This is the forest fire that expands through the top of trees. It is very difficult to control this type of fire. Unfortunately it is the worst forest fire. This fire can be divided into 2 categories.

3.1 The crown fire that relies on dried undergrowth as a connector. That is, the forest fire that continuously burns through the top of trees where trees are widely separated but the ground underneath is rich with dried undergrowth that it can carry fire which goes from top down to bottom and up to the top again.

3.2 The crown fire that does not rely on dried undergrowth as a connector. This type of the crown fire occurs in the forest where trees are standing next to one another and they are the types of trees that can be easily burnt. This fire is deadly and the burning treetops are severely strong that it can move the fire to trees around. The burning is easily continued that fire from the treetops can drop to the ground and subsequently starts the ground undergrowth burning.

Peat swamp forest is a forest that accumulates thick natural undergrowth around ground surface that it can be between 0.5 to 5 metre or more. The area has high humidity with the average temperature of 25 C since the original ground was mud containing lead, it can easily be on fire and be a good burning resource. This type of fire is ground fire.

The occurrence of forest fire must consist of fire elements of 3 things added together which are (Apinan Plodpliew, 1997: 3):

1. Combustion. The combustion that can create forest fire includes trees, bushes, branches, leaves, bamboo clusters, small fruits, grass and other plants.
2. Oxygen. This gas exists everywhere in the forest.
3. Heat. Heat sources that can create forest fire are divided into 2 types of (a) natural heat source i.e. lightning or the act of friction and (b) man-made heat source that humans light on various occasions.

### **2.3.2 The Cause of Forest Fire**

The Office of Prevention and Elimination, The Forest Department (1998: 17) concludes the cause of forest fire in Thailand with only one cause, that is human cause, as the following description.

1. Fire lighting for specific reasons that include:

1.1 Farm burning. This is the burning of agricultural area for harvesting with the idea that it is the cheapest way of getting rid of rubbish. The fire burning can expand to uncontrollable situation that eventually becomes forest fire burning the whole forest.

1.2 Forest burning for animal hunting. This is a method of using fire to chase animals out of their hideout and come into the open so people can

shoot them. Unfortunately the hunters do not pay any concern to the fire once the hunting is over.

1.3 People look for the forest environment.

1.4 People conveniently walk through forest.

1.5 Human behavior in animal raising. Most villagers burn their field to allow the growth of new grass, which is food for the animals.

1.6 Fire lighting by camping goers.

1.7 Forest burning for bad intention i.e. when villagers are unhappy with the authority's behavior or action.

Pokkrong Tongnuakang (1998: 99) described the cause of forest fire for peat swamp forest during the academic seminar on the topic of forest fire and community participation on January 23, 1998 that the cause of peat swamp forest fire is the effect of the locals who cut the grass and burn the area for agricultural and living development purposes, without controlling of fire expansion to the nearby peat swamp area.

The above mentioned fire causes reveal that the peat swamp forest, an area of the research study is in a rather bad condition- the unpleasant condition of the area. Unfortunately, it is the area that is under the responsibilities of many different departments. Moreover, the nearby area is the agricultural farm that villagers always burn grass and rubbish to prepare the land for planting. The fire is out of control that it further expands to the peat swamp forest. And that is what has happened to the forest fire of Kuan Kreng peat swamp forest.

### **2.3.3 The Forest Fire Control**

Forest fire control is the overall control of forest fire which starts from the prevention step by studying the forest fire causes of each community, then plans the preventive or elimination method. If the effort works, there will not be any occurrence of forest fire. However, in actual practice, forest fire still exists although the preventive method is proper and systematic. Therefore, there must be other measure to support the existing preventive measure. (The Office of Prevention and Elimination, The Forestry Department, 1998: 18)

The preparation of fire elimination, fire location, the arrangement of firefighters and the operational evaluation, which is the last stage of showing the overall control of the forest fire, can be described as the following.

1. Forest fire prevention is all types of activities to eliminate forest fire. Theoretically, it is a performance of trying to separate certain element from fire elements which, practically is to cut the fire circuit (fire triangle). This is because if the fire elements are incomplete i.e. separation of the heat, separation of the fire sources or limitation of the number of oxygen and etc. then forest fire is unable to continue.

2. The preparation of fire elimination is ongoing although there is the forest fire preventive measure but since such fire still exists, therefore, there are 3 following methods of preparing for the readiness prior to the forest fire season.

2.1 To prepare manpower. This is to arrange the organization of firefighters to be ready.

2.2 To prepare for fire equipment i.e. all sorts of fire equipment that includes other supporting instruments such as communication equipment, vehicles and etc.

2.3 To provide training for firefighters with knowledge and skills as well the strategy in fire stopping in order to effect the efficiency of fighting with fire.

3. Fire checking during the forest fire season (around end of January to end of the summer every year) is an important key for forest fire elimination. The fire checking is done in order to know exactly where it occurs so the process of fire elimination can be subsequently arranged. There are many ways of doing the fire checking i.e. using human sources, using the fire lighthouse or using an airplane. The airplane utilization is the best way of locating the fire although it is the most expensive method and there are other difficulties involved such as problem with night flight that the airplane cannot take off, problem with weather conditions and etc. Hence, there are enough advantages in using human sources for instance there is no time limit in human wondering around to search for fire. Nevertheless, there is a limitation to this method, as it can not cover the wide area because of the limitation of human capabilities.

Therefore, the suitable method to be used for fire checking actually depends on situation.

4. Fire elimination is the most difficult and the most dangerous step of fire control. The fire elimination format is very important although there is no definite rules to perform it. Firefighters practically have to change the format on the spot to suit the fire situation.

5. The evaluation of fire elimination as well as fire destruction must be conducted at every step. It is to collect all information as a basic data for planning of method and strategy for the next forest fire, that is, if possible, to eliminate the occurrence of the next fire. However, if there still be the next fire then the data can be used to know the location, the approaching to the location and to minimize numbers of casualties and destruction in terms of forest resources, animals and etc.

#### **2.3.4 Guidelines of Managing the Peat Swamp Fire.**

The more expansion of the peat swamp forest fire, the more ability of uncontrolled situation, this is because of the accumulation of dried undergrowth that can not be separated as it has been accumulated into many steps of the ground. Therefore, preventive possible guidelines are suggested, as follow.

1. To continuously inform and provide knowledge to people and community in the area.

2. To always check the fire condition during the dried season.

3. To take action immediately upon finding the peat swamp forest fire.

The action must be precise and strong to ensure the discontinuation of the fire.

4. To arrange manpower and officers whose qualification is the ability to get along well with people in the community and to maintain good relationship between the public servants and the villagers?

5. There must be sufficient amount of water left in the peat swamp to maintain the original soil condition.

## **2.4 POLICIES AND LEGAL ACT THAT RELATES TO FOREST FIRE CONTROL.**

The reason that Thailand's forest fire occurs mainly from people creates different means of prevention. One of it is the spreading of forest fire information to people so they can be aware of its danger toward environment as well as humans. Moreover, in order to effectively correct the situation, related legal acts are needed but there is no current law available particularly for the forest fire occurrence therefore the forestry acts are practically used for this matter (Siri Akka-ak, 1997: 109-111).

### **2.4.1 The Forest Act B.E. 2484**

#### **Chapter V Forest Clearing**

**SECTION 54** No person shall clear any forest land which has never been cleared or which has been cleared but left to re grow for more than ten years unless permission in writing shall have been obtained from the competent officer.

### **2.4.2 National Reserved Forest Act B.E. 2507**

#### **Chapter II Control Over and Maintenance of the National Reserved Forests**

**SECTION 14** Within the National Reserved Forests, no person shall occupy, possess, exploit and inhabit the land, develop, clear, burn the forest, collect the forest products nor cause by any other means whatever any damage to the nature of the National Reserved Forest, except:

(1) logging or collection of forest products under Section 15, exploitation or inhabitation under Sections 16, (bis), or 16 (ter), carrying out any activity under Section 17, utilization under Section 18, or carrying out activities under Section 19, or 20 ;

(2) logging of reserved timber species or collection of reserved forest products under the Law on Forest.

### **2.4.3 National Park Act B.E. 2504**

#### **Chapter III Protection and Maintenance of the National Park.**

**SECTION 16** Within the National Park, no person shall:

(1) Occupy or possess land including build up, or clear or burn the forest; any violation or non- performance is liable to minimum 5 year jail or Baht. 20,000 fine or both.

### **2.4.4 Wildlife Preservation and Protection Act B.E. 2535, 1996**

**SECTION 24** states that no one is allowed to occupy the land or to cut trees or to burn plants and trees or to mine for substances or to raise animals or to change water direction or to dry or overflow or toxic water in the stream or pond or canal or swamp. Any violation or non-performance is liable to minimum 5 year jail or Baht 30,000 fine or both.

## **2.5 CONCEPT OF PEAT SWAMP FOREST**

### **2.5.1 The General Character of Peat Swamp Forest**

Peat Swamp Forest is a plant society with a unique constructive character and varieties of plants and floras in the low land location where the condition of the area is full of unsustainable water. There is about 400,000 Rai of this kind of land in Thailand, which mostly spreads around the coastline provinces in the south.

The accumulation of organic substances or organic soil can be either thick or light on top of the real soil and the accumulation of plant decay and organic substances continues in the flooded area. Plants in peat swamp forest mostly have a development of their organs with special structure in order to survive in that type of condition which include developing knots around the ground area, developing short main root system with strong branch roots spread out, developing special root system or supporting root system i.e. standing root, breathing root reaching up above water that can help in supporting the trunk or the breathing. All these special developing systems can be found in all types of plants that they are called fresh water swamp forests (Tawatchai Santisook, 1991: 2).

Peat Swamp Forest locates in different area in Thailand where its condition and character varied depends on the type and the depth of the organic substances, the decay of dried undergrowth, the length of accumulated time, the depth of water and the thickness of plants that cover. There are peat swamp forests along many areas of the East Coast of the south peninsular, along the riverbanks and along the river valley in the central and around many lakes in the north. However there is only one perfect peat swamp forest in Thailand and that is in Naratiwat Province. As the structure of peat swamp forest has to depend on various factors which include soil, air, climate, location and geographical position, therefore, most of these forests in the south are located to the east of the peninsular and the water ponds in the east of the peninsular near the sea as well as along the long rivers in the west of the peninsular. The location of the east coast is shallow and direct toward the sea which is different from the west coast where the coast stands high on the land that water can creeps in underneath. Nevertheless, peat swamp forest is destroyed to make use of its land for other plants. Therefore, it is often found along the East Coast of the Gulf of Thailand and along the East and West Coast of the peninsular that there are still some traces that the land used to be the peat swamp forest. (Prasert Potipak, 1999: 3)

Peat soil is part of the peat that slowly decomposes from undergrowth onto the peat floor while the tiniest part becomes muck. The combination of peat and muck is called peat and muck soils and the muddy soil is called moors.

Peat from organic substances of plant and sand is the result of plant succession which is an effect of water plant such as morning glory, water hyacinth, grass and etc. accumulating until it becomes the thick floor that people can walk on. This type of peat is called bogs or bog soils.

When it becomes shallower, shrubs and trees spread around thicker and allow the decay to change to be more organic that it opens the opportunity for animals to make their habitats. Those animals include herbivores, carnivores and omnivores.

As aforementioned that peat swamp forests exist in the south, the east, the north, except the northeast of Thailand, this is because of the sources of soils are divided into 2 categories.

1.Ombrogenous Peat. This is the soil that is created in the limited area blocking by sand bar and soil bar that it becomes an inner water pond or a lake. The

accumulation of undergrowth decay until becoming peat soil where part of its food comes from rainwater is a cause to make medium rich plants called mesotrophic peat and oligotrophic peat for a lesser rich plant.

2. Topogenous Peat. This is the soil that exists around the mountain top or mountain valley that locates 1,500 metre higher than sea level. The area is usually a small place where the ground sinks that it becomes a small water keeping area such as Aung-ga Peat at Doi Intanont National Park, Chiangmai and Sra Anodart at Poo Kradueng National Park in Loei Province. The soil of these places obtains additional food mostly from lower ground substances although there is some minor substance from water of the decay decomposition to make eutrophic peat or mesotrophic peat.

Peat soil is acidic especially in the new accumulated sand where sea water has just brought sulfur substances which contain sulfate gypsum:  $\text{CaSO}_4 \cdot \text{H}_2\text{O}$ , Epsom salts:  $\text{MgSO}_4$  and Pyrite:  $\text{FeS}_2$  which is mud in the ocean that can be without oxygen and full of independent sulfur. When sulfur combines with Hydrogen or iron it becomes Hydrosulfide ( $\text{HS}^-$ ) and Pyrite ( $\text{FeS}_2$ ). While this soil is wet and in water, it has no toxic action but if the water level decreases it allows the action of Oxidation with Oxygen in the air to create sulfur, a strong type that contains Sulfuric acid ( $\text{H}_2\text{SO}_4$ ) and Jarosite which are not only toxicity to plants in general but also maintain certain type of food that does not allow plant to grow.

### 2.5.2 Water in Peat Swamp Forest

Water in peat swamp forest is a type of fresh water, not salt water, but it has physical and chemical characters different from other fresh water, that can be described as the following.

1. It is year round water or almost year-round water.
2. It flows very slowly due to the amount of rainwater and the underneath water that sucks fresh water to the underground and further flows into the sea.
3. It is alkaline and brownish, the colour of decomposition of peat substance.
4. It has an astringent taste because of its 4.5-6 PH acid as well as the composition of plant decay.

5.It has an acidic quality due to mud soil from the underground of the sea containing sulfur being oxidation with oxygen.

### **2.5.3 Climate in Peat Swamp Forest**

The climate in peat swamp forest is fresh and cool except when the water flows too slow or stops that the area runs out of oxygen and form fermentation which results in the occurrence of Methane CH gas.

### **2.5.4 Plants in Peat Swamp Forest.**

There are more than 470 species of plants in peat swamp forest, which can be divided into 2 main categories.

1.Plant society in the original natural forest. This can be separated into 3 levels as;

1.1 low level. This is the type of plants that cover the ground i.e. palm, fern and etc.

1.2 medium level. This includes all trees higher than the palm top but not more than 15 metres.

1.3 High level. These are all tall trees higher than 15 metres.

2.Plant society of Samed Forest.

### **2.5.5 Root System of Plants in Peat Swamp Forest**

In order to survive, plants in peat swamp forest have to adjust themselves in the direction of environmental characters that their root systems must have special qualification of the following.

1.Buttress. This occurs at the base of the tree and spread out in the wide area to support the tree from falling such as *Parishia*

2. Stilt Root. This is the root that stilts at the side of the tree to support the trunk. The stilt roots can be found with trees around flowing water to ensure uninterrupted of water such as Gaya tree.

3. Pneumatophore. This is the root that appears above water from branch roots to catch the air. The breathing roots of plants are done in different manners, which are.

3.1 Single root of a straight shape of “Needle Pin” such as *Stemonurus*, *Palmae*, *Eleiodoxa conferta*.

3.2 Root appearing above water and spreading out on the side before digging down into the water surface in a manner of “\ Shape” such as *E. macrocerus* root.

3.3 Root of “circle” shape such as *Xylophia fusca Maing.* , *Calophyllum*.

3.4 Root of “knee bend” shape such as *Ganua motleyana*, *Chaetocarpus*

#### **2.5.6 Animals in Peat Swamp Forest**

Animals found in peat swamp forest can be categorized into 5 species

1. Amphibians
2. Reptilians
3. Avians
4. Mammalians
5. Pisces.

#### **2.5.7 The Importance and the Application of Peat Swamp Forest**

People today still misunderstand that peat swamp forest is Samed forest of non-economical value. In fact, peat swamp and Samed forests are different in many aspects including the Eco-system, plant species, and the economical capability. Peat swamp forest is very useful for humans, second to none in the plant societies. Its direct application includes the use of its wood and its forest. There are many types of valuable plants for construction i.e. *Neesia malayana* And etc. Meanwhile villagers can make their living from forest resources by picking fruits from trees. Moreover, peat swamp forest is a collecting source of biology especially when it is full of many

different species of economical value as well as many types of rare plants, not to mention that it is animals' habitats. (Tawatchai Santisook 1991: 22-23)

On the contrary, the decay peat swamp forest that becomes Samed forest that are useless for planting can be useful for villagers by burning the trunk of samed trees for charcoal and selling it for family income. Peat Swamp Forest can also provide data on the development of plant society, the changing of geology as well as the changing of local climate in the past that was analyzed from the decay pollen that has been kept in a very good condition in the underground soil and peat soil (Tawatchai Santisook, 1991: 23-24).

### **2.5.8 The destruction of Peat Swamp Forest**

Peat Swamp Forest is a unique plant society that is very sensitive with the changing of environment especially the changing of peat soil and the condition of still water in the peat that effects the Eco-system along with the natural balance and the variety of biography. The areas of peat swamp forests decrease rapidly due to the expansion of communities, agricultural lands along with the development of peat area for the use of agricultural activities and for protecting flood in agricultural areas in the rainy season by allowing rainwater out through digging track onto the big pond or dam. The activity of allowing the enormous amount of water out of the peat swamp forest area can be the poor choice as it causes dried peat soil that can dissolve rapidly by the following rain (Tawatchai Santisook, 1991: 24-25).

The above agricultural purpose is one of the peat swamp forest destruction methods, nevertheless, there is also other cause and that is forest fire. The burning of rubbish in the land for agricultural purpose is considered forest fire if such burning is around peat swamp forest. It may sound illogical when it has been saying all the time that peat swamp forest is the forest in water, but, this is due to the fact that this type of forest today is divided into 3 categories.

1.Fertile Peat Swamp Forest i.e. Tohdaeng Peat Swamp Forest in Naratiwat Province.

2.Partially damaged peat swamp forest i.e. Kuan Kreng Peat Swamp Forest in Cha-uad District, Nakhon Sri Thammarat Province.

3. Totally infertile peat swamp forest i.e. Bajoh Peat Swamp Forest in Naratiwat Province.

Forest fire normally occurs only with type 2 and type 3 above. This is because the average temperature of peat swamp forest is quite high at around 28C where the original underneath soil quality is mud containing sulfur and the long period accumulation of peat organic such as dried wood, dried leaves. Owing to the fact that most undergrowth is in water therefore it dissolve very slowly into peat soil. During summer, water around peat swamp forest dries, allowing the dryness to replace the dampness, which effects a great deal to the soil. Hence, when forest fire occurs, all accumulating undergrowth becomes the best source for flame to spread out widely and fast. The fire character is not strong but it is ongoing and expanding. Smoke will be produced. Fire fighters will have the most difficult time as the fire can be stopped only on the ground but not the underneath the ground. So after a short period the underneath fire will reach the ground surface and continue again (Pokkrong Tongnuekang, 1999: 99).

### **2.5.9 The Cause of Fire in Peat Swamp Forest**

The cause normally starts from villagers who clean up the land and burn the rubbish to make the land ready for agricultural purpose as well as for housing. The burning is uncontrollable that it expands to the nearby peat swamp forest. Each fire enlarges and becomes difficult to eliminate. The consequence is as predicted that neither plants nor animals survive, soil becomes infertile. There is also excessive amount of charcoal as well as Carbon Dioxide in the air, which is harmful to humans (Pokkrong Tongnuekang, 1999: 100).

Area of peat swamp forest is very important to Eco-system, which is subsequently damaged when there is the destruction of forest causes by humans.

Therefore, the participation of people in the community is necessary to prevent forest fire such as the one at Tahrua Sub-district that has damaged number of residences around the area. The united of villagers can help to stop the fire as well as to keep their habitats.

