Kasetsart J. (Soc. Sci.) 17 : 72-81 (1996)

Opinions about the Establishment of Yaring's Mangrove Forest as a Study and Educational Resource Center (SERC)

Jitpaka Tanapanyarachwong and Kriengsak Pattamarakha[1]

ABSTRACT

The decline in the area of the nation's mangrove forests is clearly noticeable. Yaring's Mangrove forest, the richest and biggest mangrove forest in Southern Thailand, is consequently being considered for establishment as the SERC. The base-line data and public opinion regarding an establishment were gathered in Yaring district, Pattani province, Southern Thailand. Stratified random sampling was employed for sample selection. Mailed questionnaires and personal interviews were assigned as a method of data collection. The findings revealed that most of the resondents had a comprehensive knowledge of the forest and agreed that the local community should be involved in its conservation. They displayed positive attitudes towards the establishment of the SERC which provide increased opportunities for people to make short-term visits and to learn more about the importance and benefits of mangrove forests. This implies a positive potential for the establishment of SERC in the near future.

Key words : opinions, establishment, mangrove forest, study center.

INTRODUCTION

A country's mangrove forests are important natural and economic resources. They support ecosystems in which various species of plants and animals can survive, and they can also protect coastal environments. They are regarded as primary sources of food and energy for human. These forests have been utilized by local people in a variety of ways. As the economy develops, the need to utilize mangrove forests increases, which inevitably leads to their deforestationa and degradation.

Between 1961 to 1975, it was obvious that a total mangrove forest area of 552 square kilometers

[1] Department of Agricultural Development, Faculty of Natural Resources, Prince of Songkla University, Hat Yai, Songkhla 90112, Thailand.

disappeared within 14 years, which showed a reduction rate of 39.4 square kilometers or 24,644 rai per year (1 ha = 6.25 rai). During 1975 to 1979, 254 square kilometers or 158,700 rai were removed. During this period, the reduction rate had increased to 63.5 square kilometers or 39,675 rai per year (Boonyobhas, 1982)

Very few mangrove forests are under private ownership. Most mangrove forests have been declared reserved forests which make any land occupancy illegal. The few exceptions are where parts of reserved mangrove forests have been granted to private enterprises for temporary occupancy for such uses as shrimp farming, mining and boat docking facilities. Large areas of reserved mangrove forests have been illegally occupied for a long period of time, particularly in the inner part of the Gulf of Thailand, where illegal land uses include shrimp farming and salt production. In this way, the Government has lost 42,956 ha of mangrove forests (FAO, 1985).

Komkris (1993) pinpointed that inb 1986 the encroachment on mangrove forests in Thailand was 1,071,701 rai. Of this, 689,120 rai or 64.3 percent was used for fishery purposes especially for shrimp farming culture. According to Aksornkoae (1993), mangrove forests covered approximately 36,790 hectares in 1961, and in 1989 the existing mangrove area was approximately 18,559 hectares. About 18,614 hectares of mangrove forests were legally relinquished for alternative land-use proposes during 1980-1985, and in the same period about 72,265 hectares suffered illegal encroachment by shrimp culture farmers.

Yaring's mangrove forest, the richest and biggest mangrove forest in Pattani province, southern Thailand, like many other mangrove forests, is now faced with this problem. Local communities are well aware of the situation and are calling for the conservation of the forest. In order to remedy the situation of illegal occupancy of reserved mangrove areas, proper management and rational decision making should be encourage to provide sustainability for this kind of resource. Thus, the area is being considered for establishment of the SERC. To guarantee the success of this process, a field survey needs to be undertaken. This study aims first to provide data on the opinions of local people about this project and second to suggest recommendations as to the development of the mangrove forest.

RESEARCH METHODOLOGY

Background of the study area and the SERC

The mangrove forest in Yaring district, Pattani province, southern Thailand,was selected as the study area. This mangrove forest is rich in biodiversity and covers a wide area, with total area of the forest being about 18.28 square kilometers of 11,425.00 rai (Figure 1). Additionally, this mangrove forest is being considered as a site on which to extablish an SERC. The SERC would serve three primary functions-mangrove education, mangrove research, and mangrove information. The SERC will be designed to educate everyone about the importance of mangrove ecosystems and their management. The walk-through approach is proposed. It is one of the most attractive and effective approaches to educate people about nature. Its design is based on the resources located at the center.