### **2.5.10 The Situation of the Peat Swamp Forest Fire in Nakhon Sri Thammarat Province**

The peat swamp forest in Nakhon Sri Thammarat Province is excessively covered different areas in many districts including Kuan Kreng, the largest peat swamp forest in Cha-uad District. The report of the cause of the forest fire by the Office of Forest Fire Control ([www.forest.go.th](http://www.forest.go.th)) in August 2002 reveals that the fire has burnt more than 10,000 Rai of land by expanding simultaneously to many areas. There are not a sufficient number of local firemen to control the blaze that finally the forest area of Barn Nerntammung Village near Handicraft Center and Barn Tungkwankaew Village in Maejaoyuhua Sub-district in Chienyai District, Nakhon Sri Thammarat Province were burnt. Teachers and students of schools in the two villages were evacuated when the fire reached their locations and with smoke covering the area and effecting the breathing system, many of them were hospitalized.

Although the firefighters could stop part of the fire, firemen, teachers and villagers had to be alert all night to monitor the possibility of the expected ongoing fire.

There have been more than 50 forest fires during 7 days in Kuan Kreng peat swamp forest and it seems to be continuing

Every occurrence of forest fire means the destruction of houses and enormous areas of agricultural land and to stop the fire means the participation of everyone. Besides, fire does not only destroy houses and land but also human's breathing conditions that can damage people's health.

To prevent such occurrence, the participation of the locals, the government functions in the area and the concerned departments of forest fire control must be performed to avoid the disaster as well as to make the preventive method as effectively as possible.

## **2.6 THE RELATED RESEARCH**

The study on the people participation for the peat swamp forest fire prevention in Nakhon Sri Thammarat Province has referred to various researches of the same character, which can be described as the following.

### 2.6.1 The research related to the participation

Kraisook Sinsook (2002: abstract) who studied on the participation process in drug prevention through the operational research method for the participation in Bangprom Sub-district, Bangkoktee District, Samutsakorn Province has discovered that the process arrangement for community participation can be done through an acknowledgement and awareness of drug problems. The arrangement can be divided into 3 steps (1) a step of study problems and survey for the corrective measure (2) a step of choosing methods or setting the direction in problem solving and (3) a step of implementation. It is obvious that the operational research of participation is a process that stimulates the community to express themselves and their ideas. A community that consists of members who possess the same experience, the same creative ideas in the corrective measures and are motivated by the organization network usually becomes the strong group of people who can express their capabilities and powerful strength in correcting problems as well as the ability to set self-development.

Wiroon Srisanit (2001:17) who has studied on factors effecting people participation in the preservation of forestry resources in Plakmailai Temple, Toongkwang Sub-district, Kampaengsaen District, Nakornpathom Province shows that participation factor is the social factor which includes gender, age, education, number of manpower in a house, the status of being group member as well as knowledge and understanding of the preservation.

Sorasak Dechnonsang (2001: 18) states that people participation in the management of forest resource: case study Barn Najaroen, Barn Jieng Sub-district, Pakdeechumpol District, Chaiyapoom Province by adding some activities to make villagers gain knowledge and understand their roles in the topic. Villagers participate in the following up and evaluation as well as attending the workshop to look for the direction in the management. It is found that they become more active, the community gets stronger and of course the participating activity increases.

Siriwanna Dechwitee (2001: 117) reveals that participation in the management of environment quality for people in city community is quite small. This is due to the factors of influential group, minimum support of the local politicians, age,

benefit expectation and career. The concerned departments must set a clear policy and provide more opportunity development to the participants.

Chaiwat Panjapong and party (2000: abstract) who studied and developed the learning process for the locals through the adapting the research process of participation as a tool for gaining knowledge of the community in order to create the strength among the locals in the new version of health management reveal that community people are aware of their problems and show a self-interest as well as mutually depending more on one another.

Rawee Injinda (1999: f-g) who has done his research on the participation in the preservation of natural resource and environment of Barn Pong community, Pahphai Sub-district, Sansai District, Chaingmai Province finds that the villagers' participation is at a low level on the factors of decision making and operational activities. The benefit gaining is at an average level while evaluation is at a low level.

The study on the related researches shows that factors involving in people participation include social factors of age, gender, career and etc. and distance of the residences and the forest as well as benefit gaining, information obtaining and group influential factor.

In this study of the topic of people participation for peat swamp forest fire prevention at Tarua community, Nakhon Sri Thammarat Province, the author has focused on various factors i.e. career, gender, age, educational level, economic and social factor as well as benefit obtaining from natural resources and environment along with their correlation with the people participation.

It can be concluded that the study of people participation for peat swamp forest fire prevention of Tarua community, Nakhon Sri Thammarat Province has included the issues of collective decision making, the implementation, the benefit and the evaluation. Factors to measure the participating levels include gender, age, career, educational level, economic, social and benefit obtaining from natural resources and environment.

### **2.6.2 The research relating to forest fire control**

Choosak Kong-in (2002: 1-2) who has studied the participation on forest fire control of the member of the Sub-district administration, Mae-Wong district in Nakornsawan Province shows that most members obtain forest fire information through media. Their knowledge and understanding of the topic is at a low level. The factors involved in their participation include the distance from the forest, members' original domicile and etc.

Chaiyan Kaweewon (2000: f) has studied the people participation for forest fire control, case study: Maelarn-Maegang National Garden, Long District, Prae province and has revealed that the participation level is low. Gender, education level, career, social status, the acknowledgement of forest fire information, the knowledge of forest fire and the positive idea toward the forest fire control have a strong effect to the people participation in forest fire control.

Pranai Somawong (2000:23) who has studied people participation on the forest fire control in Huay Kha Kheng, the World Treasure, the factors of economic and social of the community reveals that community participation in forest fire control is average. It is based on participation of 4 activities of (a) problem searching (b) action planning (c) implementation and (d) evaluation.

In this study of the topic of people participation for peat swamp forest fire prevention at Tarua community, Nakhon Sri Thammarat Province, the author has focused on various factors i.e. career, gender, age, educational level, economic and social factor as well as benefit obtaining from natural resources and environment along with their correlation with the people participation.

## **2.7 THE UNDERSTANDING ON THE FRAME OF THOUGHT IN AN ANALYSIS ON THE COMMUNITY NEEDS FOR PARTICIPATION ON PEAT SWAMP FIRE PROTECTION IN KOUN KRENG NAKHON SRI THAMMARAT**

Upon the revision of various literatures concerning ideas, participation theories, operational research for participation, perspectives on forest fire, policies and

legal acts on forest fire and perspectives on peat swamp forest, the determination is framed for a study on the needs of community participation for Kuan Kreng peat swamp forest fire prevention in Nakhon Sri Thammarat province. The operational process for participation is adapted along with the process of future search conference in order to respond to the research objectives, which can be described as the following.

1. To evaluate the needs for community participation in Kuan Kreng peat swamp forest fire prevention
2. To point out influential factors toward the needs for the community participation of the above fire prevention.

#### **2.7.1 The analytical frame consists of the following.**

- 1) The analysis of the outcome on the interview and the process of the participation in the future search conference method.
- 2) The extracting of the lesson obtaining from the process research.

#### **2.7.2 The outcome presentation is framed as follow.**

- 1) Community context.
- 2) Community problems.
- 3) The sources to reach to the needs for community participation are from
  - (a) the interviews
  - (b) the arrangement of workshop for participation.
- 4) Factors leading to the need for community participation
- 5) Lesson obtaining from the research

## CHAPTER 3

### RESEARCH METHODOLOGY

This research is a study that aims to evaluate the needs and influential factors toward the community participation of forest fire prevention in Kuankreng, the area that faces with the highest rate of forest fire. The research will cover following key issues.

- 3.1 The Research Areas
- 3.2 The Targeted Group
- 3.3 The Research Implementation.

#### **3.1 THE RESEARCH AREAS**

The area of this research is the 11 villages in Kreng Sub-district, Cha-ud District, Nakhon Sri Thammarat Province with the population of 8,504. The area is peat swamp forest, easily flooded and full of water channels. Villagers are mostly farmers with an average annual income of Baht 8,000-12,000 per person.

The administrative pattern is arranged by having the sub-district administration in charge of the 11 villages (The Kreng Sub-district Administration Development Plan, 2002-2006, Cha-ud District, Nakhon Sri Thammarat Province)

According to the data of the Provincial Forestry Office, Nakhon Sri Thammarat Province, for 2002, it is recorded that there were 7 fire occurrences in the peat swamp forest of Kuan Kreng during 14 March 2002 to 16 August 2002 with the damaged area of 500 rais. The main cause of the fire was people. This makes Kuan Kreng peat swamp forest very interesting in terms of the community participation, the location of swamp as well as the villagers who are the main cause of the fire, in accordance with the research standard.

The Standard of Selecting the Targeted Area.

1. It must be the area around Kunakreng Peat Swamp Forest.
2. It must be the area that frequently faces with peat swamp forest fire.

3. Its villagers must depend on peat swamp resources.

### **3.2 THE TARGETED GROUP**

The targeted groups consist of 2 groups of (a) the community leader group and (b) the villagers' representative group.

The community leader group consists of sub-district head, village head, members of sub-district administration committees, civil servants, intellectuals and etc.

The villagers' representative group consists of the locals who participate in community's activities or community's functions.

### **3.3 THE RESEARCH IMPLEMENTATION**

The objective of this research study on the requirement of the community to participate in swamp forest fire prevention is to evaluate the needs as well as influential factors toward the community in Kuan Kreng swamp forest fire prevention. The research, based on the quality, is operated into 2 parts, as the following.

1. In-depth interview part. This is an interview that is based on the structure of the operational research for participation, which is a format of adapting a conference technique from the future search conference to create a questionnaire form. The structure of the questionnaire is divided into 3 important periods of the study (1) the past (2) the present (3) the link with the future. The age of interviewer is the standard dividing of period, that is, the past is the period of his/her childhood, the present is during 1997 up to now and the future is from 2004 onward. The detail can be described as the following.

#### **1.1 The Past**

- 1.1.1 General condition of peat swamp forest and the community.

- 1.1.2 Villagers' occupations.

- 1.1.3 The important occurrence of the peat swamp forest fire in the community.

#### 1.1.4 Community fire protection.

### 1.2 The Present

1.2.1 General condition of peat swamp forest and the community.

1.2.2 Villagers' occupations.

1.2.3 The important occurrence of peat swamp forest fire.

1.2.4 Community fire protection.

1.2.5 The assistance of different departments outside in peat swamp forest fire prevention.

1.2.6 Problems and obstacles in peat swamp forest fire prevention.

1.2.7 The direction for corrective measure

### 1.3 The Future

1.3.1 The need for peat swamp forest fire prevention

1.3.2 The direction of the community for peat swamp forest fire prevention.

2. The workshop arrangement based on the adaptation of the future search conference process is formed as the format below.

#### 2.1 The Workshop Principle

The participation workshop is arranged to evaluate the needs for the community participation in Kuan Kreng peat swamp forest fire prevention based on the Future Search Conference process. This is to collect the data of community experiences to evaluate the needs of villagers' participation. The researcher's duty is to ask questions and stimulate for the answers from the groups.

#### 2.2 The Attendants of the workshop

2.2.1 The researcher and her team.

2.2.2 The community leaders.

2.2.3 The villagers who are the members of the community administration.

#### 2.3 Subjects to be discussed in the workshop.

2.3.1 To introduce the required objectives and expectation to the attendants as well as workshop all participants.

2.3.2 To open the key topic to the attendants in order to evaluate the needs to be part of the participation.

#### 2.4 Operational Process

The workshop is conducted in 3 stages.

##### 2.4.1 The First Workshop

###### 2.4.1.1 Objective

To provide understanding and acknowledging the community condition as well as the condition of the peat swamp forest in the area.

###### 2.4.1.2 The workshop requirement

1. General condition of the community.
2. The condition of peat swamp forest around the community.

###### 2.4.1.3 Topic Discussions

1. The general condition of the community.
2. Villagers' occupations.
3. The living condition of people in the community.
4. The condition of peat swamp forest around the community.

##### 2.4.2 The Second Workshop

###### 2.4.2.1 Objective

To study the past and the present situations between community and peat swamp forest in order to bring the local knowledge as guidelines for future planning of the community in participation of forest fire prevention.

###### 2.4.2.2 The workshop requirement

1. The needs for community participation in the peat swamp forest fire prevention.
2. The guideline for community to prevent peat swamp forest fire.

3. The community operational plan for the future prevention of peat swamp forest fire.

The workshops are also divided into 3 periods; the past, the present and the future.

The Past includes:

1. The attendants are asked to review the past events of the community concerning;

1.1 The community condition

1.2 The peat swamp forest condition

1.3 The peat swamp forest fire condition

1.4 The peat swamp forest fire prevention

1.5 The relationship between humans and forest

1.6 The participating activity regarding the peat swamp forest fire prevention, both of the community action alone and of the combination of the community and Government sectors.

2. The attendants are asked to link the correlation of the situations and to give reasons of the linking.

3. The opportunities are opened for recommendation.

The Present includes:

1.To bring the correlation provided by the attendants to construct the mind map. The writing must show the key points and other additional points in details.

2.To consider every key point, which has been prioritized, based on the perspectives of all concerns.

3.To discuss different topics, both of proud and regretful events.

The Future includes:

1.To exchange ideas in order to find the collective solution for the future.

2.To vote for topic and operational direction as per the proposals of both the community and the government sectors.

3.To determine the strategy for the future, as required.

4.To determine the non-abstract operational plan.

#### 2.4.3 The Data Analysis

The content analysis is used to define and conclude by basing on the dimension of the objective and the research frame of thought. This is to further evaluate the needs for community participation and influential factors for Kuan Kreng peat swamp forest fire prevention.

**3.3.1 The description of the operational method and the steps of field research are as followed.**

##### **3.3.1.1 The research preparation period.**

The study of the basic information

1.To study the basic information of the community and an area of Kuan Kreng peat swamp forest from all related documents as well as the actual ground area.

2.To study the research operational process for participation and workshop technique in order to seek for future mutual needs.

3.To arrange for promptness with the community that can further lead to the acquaintance with villagers and the experts of swamp forest in the community in order them to maximum express the actual community requirements.

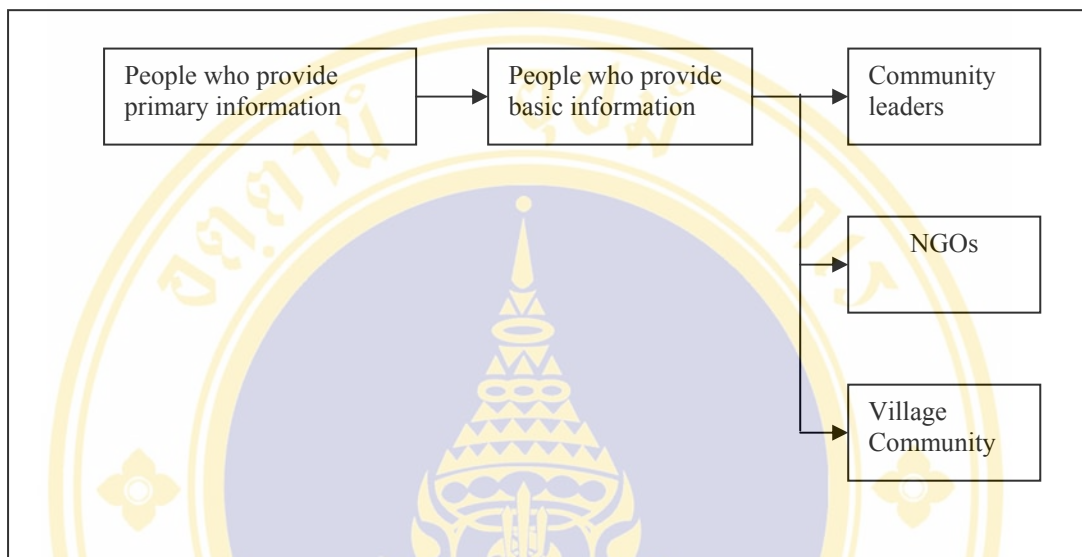
4.To also arrange for promptness in workshop arrangement that leads to the coordination between community and the concerned functions. The arrangement is based on the future search conference process.

##### **3.3.1.2 The duration period of research operation.**

1. The method of approaching people who can provide primary information of Kuan Kreng peat swamp forest and Kreng Sub-district is used to enter into the community. This is subsequently led to the approaching to

community members who can give basic information, using the Snowball Technique, which can be described, as follows.

**Figure 4 Snowball Technique**



2. The visit to the community is performed to speak and explain the research objectives to the targeted groups who are community leaders, community representatives, sub-district head, village head and sub-district administrative members. The period of visitations is once a week for the length of 6 months.

3. In-depth interview is conducted with the community leaders whose names are referred by the people who have given the primary and the basic information. The interview includes two community members who have been cooperating in the operation of peat swamp forest.

4. A conclusion on the outcome of the in-depth interview is arranged in order to use the result as a basic idea for workshop arrangement, based on the operational research for the participation.

5. Subsequently, the workshop is organized and the community members are allowed to present their perspectives of the past, the present and the link to the future. The arrangement is supported by the administrative office of Krong Sub-district, sub-district head and village head in order to reach a proper plan for Kuan Krong peat swamp forest fire prevention.

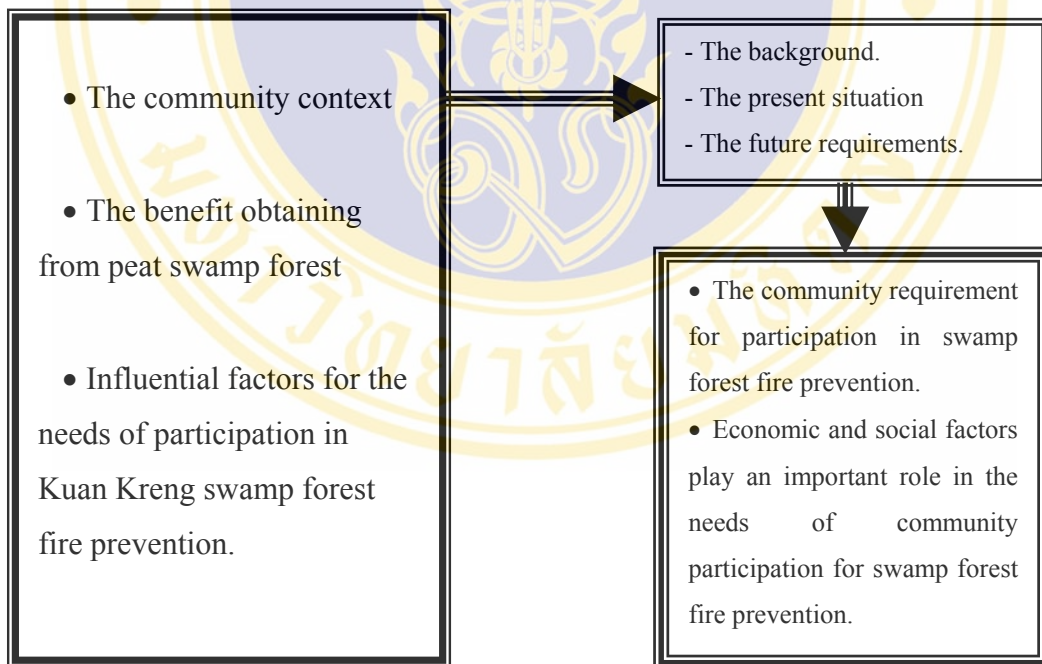
6.The second workshop is arranged by bringing forward the outcome of the first workshop and linking it with the future requirements for peat swamp forest fire prevention.

7.The outcome conclusion is finally arranged based on the future search conference process.

**3.3.1.3 The period of post research operation**

The data collection is performed based on all recorded documents that are consequently revised, divided and analyzed in order to evaluate the needs and influential factors in the community participation for Kuan Kreng forest fire prevention which, can be summarized as the following.

**Figure 5 the research frame of thought.**



## CHAPTER 4

### RESEARCH RESULT

This research study aims to evaluate the needs and the influential factors toward the community participation of peat swamp forest fire prevention in Kuan Kreng Peat Swamp Forest, Nakhon Sri Thammarat Province.

The format of operational participation research is adapted for utilization in this study and it is performed by arranging the workshop in order to study problems, operational information, corrective measure and the needs of a community from the past to the present and the future. The outcome can be demonstrated as the following.

#### 4.1 The community Context

#### 4.2 The Conceivable Problems of the Community

#### 4.3 The outcome of the needs for participation is obtained from:

4.3.1 The Interview with Community Leaders and Approaching the Community.

4.3.2 The Arrangement of the workshop based on the Operational Participation Research.

### 4.1 THE COMMUNITY CONTEXT

The detail study on the community context of Kreng Village, Cha-uad District, Nakhon Sri Thammarat Province from the Sub-district Development Plan, Kreng Sub-district Administration 2002-2006 can be described as the following.

#### 4.1.1 The Location

The North	Cha-uad Sub-district and Chienyai District
The South	Khonhaad Sub-district
The East	Huasai District and Chienyai District
The West	Cha-uad Sub-district and Tah-samed Sub-district.

#### 4.1.2 The Area

The total area of 110,016 Rai or 176 square kilometre.

#### 4.1.3 Geography

70% of the land is peat swamp forest. The rest is low land with water holes all year round. There is a natural river, Cha-uad River, which cuts through the village and continues to the sea at Pak Panang District. Most villagers reside around the land where there is no water holes and around the highland called “Kuan”. There are 7 “Kuan” in the area: (1) Kuan Kreng (2) Kuan Pom (3) Kuan Yao (4) Kuan Ching (5) Kuan Tine (6) Kuan Sai and (7) Kuan Rarb.

#### 4.1.4 Numbers of Villages

The Sub-district Administration is in charge of 11 villages, which consist of the population of 8,504, and the population density is 48 per a square kilometre. (Statistic of Nakhon Sri Thammarat Province)

**Table 5 The Sub – District Administration**

Village	The Name of the Village	Number of Population
1	Ban Kuan Pom	959
2	Ban Sai Hua Ma	1,015
3	Ban Kuan Yao	1500
4	Ban Kuan Kreng	1,321
5	Ban Toong Krai	1,070
6	Ban Koke Lao	412
7	Ban Yan Daeng	289
8	Ban Samed Ngarm	282
9	Ban Kuan Ching	454
10	Ban Bang Noi	360
11	Ban Sai Kanoon	842
<b>Total</b>	<b>11 Villages</b>	<b>8,504</b>

#### **4.1.5 Economic and Social Status of the Community:**

##### **4.1.5.1 Occupation**

The people of Kreng Sub-district are varied in their occupations based on the condition of their land. The overall occupations include rice farming in the low lands with the total area for rice field of 11,006 rai that can produce 350 kilogram/rai (The Provincial Agriculture Office, Nakhon Sri Thammarat, 2004), animal farming, plant farming; orchard, rubber farming, as well as bulrush handicraft which is strongly supported by the Sub-district Administration in the “One Tambol One Product” campaign and of course labour work scheme. An average income of a villager per year is about Baht. 9,000-12,000.

##### **4.1.5.2 Education**

There are 7 primary Schools and 1 Secondary School in the village.

##### **4.1.5.3 Institution and Religious Organizations**

There are 7 Bhuddist temples and 2 Public Health Centers. There is no Mosque, Church or Chinese religious place.

##### **4.1.5.4 Public Health**

There are only 2 Sub-district Public Health Centers.

##### **4.1.5.5 Security of lives and properties.**

There is one Police Box.

#### **4.1.6 Community Basic Service:**

##### **4.1.6.1 Transportation**

The dirt road between Kreng Sub-district and Cha-uad District has been upgraded to a tarmacadam road which can improve the transport of the two areas. The total number of roads is 24 of broken-stone, 1 concrete road and 1 tarmacadam road. The high number of the broken stone roads is the subsequence of being the lowland with water around the area year round. Of course, it causes a lot of inconveniences for the land transportation.

#### **4.1.7 Community Background**

The communities around Kuan Kreng Swamp Forest were established more than 200 years ago. People, who took this land originally i.e. an ancestor of the

Kongkalorm Village in Maechaoyuhua Sub-district, Chienya District and etc, aimed at farming purposes. The fugitives were also another reason of this land possession as an area used to be a rainforest that was a perfect hiding place. The name “Kuan Kreng” possibly came from two sources. First it is a general title that villagers call the area of swamp forest. Second, a person believed to be the first to move into the area was called “Khun Samakketniyom”, the ancestor of the Khao-pong Family that he and his people had built their habitats and lived their lives full with harmony, united, morally respectable that outsiders call their residential area “Kuan Kreang” (Kreang means respectable) that later became “Kuan Kreng. Other old community members had moved from Huasai District, Nakhon Sri Thammarat Province and different districts of Patalung Province as well as other surrounding areas. Today, the new generations travel back and forth to all those places to visit their relatives. (forestry of Cha-uad District)

## **4.2 THE STATUS OF COMMUNITY PROBLEMS ON NATURAL RESOURCES, ENVIRONMENT AND OTHERS RELATE.**

### **4.2.1 The conceivable problems are as follow.**

#### **1. Fire occurrence during the dry season, between March and August.**

During the dry season, there is no water in the swamp forest and the ground is an area where dried leaves accumulated to become a source for fire. On the other hand, fire can occur from humans' carelessness i.e. burning wood for animal hunting.

#### **2. The trespassing in the preserved forest**

People intrude into the preservation area to illegally cut trees or plant such as bulrush. Regardless of how bulrush is eliminated, which can be root pulling, wrongly method cutting as well as the leftover of its trunk in the water that later turns into decay, it is the effect of disposing the natural bulrush that is destroyed beyond recovery.

#### **3. The invasion of the public preserved area for one's benefit**

There has been the invasion to the public area around the national preservation forest for self-benefit especially for rice farming and etc.

#### **4. Wasted Water**

Since there is water in swamp forest round the clock, it subsequently causes the disposing of plants that in return effects the wastewater.

#### **4.2.2 The Performance of the Kreng Sub-district Administration on Natural Resources and Environment**

Kreng Sub-district Administration has performed its action about the natural resource destruction by caring and safeguarding the area especially on the invasion to the peat swamp forest. Other performances include the aforestation, the construction of public boundary line to avoid any trespassing, the construction of the embankment to avoid land sinking, the Eco-tour arrangement especially the downstream cruise for bird watching on January - May, the survey on the nature of peat swamp forest, the travel arrangement in the area that correlates with the nearby sub-district travel arrangements and the promotion on the variety handicraft of bulrush products to supply the market demands, both international and domestic.

### **4.3 THE OUTCOME OF THE NEEDS FOR PARTICIPATION IN KUAN KRENG PEAT SWAMP FOREST FIRE PROTECTION IS OBTAINED FROM**

#### **4.3.1 An Interview with community leaders and approaching the community**

The researcher has visited the Kreng village in order to obtain the basic background, the state of peat swamp forest and the community's management with the problems of peat swamp forest fire of the past, the present and the future plan. At the initial stage, the researcher interviewed many community leaders in order to evaluate the needs and its influential factors for Kuan Kreng swamp forest fire participation by setting the interview format adapted from the operational participation research with future search conference method. The interview outcome can be described as the following.

4.3.1.1 The interview with Ms. Saowapa Somwiwatanakoon, a science teacher of Cha-uad School in Cha-uad District who previously led the community members to see the importance of swamp forest, was performed at the school during 08.00-10.00 hours with the following result.

#### **The Condition of the Peat Swamp Forest in the Past.**

The peat swamp forest 50 years ago (in 1957) was rich and varied with different species of plants and animals such as monkey, crocodile, turtle, elephant, tiger and etc. Today, some animals are lost beyond recovery such as hunchback or dwarf elephant, a small size elephant with only 10 inch tall, “Rampan fish” or “Rampan catfish”, a big size catfish exceeding 1 foot long with skin that kept changing based on the colour of water and etc. Before, the forest was full of plants that resulted in moisture in the air. Water also flowed out of the area in a natural manner and the forest fire occurrence was rare, once in 4-5 years, which villagers called it the suck-fire since the burning was along the ground that was unable to conceive. This fire would carry on underneath the ground and would demolish itself in a natural way by the damp weather or by rainwater. It is called the natural fire prevention process, which is the most effective mean of the preventive measure.

#### **The Present Condition of Peat Swamp Forest.**

The condition today is quite different from the past. Swamp is shallow now. It used to be deep with water inside along with plants and grass but when there is no water, plants and grass cannot survive and so does the soil that becomes dry also. There are more than 22 species of animals that are lost beyond recovery i.e. dwarf elephant, tiger, crocodile, Rampan catfish etc. The existing locals acknowledge the changes of the swamp forest in their community through the information from generations of their ancestors and one of the main causes for the changes is the forest fire which occurs 2-3 times a year during the past 10 years. The cause of the forest fire is partly because the Government function has constructed numbers of watersheds to correct the problems of agricultural land. Such watersheds were done without prior coordination with other sectors that it results in the unnatural circulation of water. The water flows from the swamp forest that it makes the area dries and easily burnt but hard to be eliminated. On the contrary, the total 100% cause of fire is man-made that

can be from the bad intention toward other villagers who compete in work benefit such as the competition in making bulrush products or in rice farming. The man-made fire can be the fire that purely aims to burn the bulrush land of the competitors. Nevertheless, the reduction of numbers of plants and of a rainy season that does not accurately occur effects the additional dryness of peat swamp forest in the dry season and flood in the rainy season. All these problems has not seriously been focused on and corrected.

Presently, villagers pay a lot of attention to forest fires by monitoring and following up if there is a fire occurrence at any nearby location and try not to allow it to happen in their area. Yet, if fire occurs they try their best to control and stop it to ensure that the fire can harm neither plants nor land. Around the end of 2001, some community villagers organized a group to do this function, with the coordination of others in the community who begin to understand the importance of peat swamp forest toward the living condition. The community leaders who lead this activity consist of monks, retired official personnel, the senior villagers who also act as the community consultants in the operation since they are the respectable and trusted by other community members and they had seen the negative changes of peat swamp forest especially in the reduction of plants as well as the elimination of rare animals. There have been ongoing activities to create awareness to the community since 1997 by starting with groups of high school students which were officially formed later in late 2001. Today, students of every level acknowledge and learn more about the forest as well as the villagers that originally start with 4-5 of them and the number keeps on increasing.

In May 2003, the Minister of Natural Resource and Environment (Mr. Prapat Panyachatrak) visited the Kuan Kreng peat swamp forest, which has awakened all community leaders to focus more on the forest problems. It subsequently opens the door for private organizations and Non-Government Organizations such as the Campaign of Aforestration to Honour the Royal Special Occasion organized by the Petroleum Authority of Thailand (P.A.T) and etc. to be involved. However, the real problem has not been corrected as some of these new coming groups actually come in for their own benefit in the form of benefit gaining for financial support of their projects. Some group come in with giveaway items and reward activities that spoil

villagers to think that there are always rewards for their cooperation and participation in workshops and others. It is discovered that most villagers' participation does not occur from their awareness or needs but because villagers are looking for a payback that can substitute the loss during their participating periods. Therefore, in order to eliminate the income problems, bulrush handicraft groups are established to support the locals with cash.

There is no Government budget to support the community activities, only self-support. In 2002, there is an actual establishment of fire prevention group, which started by villagers exchanging ideas of various local methods of fire elimination and by monitoring in the natural form of using tree branches or soil. The discussion was initially informal and it was made formal later when there was an official seminar arranged by the government function. The seminar was held by the Provincial Forest Fire Control, Nakhon Sri Thammarat Province in May 2003 on the topic of 'The Effect of Toxic Smoke from Forest Fire' and was attended by Forestry officials, community leaders and some locals.

### **The Condition of Peat Swamp Forest in the Future**

It is expected that peat swamp forest will gain more attention from the community members providing the fire prevention groups still exist and the group leaders work hard to maintain the richness of the forest. On the contrary, community awareness and the importance of forest must be focused, as it is concerned with the living condition and environment of the community. This is to get rid of the ideas that any participation in community activities is for reward or financial payback.

### **Problems and Obstacles**

The community's main problem is the administration. This is because the grouping is naturally establish, that is, villagers voluntarily gather to use their right in equally expressing ideas and there is no official group leader. However, government functions and organizations involved have tried to organize the group theoretically that there must be the group chairman acting as a group leader. Hence, as expected, there are strong competitions among villagers trying to be the leader so he/she can lead the community to do as his/her wish, which can consequently lead to unhealthy working condition.

4.3.1.2 An interview with Mr. Kasem Yodkaew, a member of Kreng Sub-district Administration and an active operator of peat swamp forest as well as the community was arranged at the Administration Office on July 18,2003 at 10.30 hour.

### **The Condition of the Previous Peat Swamp Forest**

Peat swamp forest prior to 1965 was a perfect forest that was rich with varieties of plants, trees and animal. In the year 1965 there was a vital natural disaster that badly destroyed plants and trees which later became the best fire source with the occurrence of forest fire. Peat swamp forest then changed to be the destructive forest. Nevertheless, the villagers, on the contrary, did not adequately pay attention to this matter until 1997 that they started to discuss and express ideas about the situation. Meanwhile, forest fire occur periodically every year and the public sectors of forest fire fighter had to arrange for fire elimination whereas the villagers still unable to group themselves to improve the situation and when being asked to join, sometimes only few showed up. It was not until 2001 when various functions as well as the community members started to be alert since forest fire occurred 2-3 times a year and the fact that many rice field areas were flooded. There used to be 7 months of flood in a year and that was a real vital situation for farmers. The water channels were operated but without advance foresee that the channels took all water out of the peat swamp forest which created good fire source when there was a later forest fire. In 2003, there was an arrangement for a seminar to find out the advantages of Kuan Kreng peat swamp forest and the issues of forest fire, bulrush and rare fish were mentioned. Unfortunately, during 2001-2002 fish around the peat swamp forest were almost wiped out through electric shot by villagers. The seminar outcome effects in the selection of students to attend the study camp to learn about the peat swamp forest and how to maintain fish in the area.

As for the problems of bulrushes that villagers would rather do plant cutting instead of root pulling, the result is the slow growth of bulrush from 3-4 years to 5-6 years. Other disadvantage includes the later outcome when the leftover cutting plants become a source for fire. The growing of grass will replace bulrush plant, which will result in its minimum quantity.

The Government has provided the budget to help in fire elimination yearly but the timing of cash arriving and forest fire occurrence was always clashing. Moreover, the poor administration resulted in the inadequate cooperation among villagers as they always made various excuses to avoid participation. However, the local group that was established by the villagers has been quite successful, as there is always 100-200 villagers participating in firebreak activity or water channel construction that can be 10 metre wide. Hence, firebreaks and water channels are unable to prevent fire as wind can carry fire to the other side of the land and fire blaze quickly spreads the area.

The majority of existing trees in peat swamp forest today is Samed tree which the locals believe that inside its trunk is an acid that could make soil sour after a forest fire. The villagers also believe that the trunk shell is a good source for fire although it is still a debated issue because if there is no fire but there is water then the soil will not be sour. The intellectual from the royal project of Pak Panang Watershed Development Programme had later explained to community members that because water always stays in such forest and there is no natural way of water digesting to allow the ground to get dry so it creates the destructive soil or rotten soil or sour soil. Different species of trees, additionally, must be planted by focusing on the 37 original species i.e. water palmae, dolichandrone spathacea, barringtonia macrostachya and etc. There are many different functions involve in the aforestation although some functions may not actually do the planting but have submitted for the budget which can be for self-benefit. The community needs to do something about this though it becomes difficult when some community members are involved. This is some of the examples of the unintended means in improving the situation. In the past Kuan Kreng peat swamp forest used to be under the Provincial Forestry Office, Pattalung Province and the development method was brought in by hiring people to do a demonstrating farm using the locals' ideas together with the theoretical method.

The community requirement is only not to allow water in the peat swamp forest to dry so it can be the preliminary step of fire prevention. The advantage of having water stay in the forest all year round is the fact that such water-flowing system can balance the taste of soil to the mixture taste of sour, tasteless and fresh. Of course, the 20% of manmade fire will have to be dealt with in other manners. In the past, man-made fire occurred with the reason of looking for planting areas which has

changed when villagers are competing to obtain maximum self-benefit in planting, bulrush product making, fish-farming area, rice farming and etc. However, upon various discussions, villagers reveal their ideas and experiences to allow the administrators to understand different advantages and disadvantages. Villagers also inform about the community loss and its replacement as well as the method of corrective measure. The talks make community people aware of the importance of peat swamp forest and in order to maintain the community benefit, career development program was established for villagers through the government budget.

4.3.1.3 An interview Mr. Sawat Samakpong, the chairman of Puen Kleur Tuek Khao Luang Society and one of the leaders to develop the Pak Panang Watershed was conducted on July 18, 2003 at the Outbound School Center, Cha-uad District at 13.30 hours.

The following is his attitude and ideas in regard to Kreng community and its relation to the peat swamp forest.

Being one of the areas of Pak Panang Watershed Development Programme, Kuan Kreng peat swamp forest is added in the topic that has been discussed in workshop between the officials and villagers of Pak Panang Watershed area. It is found that Kreng community has been alert of the forest situation. It actually is one of the pioneer communities where the leaders try to invite community members to be aware and participate in the operation of peat swamp forest. Fortunately, members' coordination increases along with the involvement of various government functions and non-government organizations. The development of peat swamp forests depends heavily on the strength of the community group. If the group is strong, the development will be ongoing and the situation will improve but if the group gives up or pays less attention to the situation, the development will consequently be unsuccessful.

Workshop and participating in the community activities, the researcher finds that the problems with peat swamp forest is a forest fire that spreads so quickly as the ground is dry since water flows out through water channels. Nevertheless, the public relation campaign is established to inform the locals of the importance of the need to have peat swamp forest and to avoid various performances such as to stop

fishing using the wrong method, to stop throwing cigarette buds in the forest area and etc.

Through interviews, the background of Kuan Kreng Peat Swamp Forest is shown along with the community togetherness leads by the leaders who initiate villagers to be aware of the importance of the forest toward the community living condition.

In order to cover this research with maximum required information in the participation of Kuan Kreng forest fire prevention, the researcher had arranged a community workshop to evaluate the needs in the participation. The research study is adapted into the format of participation operational research along with the technique of the Future Search Conference with the support of Puen Kleur Tuek Khao Luang Association, an association that is in charge of Pak Panang Watershed Development Programme. This association has, additionally, assisted in the coordination with other community sections since its members are experts in workshop arrangement and know both the community and the community members very well. The workshop outcome can be demonstrated as the following.

#### **4.3.2. The arrangement of workshop adapted from the format of Future Search Conference**

An workshop to evaluate people participation for Kuan Kreng peat swamp forest fire prevention and the influent factors was conducted at Out-school educational center on July 18, 2003 at 13:30 hours and was attended by villagers of the community and the nearby areas.

##### **Associated Group**

Puen Klur Tuek Khao Luang Association, represented by Mr. Sawat Samakpong and his team

##### **Observers**

1. Mr.Surachai Tongpan, The Director of Wat Don Yao School, Kreng Sub-district, Cha-uad District.
2. Mr. Boonyarit Klaewkaew, Cha-uad District administrator, Cha-uad District.
3. Mr. Boonserm Patayanont, the representative of the Village Fund.

### **List of the attendants**

1.Mr. Kasem Yodkaew, a member of Kreng Sub-district Administration, Cha-uad District.

2.Mr. Ekapot Piromrak, the head Kreng Sub-district, Cha-uad District.

3.Mr. Somboon Plaichoom, a residence of 49 Moo3, Ban Ton Sub-district, Cha-uad District.

4.Mr. Boonserm Hatayanont, a residence of 207 Moo1 Nanghlong Sub-district, Cha-uad District.

5.Mr. Narongsak Sangnoon, a residence of 126 Moo3, Cha-uad Sub-district, Cha-uad District.

6.Mr. Sutas Nooprick, a residence of 17 Moo6, Khonhard Sub-district, Cha-uad District.

7.Mr. Samart Luasom, a residence of 137 Moo5, Kreng Sub-district, Cha-uad District.

8.Mr. Prayoon Kaosok, the head of Kao-khan Sub-district, Cha-uad District.

9.Mr. Jamroon Plaiduang, a residence of 55/1 Moo5, Maejaoyuhua Sub-district, Chienyai District.

10. Mr. Sukon Srinoo, a residence of 91 Moo2, Kao-khan Sub-district, Cha-uad District.

11. Mr. Teera Noo-chuay, a residence of 73 Moo4, Nanghlong Sub-district, Cha-uad District.

12. Mr. Somporn Sotkerd, a residence of 144 Moo5, Kreng Sub-district, Cha-uad District.

### **The workshop objectives**

It is to have a clear version and understanding the community condition, which includes the condition of the swamp forest located around the community as well as its application and the community participation in caring for the forest.

The required outcome:

1.General condition of the community.

2.The condition of peat swamp forest around the community.

3.The utilization of application from peat swamp forest.

4.The participation in caring for the peat swamp forest.

### **Topic Discussions**

1.The general condition of the community.

2.Villagers' professions.

3.Villagers' living condition.

4.The condition of peat swamp forest around the community.

5.The dependent of community toward the peat swamp forest.

6.Important events of peat swamp forest fire.

7.The peat swamp forest fire prevention.

8.The governmental functions and the caring for peat swamp forest.

The participation with the governmental functions in this workshop aims at an evaluation on the needs to participate and influential factors toward the needs of the community in the Kuan Kreng peat swamp forest fire prevention. It is arranged based on the process of operational research as well as the future search conference research. The community experiences are brought for evaluation for the needs and the influential factors. The arrangement is divided into 2 periods.

The first period is a workshop time with the community members to see and understand the condition of the community as well as the peat swamp forest. The other topics of the importance of the swamp forest and the community, the dependent of community toward the forest, the important events of the swamp forest fire, the peat swamp forest fire prevention, the government functions and the caring of the peat swamp forest as well as the government functions' participation in community activities are followed. The outcome further reveals other problems of the community.

It is discovered, through this workshop, the problems of the peat swamp forest, the natural resources along with environment and the corrective measures. Each participant is asked to write down problems and presents them. These problems are summarized to find solutions as the community requirement for the future action, as follow.

An important objective of the workshop is to evaluate the community experiences for the need of the participation in community activities. The workshop

operation is divided into 2 steps of (a) to primary meet with villagers in order to understand and acknowledge the condition of the community as well as the condition of peat swamp forest in the area and (b) to arrange the workshop steps for evaluation.

The workshop aims mainly at understanding and talking about the status of the community and the importance of peat swamp forest as well as its effect to the community. It also includes the significant forest fire occurrence, the peat swamp forest fire prevention, the government functions with their activities in caring for the forest and the participation of villagers with the government functions. The workshop outcome reveals that there are problems with the state of the forest along with the natural resources, environment and the corrective measure. Each participant was asked to note down problems and presents them to the workshop group. Problems and corrective measures were summarized which can be demonstrated as the following.

1. The problem of dryness and peat swamp forest fire.

The community people can actually correct this problem themselves by arranging the awareness creation and the caring network. So the area committee is founded to perform these actions. The community additionally requests officials of the municipality and sub-district administration to participate in the corrective measure by submitting for supporting budget, mutually managing the task with the community network, problem solving by government functions through digging water channels and making a dam to protect the overflowing water and to maintain water level. Other activities of promotional budget, training arrangement to provide the community with knowledge of maintaining natural resource as well the performance to stimulate the activities and the implementation are also parts of their request.

2. The problem of wastewater from peat swamp forest.

The community can partly correct this problem through the community network. Also, the method of directing water out of the forest during rainy season in order to ensure there is not too much water in the forest area as well coordinating with the related government functions to provide knowledge on the management of wastewater and natural resource can be performed by villagers.

3. The problem of bulrush.

This problem is related with the market price of bulrush products that there is such a big different between the consumer price and the

production source. The conceivable result is the small amount of the product. The community had asked the concerned government functions to assist in this matter by starting from setting rules and regulations of equal opportunity for everyone in the parameter to collect the plant by root pulling with the proper size only and restricting on its trunk cutting. This is to avoid the natural process of dried plant being the fire source of forest fire since the leftover of bulrush will dry and fit into this process.

4. The problem of unsustainable water in peat swamp forest.

The question is “How can water be maintained in the forest all year?” The community had previously requested the concerned government functions to correct this problem by digging water channels, water boundaries and building small water dam to avoid the overflowing as well as to maintain the water level.

5. The problem of the sour taste of soil in peat swamp forest area

The solution is to use calcium oxide or dolomite rock to adjust the soil condition. Yet, this must be properly utilized because it can be money wasted if villagers do not correctly perform the process. The community, in this regard, has proposed the corrective measure by creating community awareness in using raw materials and allowing the municipality as well as the sub-district administration to control the quantities. The government functions must support this operation with budget.

6. The problem of sour taste of water in peat swamp forest.

The recommended solution is to properly close and open the doors of water channels to allow the natural flow of water. The municipality and the sub-district administration are asked to provide budget and concerned government functions should study the impact of closing and opening of water channel.

7. The problem of the reducing numbers of trees and plants in peat swamp forest.

The community recommended the solution by planting the type of trees that suit the condition of the forest as well as by reducing number of Samed trees to allow other plants to grow. This is because other plants will not grow well or will even stop growing in the area of Samed trees. The community has actually implemented this idea by asking the municipality and the sub-district administration to support villagers with different types of trees as well as budget. Moreover, the

community had also asked the concerned government functions and the sub-district administration to issue rules and regulations in regard to this matter.

The government officials may face some difficulties in the participation of this issue since the community members want to participate in many projects and ask the municipality as well as the sub-district administration to support the required task but at the same time it must be performed based on the community plan.

The researcher has brought the outcome of the first workshop as the main topic of the second workshop which is still supported by the Puen Kleur Tuek Khao Luang Association that provides the basic information of its workshop and discussing with the community people who are related with the Pak Panang Watershed Project. The association's support also included the arranging of workshop venue and the attendants, which are the same people from the first workshop. The second workshop was held on July 25 2003 at the Faculty of Humanity, Rajabhat Institution, Nakhon Sri Thammarat between 0900-1200 hours with the following details.

The second workshop aims at the study of the past and the present of the community and peat swamp forest and utilize the outcome as the guideline for the community future planning in regard to the participation of peat swamp forest fire prevention. The workshop requirement is to know the need of community participation, the guideline in the fire prevention and the operational plan of the future fire. The workshop was divided into 3 periods of the past, the present and the future.

The past period was performed by allowing all participants to revise their memory of the previous events on the condition of the community and peat swamp forest, the forest fire, the fire prevention, the relationship of humans and forest and the participation of the community alone as well as the relationship of the community with the concerned government functions. This is to link the relationship and to answer the question of how things happened and at the same time to open the opportunity for more ideas.

The present period was focused on bringing the above relationship into idea plan by writing all the main topics along with the details to be

clearly seen. The further step was to prioritize based on its importance from the perspectives of all concerned. This included their expression of ideas on various events that they felt proud or regretful.

The future period is for all participants to exchange ideas in order to find the collective guideline for the future. The next step was to vote for the operational guideline from the topic of both the community and the government functions. This is to determine the require future and to practically set the operational plan.

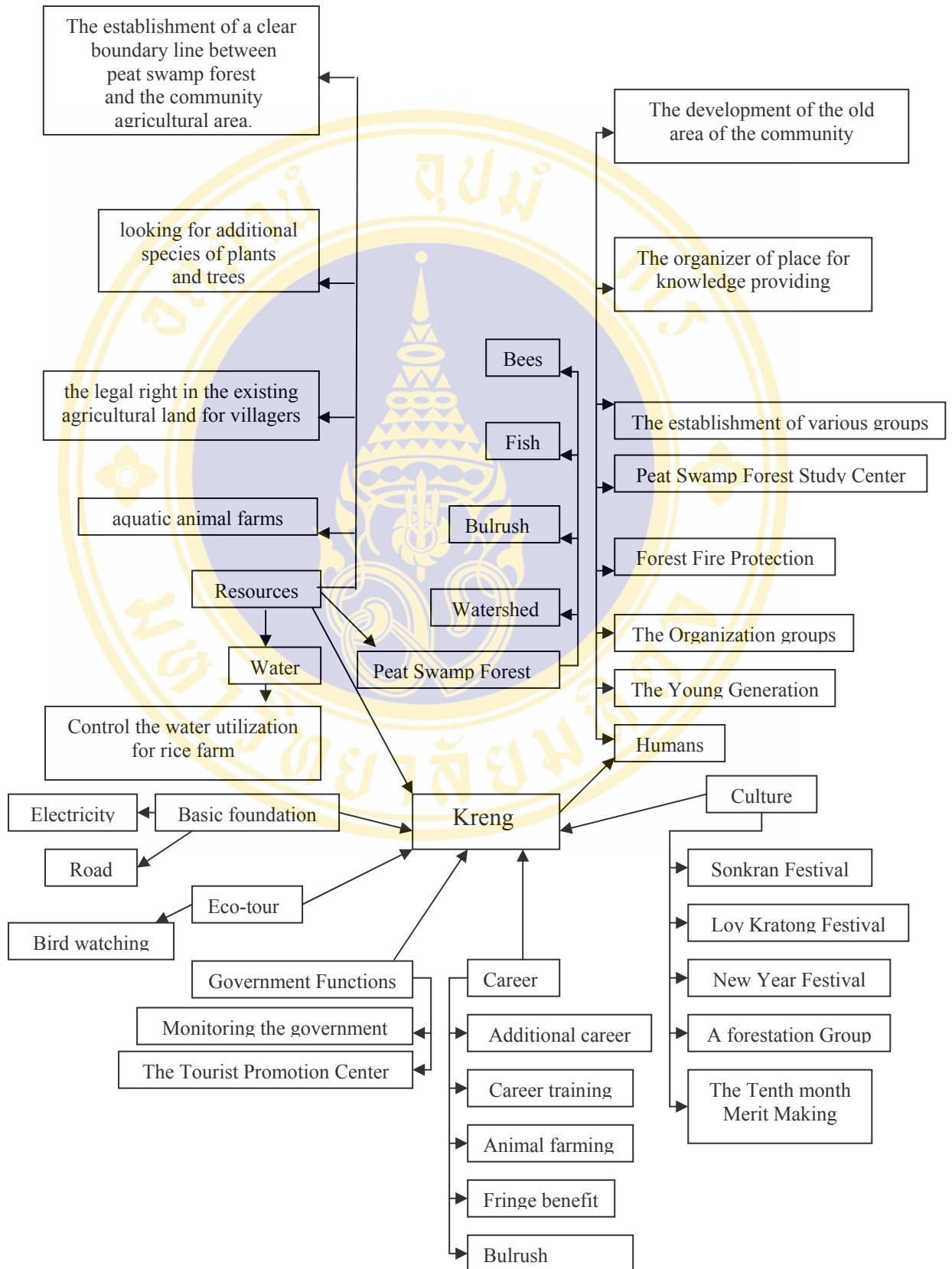
This participation idea is shown in a figure 6, which can further be described as the following.

Kreng community is placed as the center and everyone is allowed to look into this community through its surrounding, impact and guideline in correcting problems which consist of natural resources, community basic foundation, concerned government functions, humans, villagers' professions, community culture and community Eco-tour. All these subjects can be further described into details as the following.

Natural Resource, at this point,

1. Peat swamp forest and water.
2. The general corrective measure for this problem is to set.
3. Clear boundary lines between peat swamp forest and the agricultural areas.
4. Tree planting to develop the soil condition.
5. Fish farming to improve the Eco-system and the legal right of the land in the peat swamp forest area.
6. The management that can be performed with the forest is to build water boundary in order to keep water in the forest, enough to do the rice farm but not too excessive that it can flood the area for a long time and later become wastewater.
7. Other management includes the correct way of harvesting bulrushes by avoiding cutting method but using root pulling method as well as the correct way of catching fish, which is not through electric shot.

**Figure 6 Mind Map of the Workshop with the Community Leaders**



8. Bee keeping is another additional required management to ensure it is properly done as well as the control on water utilization for rice field that should be properly managed to ensure adequate amount of water is kept in the peat swamp forest.

Humans are concerned in the corrective measure to promote in activities of caring for forest and community resources. The term “humans” can include those forest planters, young generation, various organization personnel who perform all kinds of work in fire caring or arranging places for knowledge distribution or organizing groups for forest caring and educational center where everyone can use for the knowledge gaining.

Community culture that should be developed is the tradition of New Year Celebration, the Songkran Festival, the Loy Kratong Festival, the Tenth Month Merit Making Festival and the development on the old part of the community so villagers can be proud of their history and ancestors.

Occupations, besides agricultural career, must be promoted. Villagers should be encouraged to other professions, which include bulrush planting and etc. The career development center should also be established and members should be provided with fringe benefit as well as knowledge on animal farming.

The concern government functions should monitor different projects that have been implemented to follow up for the outcome as well as to check if such project has successfully served the requirement of the community. The tourist promotional center should also be established to support the Eco-tour, the bird watching activity in the peat swamp forest and etc.

The final topic is the basic foundation of the community. This is the issue of electricity and road that should be improved and to be generalized with good condition, as it is necessary for community living condition.

Upon the completion of mind map writing, the workshop then carried on to describe about the community conditions in the past, the present and the expected future, as the following.

In the past, the villagers residing around the peat swamp forest earned their living through the resources from peat swam forest area. In fact, one could say that the forest area was everything in life for them. On the other hand, peat

swamp forest then was rich with different resources, especially water all around the area throughout the year. The resources included fish and fresh water food i.e. fresh water fish, prawn, shell, reptile, turtle, snapping turtle, snake and etc as well as poultry i.e. many different kind of birds and etc. and monkey, bee, red ants along with four-leg animal i.e. deer, wild-pig, dwarf elephant and etc. Different species of plants were also available i.e. Samed tree, Kratom tree, *barringtonia macrostachya* and bulrush etc. and of course, the variety of herbal plants.

Community had depended heavily on peat swamp forest to maintain the economic activities, both as consumers and traders.

Peat swamp forest today is badly destroyed from various development plans i.e. the digging of water channel by the Royal Irrigation Department and the Office of Land Development. Other problems include (a) fresh water fish and other water animals are also destroyed when the area is dried (b) the occurrence of forest fires lead to the destruction of both the forest and its animal (c) the incorrect method of fish catching i.e. the utilization of electric shot, the use of toxic substance and etc which can eliminate not only the fresh water animals but also destroy the soil condition that consequently is not good for rice farming. The additional problem is the fact that there is no clear boundary line between the preserved forest area and the village agricultural area, therefore, the trespass frequently occurs by community people. Unfortunately, the lack of community management concerning forest provides outsiders to often take advantage of the forest and villagers follow such practice as well while the lack of community unity, too many ideas but less practice, lack of development budget are the issues that require urgent correction.

The expected vision in the future that the community is looking forward to is (a) there must be a clear separation of government preserved area and the agricultural area (b) a land for planting bulrush must be increased in order to consequently increase its handicraft products (c) The awareness creation in the management of natural resource and environment must be properly acted (d) peat swamp forest should be arranged into the sustainable preserved forest and the community forest. Moreover, there should be legal right for land that villagers have been using as agricultural area along with an increasing forest area through the

aforestation and assign the community together with the concerned government functions to set the clear boundary lines. Animal development, on the other hand, must also be performed and all the malpractice of incorrect method of catching fish must be abolished. Of course, animal preservation, the establishment of watershed that leads to the proper method of water handling must be suitably corrected.

However, there are numbers of limitation that obstruct the community development toward the required direction for the future and one of them is the law that does not provide an opportunity for community to care for forest. Others include an inefficient utilization of resource, the lesser numbers of villagers coordinate in related activities, the lack of knowledge among villagers in resource utilization, the invasion of villagers into forest and later claim their right over the land, local officials possess insufficient knowledge of peat swamp forest management.

The corrective measures for the present and the future are (a) to establish the community organization managed by villagers through the community process in order to create mutual awareness and understanding (b) to preserve natural resource by community people must collectively set the system of the development for peat swamp forest and the sub-district administration must correlatively set the development plan. Other measures are the creation of volunteer group to protect environment and the system training of natural resource preservation as well as the forest fire prevention along with the arrangement of the clear boundary line between the preserved area and the villagers' agricultural area. The aforestation or the forest development campaign must additionally be the part of the corrective measure which can be done by encouraging community and government functions as well as the sub-district administration to arrange workshop among their representatives in order to search for the community collective awareness and to develop the swamp forest.

Through the workshop arranged by the researcher, it is found that the community activity organized by government functions that is performed by hiring the locals to work on certain task has the people think that there is always a price for any fire prevention work. The community forest fire problem involves with budget that is not only insufficient but also discontinued. Unfortunately, the budget normally comes when there is no forest fire. Villagers often help to eliminate the fire but are unable to completely stop it. Other conditions such as the situation of water lacking,

the dryness of Samed tree that becomes a good fire source, the lack of legal right for community to manage the budget as well as the ill-purposed coordination of some organizations

The direction in solving the problems is (a) to assign people to clearly be in charge of peat swamp forest (b) increase the peat swamp area of 200 Rai by planting more plants that presently is the responsible of the Provincial Forestry Office, Pattalung province that has arranged the demonstration of tree planting using both the locals and the academic methods (c) to organize 15 people from each community along with officials from the government functions to look after the forest fire prevention and fire control.

Further recommendation, based on the outcome of the workshop, is an idea that there should be a mud bank surrounding the peat swamp forest to keep water inside. This can be performed firstly through the discussion between the concerned government functions and the peat swamp forest experts to ensure that the Eco-system is focused. Then, prior to the mud bank construction, the community people or the working group should visit Tohdaeng and Kantulee peat swamp forests in Chumporn province for familiarization and use the gaining knowledge to collectively set the direction to improve Kuan Kreng peat swamp forest. The close coordination of concern government functions and the consultation with the intellectuals from local primary and secondary schools are also required.

Prior to the workshop completion, there was a presentation of a community operational plan to manage environment or a development plan for natural resource and environment of Kreng Sub-district administration 2002-2006, with the following details.

Since 70% of Kreng Sub-district area is peat swamp forest therefore it is very difficult to develop the land to suit for farming especially tree planting, as soil condition is sour soil. Nevertheless, there are many rivers running through the area so it is best to do water animal farming. Furthermore, the location of this sub-district is in the area of Pak Panang Watershed, which is a part of the Royal Patronage Project of Agricultural Support and Development, and it has been supporting the community on the handicraft products from bulrushes.

Kreng Sub-district area also covers some part of the National Preservation Forest i.e. Kuan Kreng peat swamp forest, Ban Goompae Preservation Forest where it is full of Samed tree, *barringtonia macrostachya* and many more although the land has been invaded quite a lot by villagers and the forest condition is bad due to many occurrences of forest fire.

The community problems on natural resource and environment that need immediate correction are the invasion of forest area, the personal possession over the public properties, wastewater and the occurrence of peat swamp forest fire.

### **The State of Problems**

People invade the preserved forest area by cutting trees, using wrong method in picking bulrushes and making use of the land for one's benefit. Meanwhile, wastewater occurred from land being flooded for a long period of time causes decay from undergrowth, yet, it becomes a good source for fire in the dry season. On the other hand, humans' carelessness in fire burning for animal hunting can unfortunately cause forest fire. All these problems have led to the preventive operation i.e. the arrangement of afforestation, the arrangement to stop land invasion and etc which concerns natural resource as well as environment.

The workshop participants agree to implement the above operational plan on the topic related to natural resources especially the topic of the declining richness of community peat swamp forest as well as the problem of peat swamp forest fire caused by villagers. Although, the fire prevention process has been ongoing i.e. the building of fire boundary etc. but it is agreed that the operational plan should be implemented by the existing in order to have a sustainable operation.

**Table 6 The Operational Plan for Kuan Kreg Peat Swamp Forest Fire Prevention from the project/plan of Kreg Sub-district Administration Office during 2002-2006.**

Project/Activity	Target	Budget (baht)
Natural Resource Preservation Area	5 times/once yearly	200,000
- an exhibition arrangement		40,000
- an arrangement of public relation		40,000
- a trained volunteers of environment protection group		40,000
Plant Replacement	5 time	
- Coordination with the community to afforest	once in 2002	5,000
The Construction of 2 watersheds for fire	once during 2003-2006	10,000
- the construction in Moo 2 area	in 2003, 4.5 km.	500,000
- the construction in Moo 4 area	in 2004, 6 km.	580,000
Natural Resource and Environment Development Plan		
-the construction of a watershed in Moo11 from Klang Kuan, Cha-lig to Kreg road	one, 15 km.	12,000,000

#### **4.4 FACTORS LEADING TO THE NEEDS FOR COMMUNITY PARTICIPATION.**

It is found through the interview and the workshop that factors cause the community to participate in the swamp forest fire prevention are;

##### **4.4.1 Economic factor**

The community basic information, context, background as well as the interview with community leaders and the approaching the community reveal that the majority of community members are farmers. The statistic report of the Provincial Agriculture Office in Nakhon Sri Thammarat Province discloses that the community

possesses a total of 11,006 rai of land for rice field yet it can produce only 350 kilogram per rai. This is because of the existing problem of sour soil created from the long sustention of water in the area which consequently shows in the unproductive plant farming, animal farming as well as water animal farming. Nevertheless, when the water dries another problem arrives, that is all water animals die. Villagers then have to look for jobs somewhere else. Being away from the community is an obstruction for participation in community activities. However, the bulrush handicraft project has helped in the financial problems to increase villagers' income.

#### **4.4.2 Social factor**

The original background of the community showed an establishment of the area that was later called Kuan Kreng. Today, this community consists of villagers who rarely trust one another. The reason may be from the additional number of crimes or malpractice acts that forbid people to be out of their home at night. Yet, the group gathering is one of the expressions that they want to be accepted and trusted by people in the community.

#### **4.4.3 The factor of benefit from the swamp forest**

Benefit obtaining from the peat swamp forest today is bulrush, which has become a main problem among villagers due to its natural growing with insufficient quantity. It has become the yearly problems on the allotment of bulrush land. Meanwhile the root pulling instead of trunk cutting has also been an ongoing problem. The leftover roots and the wasted part of trunks decompose in both water and soil. The worst part is that bulrush can not grow in that decomposing area. The result of all these is the smaller quantity of bulrush and its area while the number of villagers who want the plant is the same or even higher. So an unfair sharing can lead to an unsatisfied feeling, enough that sometimes some villagers may end up burning the land. Therefore, this becomes another reason for the peat swamp forest fire.

## CHAPTER 5

### DISCUSSTION

This research study on the need for community participation in Kuan Kreng peat swamp forest fire prevention aims at its evaluation and influential factors, and in order to understand the background of the needs and the factors, this chapter will describe the community context, which is the basic foundation. The outcome of operational research that is adapted into the process of operational participation as well as the workshop for the Future Search Conference (FSC) can be presented in the different topics as follow.

- 5.1 Community Context
- 5.2 Problems of Community
- 5.3 The Process causing the needs to participate and influential factors toward the participation for Kuan Kreng peat swamp forest fire prevention, Nakhon Sri Thammarat Province which includes:
  - 5.3.1 The analysis on the outcome of in-depth interview with community leaders
  - 5.3.2 The analysis on the outcome of the workshop.
- 5.4 The lesson gained from the research study

#### 5.1 COMMUNITY CONTEXT

Chapter 4 has presented with general situation, basic information and history of Kreng community during its existence of more than 200 years. In the past the area used to be a rain forest where people fleeing from the authority could hide themselves and end up living there. It was not until there was a capable leader, Khun Samakniyom, who was respected by the community members and made the community, a peaceful place. It was so peaceful that it was named “Kuan Kreng” or a “peaceful hillside” located among rich natural resources. However, there were later several natural disasters i.e. windstorm and floods especially the heavy flood in 1962

that severely damaged the peat swamp forest as a big number of trees were ruined and died. Water animals were, additionally, effected and lost. That was the beginning of the declining of the natural resource. The leftover of plants and animals were the good source for fire in the following hot season. The forest fire occurred more frequently with other additional causes from animal hunting by outsiders as well as wild-item seekers. On the other hand, the community members did not forbid outsiders instead they followed such practice. At this point it shows that villager focused more on their self-benefit than developing the swamp forest into its original richness. Of course, the more fishing and hunting, the least wild animals and water animals. Once there were few fish in the swamp, villagers had to look for work outside the community. Today, there is other benefit from the swamp forest, that is, the bulrush plant that creates problem among villagers who claimed land where bulrush grows since they can make use of the plant for different types of handicraft. Therefore the benefit gained from the swamp forest and the natural resources have become the factors encouraging Kreng villagers to participate in their peat swamp forest fire prevention.

Aside from the factor of benefit from natural resource, economic is another influential factor for the participation. This went back to the community history to find that villagers were mostly poor farmers with low yearly income of about Baht 9,000-12,000/per family. When the richness of the area declined, the soil around rice field and swamp forest turned sour which did not suit agricultural purposes. Villagers had to leave their homeland to find work outside which led to the difficult task to participate in community activities. This shows that if the community economy is good and the community members are content with their income, the gathering will be easier. That is the reason why there is a promotional scheme for villagers to earn their living by using the local materials i.e. handicraft from bulrush, the plant grows in swamp forest and etc. The scheme is additionally revealed the importance of swamp forest and the local natural resource that further leads to the community gathering and focusing the least on economic point.

The last factor is a social factor. This factor is also influential for the needs in participation which, in order to see its clear picture; one has to look back at the community's history again. The original villagers were those who fled from the authorities, mostly with criminal charges and the rain forest was the best place for

hiding. Trust and friendship were rare that it became very difficult for them to gather in any group activities. Today, things change. People want to be accepted in the community and the participation in the forest fire prevention program is one way of being accepted.

## 5.2 PROBLEMS OF COMMUNITY

The study on the community problems is based on (1) the occurrence of swamp forest fire during the dried season (2) the trespassing in the area of preserved forest (3) the claim in the land belonging to the public utilities and (4) stagnant water. It is found that most of the problems are caused by some selfish people in the community. They cause many occurrences of forest fire, stagnation of water in the swamp forest, cutting bulrush plant instead of root pulling etc. Another problem is the leftover of non-required bulrush in water, which does not only create stagnant water but also stop the growing. It is essential that community members should be involved in the corrective measure of these problems since the original problems started from them.

### 5.2.1 Water – Distribution Canal Management

The problem of peat swamp forest about acid soil. The advantage of having water stay in the forest all year round is the fact that such water-flowing system can balance the taste of soil to the mixture taste of sour, tasteless and fresh. The community can't do rice farming. This all problem, the communities think about public service mistake. The public service can't coordinate for dig water – distribution. For resolve all problem give priority to water – distribution. The forest can't water reserve. Soil is so dry

The community have solve the problem to blocking unless water – distribution canal.

### **5.2.2 Bulrush Management**

The bulrush has about the problem of collect the plant by root pulling with the proper size only and restricting on its trunk cutting. This is to avoid the natural process of dried plant being the fire source of forest fire since the leftover of bulrush will dry and fit into this process. The individual benefit is problem of community and lacking knowledge of bulrush. So, the public service supports the knowledge to community before lack of bulrush.

### **5.2.3 Fishing**

The fishing in the community has many uncorrected methods such as electric shot, prison. That method make to fish become extinct, importance problem of the peat swam forest. For the purpose of completely peat swamp forest, the communities want the support fishing knowledge and animal of peat swamp forest from public service. That good method make to the several animal of peat swamp forest.

### **5.2.4 Tree of Peat Swamp forest**

Samed is importance plant of peat swamp forest. The communities believe the acid in leaf and bark of tree make to forest fire. In fact, Samed don't make foret fire but a lot of dry bark of Samed is cruel of fire, that is cause of forest fire. So, the public services have to develop knowledge and skill about plant of peat swamp to community.

## **5.3 THE PROCESS CAUSING THE NEED TO PARTICIPATE AND INFLUENTIAL FACTORS TOWARD THE PARTICIPATION FOR KUAN KRENG PEAT SWAMP FOREST FIRE PROTECTION, NAKHON SRI THAMMARAT PROVINCE**

### **5.3.1 The Analysis on the Outcome of In – Depth Interview with Community Leaders**

The outcome of the in-depth interview which has been divided into 3 periods the past, the present and the future, can be brought for evaluation on the needs

in community participation along with the influential factors toward the needs for participation, as the following description.

It is discovered that community leaders have a strong intention to participate in the swamp forest fire prevention program because they want to benefit from forest natural resource. The comparison of the past and the present situation can support this statement. In the past the natural resources were so rich that everyone shared without fighting, today villagers have to fight to get their share of a limited amount of the resources especially the amount of bulrush that keeps decreasing due to the improper method of cutting. Therefore the community participation is involved with villagers' future benefit obtaining from natural resource.

The economic factor becomes another important factor that influences the needs for community participation. This is because an average annual income of a person in the community is Baht 9,000-12,000, which is a strong force for the person to earn more income that it stops him/her from joining in community activities. Therefore, in order to encourage villagers to participate, additional means of earning are offered to them i.e. making bulrush handicraft which does not only help them financially but also to keep them in the community to make it easy for the gathering in community activities.

The last is the social factor. This factor is involved with the establishment of a group within the community to monitor and follow with forest fire occurrence. The group's responsibility includes the observation of fire occurrence and the avoidance of occurrence or if there is any forest fire, the corrective action must be taken immediately by the limitation of fire area to stop its damage to land and plants. Hence, all group's activities are without the supporting fund from any government functions but only from community support. In 2002, an actual group for fire prevention was established with clear and precise direction. Proper training was provided for villagers instead of the original natural method, which was assisted by the officials from the forestry department who have been given both informal and formal consultation. It is expected that peat swamp forest will get more attention from the community in the future especially with the existence of the community group gathering. Having a good group leader will benefit the future activities and the group's existence and all for the richness of the swamp forest. Community members who

participate in these group activities are accepted and trusted by others within the village. Nevertheless, there is a problem in the grouping as it is a natural gathering, that is, people voluntarily gather themselves and everyone possesses an equal right to express ideas. The group has no official leader. Later, when NGOs and other organizations become part of the task, there has been an effort to make the group theoretically by having a chairman as a group leader. However, another problem arrives and that is, many people want to be a group leader in order to lead others in the community.

It can be clear from the interview with the community leaders that the factor influences in community participation is the non-coordination in various activities by the community members due to the problem of income or economic problems that is one of the main obstacle for the participation while personal benefit is part of the participation.

### **5.3.2 The analysis on the outcome of the workshop**

The study to evaluate the community participation in Kuan Kreng peat swamp forest fire prevention as well as its influential factors is conducted through the arrangement of workshop that has been adapted from the process of the operational participation and the process of the future search conference. An outcome reveals that the community members show a strong intention to participate in the fire prevention scheme. This is because the fire prevention activities are organized by various sectors with funds to spend and to make villagers believe that any time that they participate in fire prevention, they are paid. It becomes a traditional practice that their participation must be rewarded. Therefore, funds have brought different problems i.e. insufficient amount of funds received, discontinuation of funds, funds arrive during the non-occurrence of fire, and community members have no right for fund arrangement, non-sincere attitude for the cooperation of some organizations, lack of water utility to stop fire. Meanwhile, the bark of Samed tree growing in swamp forest can be one of the good sources for fire when it dries. However, it can be stated that the community's main problem is insufficient funds that cause the community to look for financial help from NGOs. Again, some NGOs only provide funds but not the practical arrangement as planned which leads to a non-unsuitable achievement. On the

other hand, the given money has formed a bad habit to villagers claiming that they are the low-income people that need financial help to participate. Thus, economic factor becomes another influential topic for community participation in the Kuan Kreng peat swamp forest fire prevention.

Meanwhile, the benefit from natural resource in peat swamp forest is a part of influential factors in this scheme. Bulrush, one of the natural resources, causes a lot of conflict among villagers in term of land claiming and bulrush burning when receiving unfair share. Of course, this bulrush fire occurrence is one of the causes in peat swamp forest fire today. In order to avoid all these problems, community members finally agree to be part of the participation to protect their self-benefit as well as to receive the fair share of the land arrangement.

On the contrary, the last factor of social issue expresses that the participation is a social duty that everyone in the community plays the assigned roles in both forest fire and peat swamp forest fire prevention. And in order to be chosen as a representative, the participant must express different ideas along with community problems. This representative status is an encouragement for the need to join the fire prevention task among community members.

An evaluation on the needs of community participation based on the in-depth interview and the workshop reveals that the community wants to do self-arrangement of the fire prevention project but still require assistance from the government sectors in term of funds and proper academic information. The factors that influence the community participation are divided into 3 parts, as the following.

1. The factor of benefit from natural resources. This is the main influential factor since Kreng community today is facing the problem of members fighting to get a bigger share of bulrush land. The fight includes fire lighting in others' land that it further becomes the swamp forest fire. The community members want a fair arrangement on bulrush land and stop the fighting over the land that this idea is strong enough to bring them to participate in the fire prevention scheme.

2. The factor of economic. This factor is a result of the villagers' low income of Baht 9,000-12,000/person/year and the decreasing richness of the area. The rice fields are faced with the problem of soil and sour water that they produce a small quantity of rice. Consequently, community members have to look for jobs outside the

area, which become an obstacle for them to gather in-group within the community. It also found, from the researcher's experience that if one wants villagers to participate, a reward in the form of cash should be given to substitute for their time. Thus, this is proven that economic factor plays an important role for the participation.

3. The final factor is a social factor. The social factor reveals the people's roles toward the Kreng community in playing his/her assigned role and duty that others can accept and trust. The performance of the assigned role and duty can include the presenting and expressing of ideas along with problems and the corrective measures that benefit the community today and hopefully in the future.

#### **5.4 THE LESSON GAINED FROM THE RESEARCH STUDY**

The lesson, based on the adaptation of the study content on the process of community operational research which consists of two parts (1) an in-depth interview with the community leaders and (2) workshop, is divided into 2 points (a) a lesson that the researcher receives for doing this research and (b) a lesson obtained from the community which can be described as the following.

##### **5.4.1 The lesson that the researcher receives for doing this research**

In order to achieve the research study in a community in accordance with the set format and process, trust and reliance are the main factors. The trust and reliable feeling that the community members have toward the researcher mean their cooperation and fact providing along with the assistance to make the research process successful. Such feeling is very essential in the unfamiliar community as well as the hard-post community, especially when it is a female researcher who possesses neither insignificant personality nor motivation to attract enough attention from villagers to help in her work. Therefore, to obtain that trust and reliance, the researcher has to enter the community through the community leader who is the local and is accepted by the community members who, in this case, is Saowapa Somwiwatkul, a teacher at Cha-uad School, a District Government School in Cha-uad District. The researcher was introduced to her by the provincial forestry official. Being very generous person, Ms. Saowapa, not only provided necessary information but also introduced the

researcher to Mr.Kasem Yodkaew, the member of Sub-district Administration, and Mr.Sawat Samakr-pong, and the chairman of Puen Glur Tuek Khao Luang Group. Both gentlemen had also provided very useful information and suggestion of how to get to know the community better which has been a valuable guideline for the research work. The researcher spent 4 months trying to get acquainted with the community by staying one day a week in the village and communicated through telephone with the three aforesaid persons. Various discussions were made especially on the difficult topics as well as the arrangement for discussion with the villagers.

The creation of trust and reliance needs a reliable personality and qualification as well as a strong intention expressing the support without prejudice to help in the corrective measures. And that was what the researcher appeared to the community members in doing this research.

#### **5.4.2 The Lesson Obtained From the Community**

An important lesson obtained from doing this research is the knowledge that trust and reliance are the key factors especially in the community that members have less trust in one another. And in order to obtain this key factor, the researcher must try to be familiar with the place and people until she gained such feelings, enough that people can openly express themselves heart-to-heart with. When villagers found that the researcher is trusted and reliable then the actual fact and information started to pour in.

The other valuable lesson is the fact that the community is a direct source of information. That is the actual place and the people who live there are those who know the truth, problems as well as the corrective measure especially with the cause that comes from the community people. Therefore, it is wise to listen to their ideas and respect their choices.

Nevertheless, prior to the acceptance of the community members, trust and reliance must be built by being seen regularly in the community and by conducting various discussions that can motivate ideas and self-expression in order to reveal the real problems as well as the actual needs of the community.

Finally, the most precious thing that the researcher receives from this research study is the accepting and sharing of ideas with others and the fact that group

working is better than one. This is because community people can help one another and at the same time they can turn the attention of everyone in the community to realize and to be aware of problems as well as to love their homeland.



## **CHAPTER 6**

### **CONCLUSIONS AND RECOMMENDATIONS**

This is a research study on the community requirements for Kuan Kreng peat swamp forest fire prevention, in Nakhon Sri Thammarat Province with an aim to evaluate the community members in their requirement for the swamp forest fire prevention. The study also includes various influential factors toward the requirements for participation. The research tool is an adapting process from the operational research to an in-depth interview with community leaders as well as a process of the future search conference (FSC) which frames an analysis method into the topic of (a) community context (b) community problems (c) process that leads to the requirement for participation (d) influential factors for participation and (e) research outcome that can be concluded as the following.

#### **6.1 CONCLUSIONS**

##### **6.1.1 The Community Context**

It can be concluded, based on the study of the primary information and the background history, that there are three factors involving the requirements for community participation. The first factor, being the main factor, is the economic, which shows in an average annual income per person of Baht 9,000-12,000 a year. With such a low income, it is justified why community members are reluctant to participate in any activities, but instead, they focus on their surviving.

The second factor is the benefit from natural resources of the swamp forest. It is discovered from the background information that Kreng community used to obtain sufficient benefit from the swamp forest in terms of animals and plants especially water animal as well as bulrush. The destruction of both animals and plants in the swamp leads to the participation of community members in forest fire prevention in order to benefit the natural resources again.

The last factor is a social factor. An insincere feeling among villagers makes it difficult for community members to participate in any current events. This is because

everyone wants to be recognized and accepted by the community society. Therefore, when stating the social factor, community members refer it as the participation in the forest fire prevention so that they are accepted in their society.

### **6.1.2 The Problem of Community**

It can be concluded that the main factor that makes community members participate is the benefit from natural resources. The benefit obtaining can encourage villagers the needs to be part of the correction in the swamp forest fire problems. This is because they believe that the community should coordinate in the corrective measures on the problems that its people initiate.

#### **6.1.2.1 Water – Distribution Canal Management**

Cause of this problem is the public service lacking of coordinate and review research of area. So, for resolve all problems blocking unless water – distribution canal for the nature.

#### **6.1.2.2 Bulrush Management**

The bulrush has about the problem of collect the plant by root pulling with the proper size only and restricting on its trunk cutting. This is to avoid the natural process of dried plant being the fire source of forest fire since the leftover of bulrush will dry and fit into this process. The individual benefit is problem of community and lacking knowledge of bulrush. So, the public service supports the knowledge to community before lack of bulrush.

#### **6.1.2.3 Fishing**

The fishing in the community has many uncorrected methods such as electric shot, poison. That method make to fish become extinct, importance problem of the peat swamp forest. For the purpose of completely peat swamp forest, the communities want the support correct fishing method and animal of peat swamp forest from public service. That good method make to the several animal of peat swamp forest.

#### **6.1.2.4 Tree of Peat Swamp forest**

Samed is importance plant of peat swamp forest. The communities believe the acid in leaf and bark of tree make to forest fire. In fact, Samed doesn't make forest fire but a lot of dry bark of Samed is cruel of fire that is cause of forest fire. So, the public services have to develop knowledge and skill about plant of peat swamp to community.

### **6.1.3 The Process Causing and the Factors Influencing the Requirements for Participation among Community Members in Kuan Kreng Swamp Forest on Fire Protection Nakhon Sri Thammarat Province.**

#### **6.1.3.1 An Analysis on the outcome of in-depth interview with community leaders**

Based on the in-depth interview with community leaders, as the interview is part of the study to know the needs in participation of the community for Kuan Kreng swamp forest, it can be concluded that the community members express very strong intentions to participate in the forest fire prevention. This is owing to the factor of benefit from natural resources especially bulrush plant.

On the other hand, the economic factor is also an influential issue for the participation. As it is discovered that villagers earn a very low yearly income that they are busy with self-living condition instead of participating in the community activities. Nevertheless, when the project of career development is established by setting up the bulrush handicraft group, the villagers' economic problems seem to ease that the requirements in the participation increase. This is because they want to be part of the program that benefits their community and that it seems to make their life quality better.

The social factor, on the contrary, is the expression of being part of the participation, which is shown by the establishment of community group to be alert to fire occurrence. Such activity creates acceptance and trust within community members.

Obviously, the factor that is influent in the needs for community participation is the economic factor or the issue that relates to family income as well as the benefit from natural resources.

### **6.1.3.2 An Analysis on the Outcome of the Workshop**

The study based on the evaluation and the influential factors for community participation in Kuna Kreng swamp forest fire prevention is done by an arrangement of workshop. The workshop style is adapted from the process of operational participation and the process of future search conference, which can be concluded that the community members express strong intentions to participate in the preventive measure. The intentions are based on 3 factors (1) economic factor which is part of their low annual income (2) benefit from natural resource from the swamp forest especially bulrush plant that become a main cause for the present fire occurrence. The last factor is the social factor, which shows the community role toward its society. Different roles are assigned to community members to be responsible for fire prevention. Moreover, such roles also represent personal acceptance among members. The idea of being accepted is a strong force for the requirement in the participation.

The evaluation also shows that the community wants to perform the forest fire prevention by themselves, with some assistance from the government sectors in the form of budget and academic information regarding the proper procedures for swamp forest fire prevention and management. The influential factors for the participation, again, are (1) benefit from natural resource (2) economic and (3) social.

## **6.2 RECOMMENDATIONS FROM THE RESEARCH**

### **6.2.1 Problems and Recommendations from the Research**

Based on the analysis from the information on the evaluation of the needs in the participation for Kuan Kreng Peat swamp forest fire prevention, Nakhon Sri Thammarat Province, it can be recommended as the following.

1. There must be a strong intention and real sincerity toward the community in order to be able to obtain the actual information for the needs in participation.

2. The strong support should be given to community members by providing knowledge in regard to the Eco-system and the swamp forest fire prevention.

3. All related government sectors should assist and coordinate with the community regarding equipment, materials, items used for fire prevention. This is to help the community to effectively operate the self-prevention for the future fire occurrence.

### **6.3 RECOMMENDATIONS FOR THE FUTURE RESEARCH STUDIES**

This study reveals the clear picture of an operational process of community participation that can assist in the evaluation for the needs in participation of the community. In order to gain benefit among related sectors, the following study is recommended.

1. To bring in the process of operational research that is adapted for use in stimulating participating feelings among community members that can be used for development in the condition of Kuan Kreng swamp forest.

2. To use the environmental process for knowledge distribution regarding swamp forest Eco-system.

#### **6.3.1 Research Advantages**

1. The research outcome provides the character and the need for community participation in the Kuan Kreng swamp forest fire prevention in Nakhon Sri Thammarat Province.

2. The outcome reveals the influential factors together with problems and obstacles toward community participation in the fire prevention.

3. The outcome can be further used for a development planning of a practical method for community participation in the fire prevention.

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## รายงานผลการสำรวจ พื้นที่ชุ่มน้ำ พรุควนเคร็ง จังหวัดนครศรีธรรมราช

### ที่ตั้ง

พรุควนเคร็ง ตั้งอยู่บริเวณรอยต่อระหว่างลุ่มน้ำปากพนังตอนล่างและลุ่มน้ำทะเลสาบสงขลาตอนบน หรือตั้งอยู่ทางตอนเหนือของทะเลน้อย และทะเลหลวงตอนบนของลุ่มน้ำทะเลสาบสงขลา มีอาณาเขตครอบคลุมพื้นที่ จังหวัด คือ จังหวัดสงขลา ที่อำเภอระโนด จังหวัดพัทลุง ที่อำเภอควนขนุน และจังหวัดนครศรีธรรมราช ที่อำเภอชะอวด อำเภอเชียรใหญ่ อำเภอเฉลิมพระเกียรติ และอำเภอหัวไทร พื้นที่รวมกันประมาณ 195,545 ไร่ โดยทิศเหนือจดคลองชะอวด ทิศใต้ ติดต่อกับทะเลน้อย ทิศตะวันออกห่างจากชายฝั่งทะเลด้านอ่าวไทยประมาณ 14 – 17 กิโลเมตร และทิศตะวันตก ห่างจากทางรถไฟสายใต้ ประมาณ 6 กิโลเมตร

### ความสำคัญ

เป็นที่ราบลุ่มกว้างใหญ่ มีเนื้อที่มากครอบคลุมหลายอำเภอ ในอดีตเคยเป็นแหล่งอยู่อาศัยของจังหวัดนครศรีธรรมราช อุดมสมบูรณ์ทั้งพืชพรรณ สัตว์ป่า และสัตว์น้ำ มีชุมชนอยู่อาศัยกระจัดกระจายรอบ ๆ พรุ และมีวิถีชีวิตในการพึ่งพิงทรัพยากรธรรมชาติในพื้นที่มาเป็นเวลาช้านาน ภายหลังจากเกิดภัยธรรมชาติต่าง ๆ ในอดีต ทั้งวาตภัย และอุทกภัย และการเกิดไฟไหม้ป่าในพื้นที่เป็นประจำต่อเนื่องจนถึงปัจจุบัน ประกอบกับความต้องการใช้ทรัพยากรในพื้นที่ของราษฎรในเพิ่มมากขึ้น และการขยายตัวทางด้านเศรษฐกิจ ทำให้ทรัพยากรธรรมชาติเชิงพรุควนเคร็งลดน้อย และเสื่อมโทรมลงไปมาก

พื้นที่ส่วนใหญ่ของพรุควนเคร็งอยู่ในเขต โครงการพัฒนาลุ่มน้ำปากพนัง อันเนื่องมาจากพระราชดำริ และสำหรับในส่วนที่เป็นป่าสงวนแห่งชาติ เป็นพื้นที่ปลูกป่าขนาดใหญ่ในโครงการปลูกป่าถาวรเฉลิมพระเกียรติ ฯ นอกจากนั้นพรุควนเคร็งมีอาณาเขตติดต่อกับทะเลน้อย ซึ่งมีพื้นที่บางส่วน ได้ประกาศเป็นพื้นที่ชุ่มน้ำที่มีความสำคัญระดับนานาชาติ เช่น Ramsar site แห่งแรกของประเทศ

### ลักษณะภูมิประเทศ ภูมิอากาศ และลักษณะดิน

ภูมิประเทศของพรุควนเคิ่งมีลักษณะเป็นที่ราบลุ่มกว้างใหญ่ เป็นแหล่งรองรับและกักเก็บน้ำจากบริเวณที่สูงแล้วค่อย ๆ ปล่อยลงสู่แม่น้ำปากนัง ซึ่งเป็นแม่น้ำหลักที่สำคัญของจังหวัดนครศรีธรรมราช อันเป็นแหล่งอยู่อาศัยน้ำที่สำคัญในอดีต บางช่วงจะมีน้ำท่วมขังบ้าง โดยธรรมชาติของพรุควนเคิ่งใน 1 ปี นั้นจะมีน้ำขังประมาณ 4 – 5 เดือน ในช่วงเดือนพฤศจิกายนถึงเดือนกุมภาพันธ์หรือเดือนมีนาคม จากนั้นน้ำจะแห้งเป็นเวลาประมาณ 7 – 8 เดือน พื้นที่รอบ ๆ พรุ เป็นที่อยู่อาศัยและที่ดินทำกินของราษฎร บางส่วนก็รูก้ำเข้ามาอยู่ในที่ป่าพรุ ซึ่งเป็นประเภทป่าดงดิบไม่ผลัดใบ มีสภาพเป็นป่าสงวนแห่งชาติ

ลักษณะภูมิอากาศเป็นแบบมรสุมเขตร้อน มี 2 ฤดูกาล คือ ฤดูฝน และฤดูร้อน มีปริมาณฝนตก เฉลี่ย 2,100 – 2,200 มิลลิเมตรต่อปี อุณหภูมิเฉลี่ย 27 องศาเซลเซียส และปริมาณน้ำระเหยเฉลี่ย 1,000 มิลลิเมตรต่อปี

สำหรับดินในพรุควนเคิ่งเป็นดินชุดนราธิวาส ซึ่งเป็นดินอินทรีย์วัตถุจำนวน 40% และเป็นดินอินทรีย์ 60% แต่ทั้งหมดถูกจัดเป็นดินกรดซัลเฟต ซึ่งจะทำให้เป็นกรดกำมะถันเมื่อสัมผัสกับอากาศ มีสภาพเป็นดินเปรี้ยว ไม่เหมาะกับการเกษตร และควรอนุรักษ์ไว้เป็นป่าพรุ โดยเฉพาะการเก็บกักน้ำให้ท่วมผิวดินไว้ เพื่อเป็นการป้องกันการเกิดกรดกำมะถันได้เป็นอย่างดี

ลักษณะพืชพรรณ

ในอดีตป่าพรุควนเคิ่งเป็นป่าพรุที่มีความยิ่งใหญ่ อุดมสมบูรณ์ และมีความหลากหลายทางชีวภาพ ทั้งพืชพรรณ สัตว์ป่า และสัตว์น้ำ ป่าพรุที่สมบูรณ์ชาวบ้านเรียกว่า “ป่าเขียว” ส่วนพื้นที่ที่น้ำท่วมไม่ถึงบริเวณรอบ ๆ พรุ ชาวบ้านแถบนี้เรียกว่า “ป่าสูง” (ป่าดงดิบ) เนื่องจากสาเหตุการเกิดภัยธรรมชาติที่ผ่านมา ทั้งवादภัยถล่มแหลมตะลุมพุก ในปี พ.ศ. 2505 และมหาอุทกภัย ในปี พ.ศ. 2518 และ พ.ศ. 2531 ทำให้สภาพป่าพรุเสื่อมโทรมอย่างรวดเร็ว ประกอบกับการเพิ่มขึ้นของประชากร และการขยายตัวทางเศรษฐกิจ ทำให้วิถีการดำเนินชีวิตปรับเปลี่ยนไป ส่งผลกระทบต่อสถานภาพทรัพยากรเป็นอย่างมาก ป่าสูง (ป่าดงดิบ) ที่อยู่รอบ ๆ ป่าพรุก็กลายเป็นพื้นที่การเกษตร ที่ตั้งบ้านเรือน พรรณไม้ที่สำคัญ เช่น ตะเคียน ยาง ก็สูญหายไป ส่วนในบริเวณป่าเขียว อดีตเคยสมบูรณ์เหมือนป่าพรุโต๊ะแดง ปัจจุบันมีสภาพเสื่อมโทรม และกำลังฟื้นตัวอย่างช้า ๆ ไม้ดั้งเดิมในอดีตหายากมาก เช่น ไม้เตยว ไม้หروب ไม้กัลก ดินเป็ดน้ำ จะพบแต่ไม้เสม็ดขาว กระจูด ปรีอ และพวกหญ้าเป็นส่วนใหญ่ ส่วนสัตว์ป่าในอดีตที่เคยพบ เช่น ช้าง กวาง กระจง เสือ

นกอีลุ้มหัวล้าน ปัจจุบันจะพบเฉพาะสัตว์ขนาดเล็ก เช่น ลิง กระจอก กระแต นกน้ำต่าง ๆ และสัตว์น้ำพวกปลาต่าง ๆ

ปัจจุบัน ลักษณะพืชพรรณของป่าพรุควนเคร็ง เป็นสังคมพืชป่าพรุแบบเปลี่ยนสภาพ (Secondary Swamp Forest) ประกอบด้วยพืชไม้เสม็ดขาว เป็น ไม้เด่น ซึ่งขึ้นแทนป่าพรุดั้งเดิมที่ถูกทำลายไป โดยกระจายอยู่รอบบริเวณสันดอนของหนองน้ำ มีพรรณไม้ของป่าพรุดั้งเดิมแทรกกระจายอยู่ทั่วไป พื้นที่พรุสามารถแบ่งออกได้เป็นหลายลักษณะตามลักษณะพืชพรรณ กล่าวคือ ตอนล่างที่ติดกับทะเลน้อยจะเป็นพืชพวก กก จูด และหญ้า ตอนกลางเป็นพืชพวกเสม็ด และจูด และตอนเหนือเป็นพืชพวกเสม็ดและหญ้า

### ประวัติความเป็นมาของชุมชน

ชุมชนบริเวณรอบป่าพรุควนเคร็ง ตั้งถิ่นฐานมานานกว่า 200 ปี ราษฎรที่อพยพเข้ามาช่วงแรก ๆ เพื่อต้องการจับจองพื้นที่ทำกิน เช่น บรรพบุรุษของชาวบ้านคงคาล้อม ตำบลแม่เจ้าอยู่หัว อำเภอยะใหญ่ และในบางพื้นที่เข้ามาตั้งถิ่นฐานเพราะหนีการจับกุมของเจ้าหน้าที่ ในอดีตพื้นที่แห่งนี้เป็นที่ป่าแน่นทึบเหมาะต่อการหลบหนีเข้ามาอยู่ สำหรับชื่อควนเคร็ง เป็นชื่อเรียกพื้นที่ทั่ว ๆ ไปของป่าพรุแห่งนี้ ผู้ที่มาบุกเบิกที่ดินแห่งนี้เดิม คือ ขุนสมักรเขตนิยม (ตันตระกูลขาวผ่อง) ได้นำพรรคพวกมาตั้งถิ่นฐานครั้งแรกที่บ้านควนเคร็ง (หมู่ที่ 4 ในปัจจุบัน) ผู้คนดำรงชีวิตด้วยความรัก สามัคคี ตั้งอยู่ในศีลธรรม คนภายนอกจึงเรียกว่า “ควนเคร็ง” ต่อมากลายเป็น “ควนเคร็ง” จนถึงทุกวันนี้ ครอบครัวที่ย้ายมาอยู่แรก ๆ ย้ายมาจากอำเภอหัวไทร จังหวัดนครศรีธรรมราช จากจังหวัดพัทลุง และจากพื้นที่อื่น ๆ ส่วนใหญ่แล้วย้ายมาจากพื้นที่ใกล้เคียง เพราะยังมีความผูกพันฉันท์พี่น้องจึงต้องไปมาหาสู่กันอยู่บ่อย ๆ

### สภาพเศรษฐกิจและสังคม

อาชีพโดยทั่วไปของคนรอบพรุ คือ การทำนา แต่ด้วยทรัพยากรธรรมชาติที่เป็นจุดเด่นของพรุควนเคร็ง ทำให้คนในพื้นที่ยึดอาชีพการทำประมงพื้นบ้าน และอาชีพจักสานผลิตภัณฑ์จากต้นกระจูด เป็นอาชีพหลักหรือเสริมแล้วแต่สภาพพื้นที่ การประมงและการจักสานจึงเป็นกิจกรรมทางเศรษฐกิจที่สร้างรายได้และอาหารให้กับชาวบ้านแถบนั้นมาช้านาน นอกจากนี้ อาชีพรองลงมา ได้แก่ การเลี้ยงสัตว์ โดยเฉพาะโค และกระบือมีการเลี้ยงกันมาก การเก็บหากระจูด การจับปลา การต่อเรือ การทอผ้า และอาชีพรับจ้างนอกพื้นที่

### ประเพณี วัฒนธรรม ความเชื่อ

ชุมชนต่าง ๆ ที่ตั้งอยู่บริเวณป่าพรุควนเคร็ง ลักษณะของการตั้งบ้านเรือนกระจายตามแนวถนน หรือตามริมแม่น้ำ การสร้างบ้านเรือนสมัยก่อนจะคำนึงระดับน้ำที่ท่วมถึงเป็นสำคัญ และสร้างบ้านเรือนโดยยกพื้นสูงเพื่อป้องกันน้ำท่วม ความสัมพันธ์ของชาวบ้านในชุมชนเป็นแบบเครือญาติ ประเพณีวัฒนธรรมของชุมชนป่าพรุโดยทั่วไปเป็นแบบชาวพุทธ ประเพณีส่วนใหญ่ปฏิบัติสืบต่อกันมาจากบรรพบุรุษ เช่น ประเพณีทำบุญเดือนสิบ (วันสารท) ประเพณีชักพระ ประเพณีสงกรานต์ ประเพณีลอยกระทง และประเพณีที่เกี่ยวกับวันสำคัญทางศาสนาต่าง ๆ

ความเชื่อต่าง ๆ นั้นจะถูกพันกับวิถีดำรงชีพในป่าพรุที่มีมาตั้งแต่บรรพบุรุษ คือ การนับถือดาอินทร์แก้ว ดาอินทร์ทอง เป็นที่ยึดเหนี่ยวจิตใจ ซึ่งจะมีการบนบานศาลกล่าวเพื่อให้ท่านปกปักรักษาทั้งในเรื่องของการประกอบอาชีพ ความปลอดภัยในชีวิตและทรัพย์สิน หรือแม้กระทั่งการออกเรือไปหาปลา ก็มีการบนบานศาลกล่าวแก่ท่านก่อนเสมอ แม้แต่ความเชื่อในเรื่องของเรือที่ต่อเสร็จใหม่ต้องมีการทำพิธีก่อนนำเรือลงน้ำเสียก่อน ปัจจุบันนี้ช่างต่อเรือส่วนใหญ่จะเป็นคนรุ่นเก่า ๆ จะเป็นคนทำพิธีให้เพราะความเชื่อของผู้ที่มาว่าจ้างให้ต่อเรือค่อย ๆ เลือนหายไป ปัจจุบันแม้การเชื่อมโยงของความเชื่อต่าง ๆ จะน้อยลงแต่คนรุ่นหลังก็ยังมีปฏิบัติกันอยู่บ้าง

### การใช้ประโยชน์ในพื้นที่

เนื่องจากพรุควนเคร็ง เป็นพื้นที่ราบลุ่มมีเนื้อที่กว้างขวาง โดยประมาณ 200,000 ไร่ มีชุมชนต่าง ๆ อยู่กระจัดกระจายในพื้นที่ และมีการใช้ประโยชน์ที่ดินหลายรูปแบบ พื้นที่บางส่วนอยู่ในเขตป่าสงวนแห่งชาติ ซึ่งส่วนใหญ่จะอยู่ในพื้นที่โครงการพัฒนาลุ่มน้ำปากพนังอันเนื่องมาจากพระราชดำริ

### พืชสมุนไพร

ในป่า พืชสมุนไพรหลายชนิดสามารถนำมารักษาโรคได้ ด้วยภูมิปัญญาดั้งเดิม เช่น เทียนน้ำ ฟ้าทะลายโจร

### พืชเพื่อการเลี้ยงสัตว์

เช่น สาหร่ายใหญ่ (สาหร่ายใหญ่) นิยมนำมาเลี้ยงหมูพื้นบ้าน (หมูจี๊พรี้า) กระจูดหนู และหญ้าชนิดต่าง ๆ เป็นอาหารของควาย ชาวบ้านมีการเลี้ยงควายในป่าพรุ และตัดหญ้าไปเลี้ยงวัว

ควาย ในช่วงฤดูน้ำท่วมชาวบ้านจะพายเรือมาเลือกตัดหญ้าที่เป็นอาหารของวัวควาย แล้วใส่เรือกลับไปเลี้ยงสัตว์ที่บ้าน

### พืชที่สร้างรายได้ให้กับชุมชน

“กระจุค” เป็นพืชดั้งเดิมที่พบเห็นได้ทั่วไปในป่าพรุ และบางพื้นที่มีการอนุรักษ์ไว้เพื่อประโยชน์ใช้สอยของชุมชนต่อไป อาชีพถอนกระจุคและसानกระจุคขาย ถือได้ว่าเป็นอาชีพพื้นเพดั้งเดิมของชุมชน ในแต่ละปีจะสร้างรายได้ให้กับคนที่ประกอบอาชีพนี้ได้มากพอสมควร กระจุคสามารถเก็บหา (ถอนกระจุค) ได้ทั้งปี ซึ่งการทำกระจุคให้อยู่ในรูปผลิตภัณฑ์ต่าง ๆ ต้องผ่านขั้นตอนกระบวนการแปรรูปต่าง ๆ มากมาย

สำหรับพรรณพืชป่าพรุที่ชุมชนใช้ประโยชน์ ตามตารางที่ 2 และชนิดพันธุ์พืชที่พบในพื้นที่ป่าพรุควนเค็ริง สรุปได้ตาม ตารางที่ 3

### ตารางที่ 2 พืชพรรณป่าพรุที่ชุมชนใช้ประโยชน์

ชื่อท้องถิ่น	การใช้ประโยชน์
พืชอาหาร	
เสม็ดชุน	กินสด จิมน้ำพริก
ลำเพ็ง	แกงเลียง
ยอดจิกน้ำ	กินสด จิมน้ำพริก
ยอดสะเดียว	กินสด จิมน้ำพริก
ยอดทุมพระ	กินสด จิมน้ำพริก
ยอดมังกะ	กินสด จิมน้ำพริก
บัวบก	กินสด จิมน้ำพริก แกงเผ็ด แกงกะทิ
ผักบุ้ง	กินสด ลวกจิมน้ำพริก ผัด แกงเทโพ
เต้าร้าง	กินสด ลวกจิมน้ำพริก แกงส้ม
พืชสมุนไพร	
ฟ้าทลายโจร	ต้มน้ำแก้ความดันโลหิต
เทียนน้ำ	แก้โรคที่บระดูในสตรี
พืชใช้สอย	
กระจุค	सानเสื่อ ผลิตภัณฑ์จากกระจุค

ชื่อท้องถิ่น	การใช้ประโยชน์
เสม็ดขาว	ก่อสร้างขนาก คอกสัตว์ ค้ำยัน เปลือกใช้มุงหลังคาแทนสังกะสี เป็นท่อนหาปลา
หว้าหิน	ก่อสร้าง ไม้ฟัน
พังลา	ก่อสร้าง ไม้ฟัน
สะเดียว	ก่อสร้างภายใน
ปรือ	ใช้สานมุงหลังคา
คลุ้ม, คล้า	ต้นใช้สานเสื่อ หัวเข้ายาสมุนไพร
กระจุคหนู	เลี้ยงวัว, ควาย
หญ้าชนิดต่าง ๆ	ใช้เลี้ยงสัตว์เช่น วัว ควาย

### ตารางที่ 3 ชนิดพันธุ์พืชที่พบในพื้นที่ป่าพรุควนเคร็ง

ลำดับที่	ชื่อสามัญ	ชื่อวิทยาศาสตร์	ชื่อวงศ์	รูปแบบชีวิต
1	ลำเพ็ญ	<i>Stenochlaena palustris</i> Bedd.	Polypodiaceae	เฟินเลื้อย
2	พาโหม	<i>Paederia linearis</i> Hook.f.	Rubiaceae	ไม้เลื้อย
3	จิกน้ำ	<i>Barringtonia acutangula</i>	Barringtoniaceae	ไม้ยืนต้น
4	ชุมเห็ดเทศ	<i>Cassia alata</i>	Caesalpiniaceae	ไม้พุ่มต่างประเทศ
5	สนทราย	<i>Baeckia frutescens</i> Linn.	Myrtaceae	ไม้พุ่มยืนต้น
6	ผักกูดขม	<i>Blechnum indicum</i>	Blechnaceae	เฟิน
7	หญ้าตีนกา	<i>Cyperus diffusus</i>	Cyperaceae	ไม้ล้มลุก
8	เสม็ดขาว	<i>Melaleuca cajuputi</i> Powell	Myrtaceae	ไม้ยืนต้น
9	ทุ	<i>Rhodomyrtus tomentosa</i> Wight	Myrtaceae	ไม้พุ่ม
10	หญ้าเหี่ยวหมู	<i>Cyperus rotundus</i>	Cyperaceae	ไม้ล้มลุก
11	सान้ำ	<i>Dillenia pulchella</i>	Dilleniaceae	ไม้ยืนต้น
12	ตะเคียนทอง	<i>Hopea odorata</i>	Dipterocarpaceae	ไม้ยืนต้น
13	เสม็ดแดงใบมน	<i>Eugenia spicata</i> Lamk.	Myrtaceae	ไม้ยืนต้น
14	โคลงเคลง	<i>Melastoma candidum</i> D.Don	Melastomataceae	ไม้พุ่ม
15	มังเร	<i>Melastoma malabathricum</i> Linn.	Melastomataceae	ไม้พุ่ม
16	เลา	<i>Saccharum sponaneum</i>	Gramineae	หญ้า
17	ย่านปลด	<i>Stephania japonica</i>	Menispermaceae	ไม้เลื้อย
18	หว้าน้ำ	<i>Eugenia oblata</i> Roxb.	Myrtaceae	ไม้ยืนต้น
19	เมา	<i>Eugenia grandis</i> Wight	Myrtaceae	ไม้ยืนต้น

ลำดับ ที่	ชื่อสามัญ	ชื่อวิทยาศาสตร์	ชื่อวงศ์	รูปแบบชีวิต
21	สาบเสือ	<i>Eupatorium odoratum</i>	Compositae	ไม้ล้มลุกต่างประเทศ
21	เต่าร้าง	<i>Caryota mitis</i> Lour	Palmae	ไม้ปาล์ม
22	หม้อข้าวหม้อแกงลิง	<i>Nepenthes</i> sp.	Nepenthaceae	ไม้เลื้อย
23	สะเดี้ยว	<i>Ganua motleyana</i>	Sapotaceae	ไม้ยืนต้น
24	กระจุย	<i>Lepironia articulata</i>	Cyperaceae	ไม้ล้มลุก
25	ผักบุ้ง	<i>Ipomoea aquatica</i>	Convolvulaceae	ไม้เลื้อยล้มลุก
26	บัวบก	<i>Centella asiatica</i>	Umbelliferae	ไม้เลื้อยต่างประเทศ
27	หว่าหีน	<i>Eugenia scortechinii</i>	Myrtaceae	ไม้ยืนต้น
28	ปรีอ	<i>Scleria poaeformis</i>	Cyperaceae	ไม้ล้มลุก
29	เทียนนา	<i>Hydrocera triflora</i>	Balsaminaceae	ไม้ล้มลุก
30	จิกนา	<i>Barringtonia acutangola</i>	Barringtoniaceae	ไม้พุ่มยืนต้น
31	เพกา	<i>Oroxylum indicum</i>	Bignoniaceae	ไม้พุ่มยืนต้น
32	มะคะ	<i>Cynometra ramiflora</i>	Caesalpinceae	ไม้ยืนต้น
33	กุ่มน้ำ	<i>Crateva magna</i>	Capparidaceae	ไม้ยืนต้น
34	กกเหลี่ยม	<i>Syringodium isoetifolium</i>	Cymoaceae	ไม้ล้มลุก
35	กกसानเสือ	<i>Cyperus corymbosus</i>	Cyperaceae	ไม้ล้มลุก
36	หญ้าคมบาง	<i>Scleria scrobiculata</i>	Cyperaceae	ไม้ล้มลุก
37	มันปู	<i>Glochidion wallichianum</i>	Euphorbiaceae	ไม้พุ่มยืนต้น
38	โพบาย	<i>Sapium baccatum</i>	Euphorbiaceae	ไม้ยืนต้น
39	กง	<i>Hanguan Malayana</i>	Halorgidaceae	ไม้ล้มลุก
40	พริ้นกุ่ม	<i>Curuligo megacarpa</i>	Hypoxidaceae	ไม้ล้มลุก
41	คล้า	<i>Schumanniamthus dichotomus</i>	Marantaceae	ไม้ล้มลุก
42	ผักแว่น	<i>Marsilea crenata</i>	Marantaceae	เฟินน้ำ
43	บัวสาย	<i>Nymphaea lotus</i>	Nymphaeaceae	ไม้เลื้อยน้ำต่างประเทศ
44	บัวเผื่อน	<i>Nymphaea nouchali</i>	Nymphaeaceae	ไม้เลื้อยน้ำ
45	เทียนนา	<i>Fissendocarpa linifolia</i>	Onagraceae	ไม้เลื้อย
46	กะพ้อ	<i>Licuala paludosa</i>	Palmae	ไม้ปาล์ม
47	สาธู	<i>Metroxylon sagus</i>	Palmae	ไม้ปาล์มต่างประเทศ
48	เตยพुरु	<i>Pandanus militaris</i>	Pandanaceae	ไม้พุ่มยืนต้น
49	ผักตบชวา	<i>Eichhornia crassipes</i>	Pontedriaceae	ไม้เลื้อยน้ำต่างประเทศ
50	ผักตบไทย	<i>Monochoria hastata</i>	Pontedriaceae	ไม้เลื้อยน้ำ

ลำดับ ที่	ชื่อสามัญ	ชื่อวิทยาศาสตร์	ชื่อวงศ์	รูปแบบชีวิต
51	พังโหม	Paederia foetida	Rubiaceae	ไม้เถา
52	ย่านพาโหม	Paederia tomentosa var.glabra	Rubiaceae	ไม้เถา
53	ลิเกายู่่ง	Lygodium microphyllum	Schizaeaceae	ไม้เฟินเลื้อย
54	ลิเกาใหญ่	Lygodium salicifolium	Schizaeaceae	ไม้เฟินเลื้อย
55	เมาไข่ปลา	Antidesma ghaesembilla	Sulaginaceae	ไม้พุ่มยืนต้น
56	แพ	Eugenia polyantha Wight	Myrtaceae	ไม้ยืนต้น

### ทรัพยากรสัตว์น้ำ

สัตว์น้ำที่พบมากที่สุดในปัจจุบันนั้น คือ ปลาช่อน ซึ่งมีทั้งปลาช่อนท้องขาว เป็นปลาช่อนที่มีขนาดใหญ่ที่สุดและปัจจุบันมีมากที่สุด นอกจากปลาช่อนท้องขาวแล้วยังมีปลาช่อนไซ ปลาช่อนคล้ำ ปลาตุ๊กเนื้ออ่อน ซึ่งพบมากที่สุดในบรรดาปลาตุ๊กทั้งหมดเป็นที่นิยมของท้องตลาด นอกจากนั้นยังมีปลาตุ๊กดำ และปลาตุ๊กดำ นอกจากนั้นยังพบปลาหมอ ปลาไหลกล้วย ปลาไหลบอน ซึ่งอาศัยอยู่ใกล้ ๆ ที่มีต้นบอนขึ้นอยู่ ปลาไหลจาก ซึ่งมีกอาศัยอยู่ตามซอกของของต้นจาก ยังพบปลาอีกหลายชนิดในป่าพรุ ได้แก่ ปลากระทิง ปลาหลด ปลาฉลาม ปลาชิว ปลาอีซัน ปลาสลิค ปลาชะโด ปลาโอน ปลาเย่ ฯลฯ (ตารางที่ 4)

นอกจากปลายังมีสัตว์น้ำจำพวกเต่า ซึ่งมีทั้งเต่าดำ เต่ากา เต่าคืบ เต่าโพ เต่าจิ้งเต่า ยาง ตะพานน้ำ ปิน (มีลักษณะคล้ายตะพานน้ำแต่มีกลิ่นกว่าตะพานน้ำ และกระดองจะใหญ่กว่า) ปัจจุบันสัตว์เหล่านี้หายากขึ้นทุกที นอกจากนั้นยังมีพวกหอยต่าง ๆ เช่น หอยโข่ง หอยขม

สำหรับเครื่องมือและเหยื่อที่ใช้ในการจับปลาแต่ละชนิดแตกต่างกันไป แต่ที่มีให้พบเห็นมากที่สุด คือ ไซ ลัน เบ็ดธง เหยื่อที่ใช้มีทั้งไส้เดือน ปลาเล็กปลาน้อย ลูกปู หอยโข่ง ลูกเจี๊ยด

### 1. ทรัพยากรสัตว์ป่า

สัตว์ป่าที่พบเห็นในปัจจุบัน ได้แก่ พวกหนูซึ่งปัจจุบันเป็นปัญหาที่สำคัญต่อการทำนาของราษฎร ลิงลม มะสัง งูเห่า งูสิง งูปากกว้าง งูเหลือม ส่วนสัตว์ใหญ่ไม่พบเห็นแล้ว สัตว์ที่พบเห็นได้ทั่วไปในป่าพรุ คือสัตว์จำพวกนก ซึ่งมีทั้งนกที่อพยพมาบางช่วงฤดูกาล ซึ่งจะมีมากช่วงเดือน มกราคม – กุมภาพันธ์ เช่น นกสั๊ก นกยาง นกเป็ดน้ำ ส่วนนกที่พบเห็นได้เกือบตลอดปี เช่น นกพริก นกปลีกล้วย นกปรอดหัวโขน (นกรองหัวจุก) นกเป็ดน้ำ นกขมิ้นไขเป็ด นกขมิ้นแดง นกขัน

ปรือ นกชั้นฉีกผ้าร้าย นกชั้นครึ่ง นกกวัก นกเค้าแมว ฯลฯ ผึ้งกึ่งมีทั้ง ผึ้งงูเหลือม ผึ้งหนอกว้าว ผึ้งคอกวาง ผึ้งหูช้าง ผึ้งแมลงวัน (ตารางที่ 4)

#### ตารางที่ 4 สัตว์ที่พบในป่าพรุ

สัตว์น้ำ (ชื่อท้องถิ่น)	สัตว์ป่า (ชื่อท้องถิ่น)
ปลาช่อนทองขาว	นกชนไขเป็ด
ปลาช่อนไซ	นกชนแดง
ปลาช่อนคล้ำ	นกชนปรือ
ปลาคูกเนื้ออ่อน	นกชั้นฉีกผ้าร้าย
ปลาคูกรำพัน	นกชั้นครึ่ง
ปลาคูกดำ	นกกวัก
ปลาคูกค้างหรือปลาคูกเลา	นกอีลุ้มแม่ไก่
ปลาไหลกล้าย	นกตัก
ปลาไหลบอน	นกกระยาง
ปลาไหลจาก	นกเป็ดน้ำ
ปลาหมอ	ลิงลม
ปลาฉลาด	มะสัง
ปลากระทิงควาย	ผึ้งงูเหลือม
ปลากระทิงดอกไม้	ผึ้งหนอกว้าว
ปลาหลด	ผึ้งหูช้าง
ปลาอีซัว	ผึ้งแมลงวัน
ปลาชีว	งูเหลือม
ปลาชะโด	งูเห่า
ปลาโตน	งูปากกว้าง
ปลากระทิง	

#### อันตรายของพื้นที่

อันตรายของพื้นที่ที่สำคัญ คือ ปัญหาความเสื่อมโทรมของทรัพยากรในพื้นที่ป่าพรุควนเคร็ง ซึ่งมหาวิทยาลัยสงขลานครินทร์ (2545) ได้จำแนกไว้ ประกอบด้วย

1. ปัญหาการประมง ได้แก่ การใช้เครื่องมือที่ไม่เหมาะสมในการทำประมง

- การซื้อปลา การซื้อปลาด้วยกระแสไฟฟ้า ทำให้ปริมาณปลาและสัตว์อื่น ๆ ลดลงอย่างรวดเร็ว โดยเฉพาะปี 2544 มีปัญหาความรุนแรงของการซื้อปลามากที่สุด ซึ่งการซื้อปลาสามารถทำได้ตลอดทั้งปี และจะทำกันมากในช่วงฤดูแล้ง ประมาณเดือนเมษายน – มิถุนายน ของทุกปี และบางหมู่บ้านทำการซื้อปลาเกือบทุกครัวเรือน
- การเบียดปลา หรือการใช้ยาเบื่อ เป็นยาจำพวกยาฆ่าแมลงหรือยาฆ่าหญ้า ซึ่งมีสารไซยาไนด์เป็นส่วนประกอบ การเบียดปลามีการใช้กันมานานแล้ว ซึ่งในช่วงปี 2544 มีการใช้ยาเบียดกันมากที่สุด การใช้ยาเบียดมีผลต่อการทำลายสัตว์น้ำให้ร่อยหรอลงไป และมีผลต่อการวางไข่ของปลา
- ปัญหาอื่น ๆ ได้แก่ การขุดล่อปลา จะขุดบ่อขนาดกว้าง 5 – 8 ม. ยาว 10 – 15 ม. ลึก 1.5 – 2 ม. บริเวณชายขอบพรุและในพรุ และบริเวณริมที่นา ผลของการขุดล่อปลา ทำให้ปลาไม่สามารถขยายพันธุ์ไปยังที่ต่าง ๆ ได้ นอกจากนั้นยังเป็นอันตรายต่อโคและกระบือที่ออกมาหญ้าในป่าพรุ ทำให้ตกบ่อจมน้ำตายได้
- การใช้วนครอบปลา ซึ่งเป็นการใช้เครื่องมือจับที่ผิดกฎหมาย
- การใช้สิ่งกีดขวางในลำคลองเพื่อวางขอ เช่น การใช้วนตาถี่ขวางคลองและด้านหน้าของวนตาถี่ ชาวบ้านจะวางขอไว้
- การใช้กัณฑ์ และสวิงจับลูกปลา โดยเฉพาะลูกปลาชะโด ซึ่งกัณฑ์ใช้จับจะมีขนาดไม่ถึง 3 เซนติเมตร ทำให้ปริมาณปลาลดลงมาก

## 2. ปัญหาการตัดกระจูด

เดิมกระจูด จะใช้วิธีการถอนเพียงอย่างเดียว ซึ่งเป็นวิธีการที่ช่วยอนุรักษ์กระจูด ช่วยให้กระจูดมีไว้ใช้อย่างยั่งยืน เนื่องจากกระจูดงอกใหม่ได้และงอกได้รวดเร็ว และวิธีการถอนกระจูดนั้น คนถอนกระจูดจะเลือกขนาดใหญ่ที่เหมาะสม แต่ถ้าขาดจิตสำนึกในการอนุรักษ์กระจูด โดยการตัดกระจูดแทนที่จะถอน ต้นกระจูดอาจแคะแกระ็น ทำให้กระจูดงอกช้า และเมื่อใช้วิธีการตัดกระจูดในระดับใต้ผิวน้ำ ทำให้กระจูดตายได้ และการตัดกระจูดนั้นคนตัดจะไม่เล็กว่่าต้นอ่อนหรือต้นแก่ โดยจะรวบทีเดียวแล้วตัด เพราะสะดวกและรวดเร็วและได้ปริมาณมากกว่าการถอน ทำให้กระจูดโทรมเร็ว ซึ่งจากการเปรียบเทียบระหว่างการถอนกับการตัดนั้น การตัดกระจูด 1 คน ใน 1 วัน สามารถตัดได้ประมาณ 60 มัด ส่วนการถอนใน 1 วัน จะสามารถถอนได้เพียง 20 มัด ดังนั้น การตัดกระจูดจะส่งผลให้กระจูดลดลงอย่างรวดเร็วมากกว่าการถอน

## 3. ปัญหาไฟไหม้ป่า

การเกิดไฟไหม้ป่า เป็นปัญหาที่สำคัญที่สุดของพรุควนเคร็ง โดยเฉพาะช่วงหน้าแล้ง ระหว่างเดือน มีนาคม – มิถุนายน ของทุกปี ประกอบกับสภาพของป่าพรุเป็นที่ลุ่มมีน้ำขัง

บางแห่งมีซากพืช และอินทรีย์วัตถุ (peat) ทับถมหนาแน่น ด้วยสภาพที่เป็นกรดจัด อินทรีย์วัตถุเหล่านี้สลายตัวได้ยาก เมื่อพายุกระแสน้ำออก หรือป่าถูกแผ้วถาง โอกาสที่จะเกิดไฟไหม้ป่ารุนแรงเป็นไปได้สูง เนื่องจากพายุควนเคิ่งพื้นที่ส่วนใหญ่เป็นป่าสงวนแห่งชาติ ราษฎรได้เข้าไปใช้ประโยชน์ในพื้นที่มาเป็นเวลาช้านาน ความขัดแย้งในการใช้ประโยชน์ที่ดินจึงเป็นสาเหตุสำคัญทำให้เกิดไฟป่าในบริเวณป่าพายุควนเคิ่งทุกปี ซึ่งจากข้อมูลสถิติการเกิดไฟป่า ครั้งที่สำคัญที่ทำให้ความเสียหายอย่างใหญ่หลวงให้แก่ป่าพายุควนเคิ่ง สรุปได้ตามตารางที่ 5 และสำหรับในปี 2545 จากการรายงานของสำนักงานป่าไม้จังหวัดนครศรีธรรมราช มีการเกิดไฟป่า สรุปได้ตามตารางที่ 6

**ตารางที่ 5 สถิติการเกิดไฟป่าครั้งใหญ่ ที่ทำความเสียหายอย่างมากให้กับป่าพายุควนเคิ่ง จังหวัดนครศรีธรรมราช**

วัน/เดือน/ปี	ท้องที่	พื้นที่เสียหาย (ไร่)	สาเหตุ	หมายเหตุ
13 ส.ค. 41	ป่าสงวน ๑ ป่าบ้านกุ่มแปะ ป่าบ้านในกลุ่ม ป่าพายุควนเคิ่ง ท้องที่อำเภอชะอวด	7,000	<ul style="list-style-type: none"> <li>- สภาพอากาศเกิดภาวะแห้งแล้งฝนทิ้งช่วงยาวนาน</li> <li>- การบุกรุกและครอบครองพื้นที่ของราษฎร เพื่อหวังผลเอกสารสิทธิ สปก. 4-01</li> <li>- ผู้มีอิทธิพลและนักลงทุนต่างชาติ ต้องการครอบครองพื้นที่เพื่อทำสวนปาล์ม โดยจ้างราษฎรเผาป่า และใช้เครื่องจักรกลเข้าไปดำเนินการ</li> </ul>	จากการบินสำรวจทางอากาศ รายงานโดยสำนักงานป่าไม้จังหวัดนครศรีธรรมราช ซึ่งเกิดไฟไหม้ป่าตั้งแต่เดือนมีนาคม 2541
10 – 16 ส.ค. 45	ป่าสงวน ๑ ป่าบ้านกุ่มแปะ ป่าบ้านในกลุ่ม ป่าพายุควนเคิ่ง ท้องที่ต.บ้านตุล อ.ชะอวด ป่าสงวน ๑ ป่าคลองค้อง ท้องที่ ต.สวนหลวง อ.เฉลิมพระเกียรติ	1,330	- หาของป่า	จากการรายงานของสำนักงานป่าไม้จังหวัดนครศรีธรรมราช

ตารางที่ 6 สถิติการเกิดไฟป่าในป่าพรุควนเคร็ง ท้องที่จังหวัดนครศรีธรรมราช ประจำปี 2545

ลำดับ ที่	วัน/เดือน/ปี	ชื่อป่าสงวน ฯ	ท้องที่	พื้นที่เสียหาย (ไร่)	สาเหตุ
1	14 มี.ค. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่า พรุควนเคร็ง	ต.เคร็ง อ.ชะอวด	150	เผาไร่
2	18 มี.ค. 45	ป่าคลองค้อง	ต.แม่เจ้าอยู่หัว อ.เชียรใหญ่	20	เผาไร่
3	1 เม.ย. 45	ป่าคลองค้อง	ต.สวนหลวง อ.เฉลิมพระเกียรติ	15	เลี้ยงสัตว์
4	1 เม.ย. 45	ป่าคอนทรายและป่าคลอง	ต.ทางพูน อ.เฉลิมพระเกียรติ	300	เลี้ยงสัตว์
5	3 เม.ย. 45	ป่าคอนทรายและป่าคลอง	ต.ทางพูน อ.เฉลิมพระเกียรติ	150	เลี้ยงสัตว์
6	3 เม.ย. 45	ป่าคลองค้อง	ต.สวนหลวง อ.เฉลิมพระเกียรติ	150	เลี้ยงสัตว์
7	7 เม.ย. 45	ป่าคอนทรายและป่าคลอง	ต.ทางพูน อ.เฉลิมพระเกียรติ	160	เผาไร่
8	11 เม.ย. 45	ป่าคลองค้อง	ต.แม่เจ้าอยู่หัว อ.เชียรใหญ่	150	หาของป่า
9	12 เม.ย. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่าพรุควนเคร็ง	ต.เคร็ง อ.ชะอวด	50	หาของป่า
10	13 เม.ย. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่าพรุควนเคร็ง	ต.เคร็ง อ.ชะอวด	150	หาของป่า
11	16 เม.ย. 45	ป่าคลองค้อง	ต.แม่เจ้าอยู่หัว อ.เชียรใหญ่	20	เผาไร่
12	18-19 เม.ย. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่าพรุควนเคร็ง	ต.เคร็ง อ.ชะอวด	500	เผาไร่
13	19 เม.ย. 45	ป่าคลองค้อง	ต.แม่เจ้าอยู่หัว อ.เชียรใหญ่	50	เผาไร่
14	21 เม.ย. 45	ป่าคลองค้อง	ต.สวนหลวง อ.เฉลิมพระเกียรติ	35	เผาไร่
15	21 เม.ย. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่า พรุควนเคร็ง	ต.เคร็ง อ.ชะอวด	50	เผาไร่

ลำดับ ที่	วัน/เดือน/ปี	ชื่อป่าสงวน ฯ	ท้องที่	พื้นที่เสียหาย (ไร่)	สาเหตุ
16	23 เม.ย. 45	ป่าคลองค้อง	ต.แม่เจ้าอยู่หัว อ.เข็รใหญ่	30	เผาไร่
17	24 เม.ย. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่า พรุควนเค็ง	ต.การะเกด อ.เข็รใหญ่	50	เผาไร่
18	3 พ.ค. 45	ป่าคลองค้อง	ต.สวนหลวง อ.เฉลิมพระเกียรติ	150	ไม่ทราบ สาเหตุ
19	4 พ.ค. 45	ป่าคลองค้อง	ต.สวนหลวง อ.เฉลิมพระเกียรติ	300	ไม่ทราบ สาเหตุ
20	5 พ.ค. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่า พรุควนเค็ง	ต.บ้านดูล อ.ชะอวด	250	ไม่ทราบ สาเหตุ
21	6 พ.ค. 45	ป่าคลองค้อง	ต.แม่เจ้าอยู่หัว อ.เข็รใหญ่	180	เผาไร่
22	20 พ.ค. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่า พรุควนเค็ง	ต.การะเกด อ.เข็รใหญ่	130	เผาไร่
23	21 – 22 พ.ค. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่า พรุควนเค็ง	ต.เค็ง อ.ชะอวด	400	เผาไร่
24	23 พ.ค. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่า พรุควนเค็ง	ต.การะเกด อ.เข็รใหญ่	300	เผาไร่
25	24 พ.ค. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่า พรุควนเค็ง	ต.เค็ง อ.ชะอวด	300	เผาไร่
26	25-26 พ.ค. 45	ป่าทำช้างข้าม	ต.การะเกด อ.เข็รใหญ่	400	เผาไร่
27	29-30 พ.ค.45	ป่าทำช้างข้าม	ต.การะเกด อ.เข็รใหญ่	350	เผาไร่
28	2 มิ.ย. 45	ป่าคลองค้อง	ต.แม่เจ้าอยู่หัว อ.เข็รใหญ่	150	เผาไร่
29	3 มิ.ย. 45	ป่าบ้านกุ่มแป่ ป่าบ้านในลุ่ม ป่า พรุควนเค็ง	ต.บ้านดูล อ.ชะอวด	70	เผาไร่
30	4-7 มิ.ย. 45	ป่าคลองค้อง	ต.แม่เจ้าอยู่หัว อ.เข็รใหญ่	550	หาของป่า
31	9 มิ.ย.45	ป่าคลองค้อง	ต.สวนหลวง	150	หาของป่า

ลำดับ ที่	วัน/เดือน/ปี	ชื่อป่าสงวน ฯ	ท้องที่	พื้นที่เสียหาย (ไร่)	สาเหตุ
			อ.เฉลิมพระเกียรติ		
32	24 มิ.ย. 45	ป่าคลองค้อ	ต.แม่เจ้าอยู่หัว อ.เชียรใหญ่	50	หาของป่า
33	2 ก.ค. 45	ป่าคลองค้อ	ต.แม่เจ้าอยู่หัว อ.เชียรใหญ่	50	หาของป่า
34	12-14 ก.ค. 45	ป่าคลองค้อ	ต.สวนหลวง อ.เฉลิมพระเกียรติ	370	หาของป่า
35	24 ก.ค. 45	ป่าบ้านกุ่มแปะ ป่าบ้านในลุ่ม ป่าพรุควนเคร็ง	ต.บ้านตูล อ.ชะอวด	200	หาของป่า
36	31 ก.ค. 45	ป่าคลองค้อ	ต.แม่เจ้าอยู่หัว อ.เชียรใหญ่	50	หาของป่า
37	10 ส.ค. 45	ป่าบ้านกุ่มแปะ ป่าบ้านในลุ่ม ป่าพรุควนเคร็ง	ต.บ้านตูล อ.ชะอวด	30	หาของป่า
38	12 ส.ค. 45	ป่าคลองค้อ	ต.สวนหลวง อ.เฉลิมพระเกียรติ	200	หาของป่า
39	15 ส.ค. 45	ป่าคลองค้อ	ต.สวนหลวง อ.เฉลิมพระเกียรติ	100	หาของป่า
40	16 ส.ค. 45	ป่าคลองค้อ ป่าบ้านกุ่มแปะ ป่าบ้านในลุ่ม ป่าพรุควนเคร็ง	ต.สวนหลวง อ.เฉลิมพระเกียรติ ต.บ้านตูล อ.ชะอวด	1,000	หาของป่า

ที่มา สำนักงานป่าไม้จังหวัดนครศรีธรรมราช (2545)

สาเหตุการเกิดไฟป่าในบริเวณป่าพรุควนเคร็ง เกิดจากปัจจัยสำคัญ 4 ประการ คือ

1. การเผาพื้นที่เพื่อทำไร่ ทำสวน หรือทำนา ซึ่งเป็นการเตรียมพื้นที่ทำการเกษตร โดยไม่มีการควบคุม ทำให้ไฟลุกลามเข้าเขตป่า
2. การเผาป่าเพื่อล่าสัตว์ หรือหาของป่า เช่น เต่า หรือ ปลา เพื่อสะดวกในการเดินทางเข้าไปเก็บหาได้ง่าย และการเผาป่าเพื่อให้หญ้าแตกกระบัดเป็นอาหารของสัตว์เลี้ยง พวก โค กระบือ
3. การเผาป่าเพื่อให้เป็นพื้นที่เสื่อมโทรม เพื่อจะได้เข้าครอบครองพื้นที่ในการทำมาหากินหรือใช้ประโยชน์ในที่ดิน

4. ความมั่งคั่งจากมนุษย์ในการสูบบุหรี่ แล้วทิ้งก้นบุหรี่ซึ่งไม่ดับให้สนิท เมื่อสัมผัสหญ้าแห้ง ทำให้หญ้าติดไฟแล้วลุกลามไปยังพื้นที่อื่น ๆ หรืออาจเกิดจาก การแก้งจุดด้วยสาเหตุอื่น ๆ ของราษฎร

#### 4. ปัญหาการตัดไม้ในป่าพรุ

ปัจจุบันไม่รุนแรงมากนัก และมีการควบคุมกันเองโดยมีอาสาสมัครพิทักษ์ป่าประจำหมู่บ้าน และการตัดไม้ส่วนใหญ่จะอนุญาตให้มีการนำมาใช้เพื่อการใช้สอยเล็ก ๆ น้อย ๆ เช่น ช่อมแซมบ้านเรือน หรือทำคอกสัตว์ ซึ่งไม้ที่ตัดจะเป็นไม้เสม็ดเป็นหลัก

#### 5. ปัญหาที่ทำกิน

เนื่องจากความไม่ชัดเจนของอาณาเขตพื้นที่และการประกาศเขตพื้นที่และการประกาศเขตพื้นที่ที่ทับซ้อนกันประกอบกับพื้นที่ส่วนใหญ่เป็นป่าสงวนแห่งชาติ จึงทำให้มีปัญหาในการใช้พื้นที่ทำกินของราษฎรอยู่เสมอมา

#### การจัดการพื้นที่

ในการใช้ประโยชน์ในพื้นที่ป่าพรุ ปัจจุบันแม้ยังไม่มีกฎหมายที่ปฏิบัติร่วมกันในการจัดการทรัพยากรเหล่านี้ แต่ความเข้าใจในสิทธิอันพึงมีพึงได้ของทรัพยากรเหล่านี้ตลอดชีวิตของพวกเขาในสิทธิส่วนนี้อยู่ การใช้ประโยชน์ในพื้นที่จะเป็นลักษณะของการใช้ประโยชน์ในพื้นที่สาธารณะประโยชน์ และราษฎรจะมีการจัดการด้วยกลไกทางสังคมที่ซับซ้อน เช่น การแบ่งพื้นที่หาปลาจะเป็นที่รับรู้กันของชุมชนว่าพื้นที่ไหนมีใครหรือหมู่บ้านไหนใช้ประโยชน์อยู่ ซึ่งการละเมิดในเรื่องของขอบเขตพื้นที่ทำมาหากินมีน้อยมาก เพราะมีการตรวจสอบกันเอง หรือบางพื้นที่ให้ราษฎรร่วมกันอนุรักษ์ป่า โดยการให้ปลูกป่าทดแทนต้นไม้ที่ตัดไปใช้สอย

สำหรับพื้นที่ส่วนใหญ่ของป่าพรุควนเคื่อง ซึ่งครอบคลุมพื้นที่ป่าสงวนแห่งชาติจำนวน 4 ป่า เนื้อที่รวมกันทั้งสิ้น 165,825 ไร่ มีหน่วยงานของกรมป่าไม้ ทั้งสำนักงานป่าไม้เขตนครศรีธรรมราช สำนักงานป่าไม้จังหวัดนครศรีธรรมราช และสถานีควบคุมไฟป่าจังหวัดนครศรีธรรมราช ดูแลในเรื่องการบุกรุกครอบครองพื้นที่ การลักลอบตัดไม้ และปัญหาไฟป่า

สำหรับโครงการที่เกี่ยวข้องกับการพัฒนา และโครงการอนุรักษ์ในพื้นที่ป่าพรุควนเคื่อง เนื่องจากสภาพพื้นที่ดังกล่าว มีน้ำท่วมขังเกือบตลอดทั้งปี สภาพดินเป็นดินเปรี้ยว การประกอบอาชีพของราษฎรไม่ได้ผล มีหลายหน่วยงานได้เข้าไปดำเนินการทั้งด้านการส่งเสริมอาชีพ และการฟื้นฟูสภาพพื้นที่ เช่น โครงการศิลปาชีพบ้านเนินธัมมัง โดยดำริของสมเด็จพระนางเจ้าพระบรมราชินีนาถ จัดตั้งเมื่อ พ.ศ. 2537 ที่บ้านเนินธัมมัง หมู่ที่ 5 ต.แม่เจ้าอยู่หัว อ.เชียรใหญ่ เพื่อเป็นการส่งเสริมอาชีพให้ราษฎรในพื้นที่และมีการอนุรักษ์พื้นที่ไว้ให้ชาวบ้านได้เก็บหากระดูกและ

ปลูกเสริมกระจุค ในปี พ.ศ. 2539 มีโครงการปลูกป่าถาวรเฉลิมพระเกียรติ ฯ โดยการปิโตรเลียมแห่งประเทศไทย และสำนักงานป่าไม้เขตนครศรีธรรมราช เพื่อฟื้นฟูสภาพป่าบริเวณที่เสื่อมโทรม โดยการปลูกไม้เสม็ดขาว หวาน้ำ แคน้ำ จิกน้ำ แปะ หว่าหิน และชะเมาน้ำ และในปี พ.ศ. 2541 มีโครงการพัฒนาคุณภาพชีวิตประชาชนหมู่บ้านเป้าหมายในโครงการปลูกป่าถาวรเฉลิมพระเกียรติ ฯ ของการปิโตรเลียมแห่งประเทศไทย โดยมีเจ้าหน้าที่สมาคมพัฒนาประชากรและชุมชนเป็นผู้ดำเนินงานในการพัฒนาอาชีพต่าง ๆ เช่น การทำผลิตภัณฑ์กระจุค การทอผ้า การทำการเกษตรและการปศุสัตว์ จำนวน 13 หมู่บ้านรอบป่าพรุ นอกจากนี้ยังมีโครงการของสำนักงานป่าไม้เขตนครศรีธรรมราช คือโครงการฟื้นฟูป่าพรุควนเคิ่งเพื่อประชาชนและสิ่งแวดล้อม ตามโครงการพัฒนาลุ่มน้ำปากพนังอันเนื่องมาจากพระราชดำริ ระยะเวลาดำเนินการของโครงการ 5 ปี ตั้งแต่ พ.ศ. 2540 – 2544 เป็นต้น

#### ข้อเสนอแนะ

พรุควนเคิ่ง เป็นแหล่งทรัพยากรที่สำคัญของจังหวัดนครศรีธรรมราช และจังหวัดใกล้เคียง พื้นที่ส่วนใหญ่อยู่ในพื้นที่โครงการพัฒนาลุ่มน้ำปากพนังอันเนื่องมาจากพระราชดำริ เพื่อจะยกระดับมาตรฐานและคุณภาพชีวิตของราษฎร ให้มีความเป็นอยู่ที่ดีขึ้น จึงควรจะได้มีการศึกษาวิจัยในด้านต่าง ๆ โดยเฉพาะระบบนิเวศในพื้นที่อย่างละเอียด ทั้งในด้านการจัดการ และการอนุรักษ์ และส่งเสริมอาชีพที่ยั่งยืนให้กับราษฎร ในลักษณะความร่วมมือของหน่วยงานต่าง ๆ ทั้งภาครัฐและเอกชน ในลักษณะแบบบูรณาการร่วมกัน

#### สำหรับแนวทางในการจัดการพื้นที่พรุควนเคิ่ง ควรดำเนินการดังนี้

1. กำหนดเขตการใช้ที่ดินให้ชัดเจนแบ่งเป็นเขตสงวน เขตอนุรักษ์ และเขตพัฒนา เช่นเดียวกับโครงการพัฒนาพิกุลทอง ที่ดำเนินการกับพรุโต๊ะแดง
2. รณรงค์และสร้างจิตสำนึกแก่ราษฎรในการอนุรักษ์ทรัพยากรธรรมชาติ โดยเฉพาะทรัพยากรป่าไม้ สัตว์ป่าและสัตว์น้ำ และส่งเสริมการมีส่วนร่วมของชุมชนในการจัดการพื้นที่
3. มีการจัดการอย่างเป็นระบบ กำหนดมาตรการทั้งระยะสั้นและระยะยาวในการแก้ไขปัญหาความเสื่อมโทรมของทรัพยากร และการฟื้นฟูทรัพยากร และกำหนดกลยุทธ์ในการดำเนินการเพื่อให้เกิดประสิทธิผลและเป็นรูปธรรม
4. ดำเนินการสำรวจและวิจัยอย่างต่อเนื่อง ในโครงการที่เกี่ยวข้องกับระบบนิเวศของสังคมป่า สัตว์ป่า และสัตว์น้ำ



















การจัดประชุมเชิงปฏิบัติการ โดยประยุกต์กระบวนการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วมและ FSC เมื่อวันที่ 18 กรกฎาคม 2546 เวลา 13.30 ณ ศูนย์การศึกษานอกโรงเรียนอำเภอชะอวด





## BIOGRAPHY

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