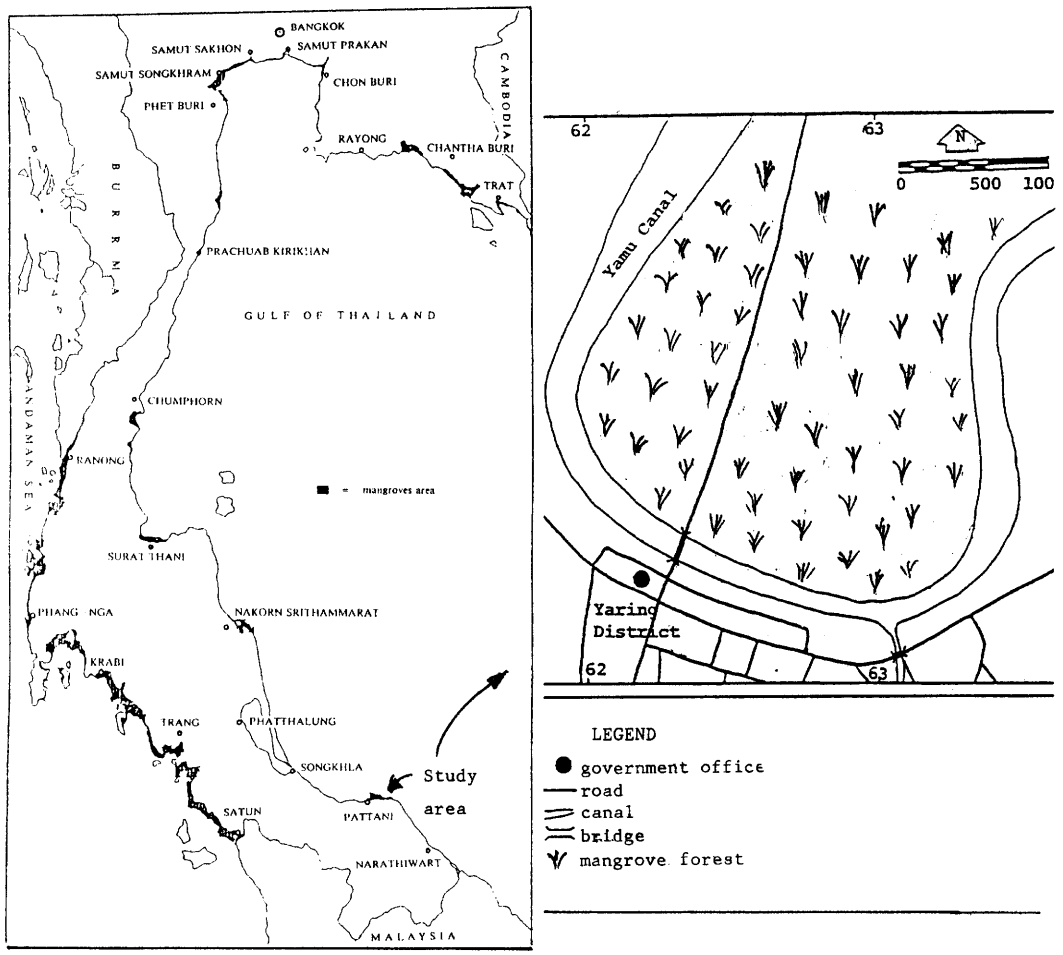


Figure 1 A map of Yaring's mangrove forest.

Population and sampling procedure

The population used in the study consisted of people who live around the mangrove forest. Occupational groups were designated as follows : government officers, members of state enterprises, members of private enterprises, religious leaders, local leaders, farmers, students and the general public. Stratified random sampling was employed for sample selection.

Data collection method

Two methods were designed for data collection : questionnaires were mailed and interviews were conducted. Questionnaires were mailed to highly educated members of the sample population while, in contrast, interviews were used for those with a low level of education of at least primary school (Grade 7) or below.

Questionnaire construction and pretest

Both structured and open-ended questions were used in the study. The questionnaire consisted of three parts. Part A was concerned with the general background of the respondents. Part B was concerned with their knowledge of mangrove forests and part C with their opinions about the establishment of Yaring's mangrove forest as an SERC. The Likert scale was employed to elicit opinions about part C. A questionnaire pretest was undertaken by people who lived around the mangrove forest. The pretest indicated limitations to the questionnaire which were then corrected.

Data collection

Data collection took place between July 1995 and December 1995, a period of six months. The 412 questionnaires were then collected, checked and found to be correct. This represented 15.5 percent of the total population.

Data organization and analysis

After completion of the field survey, coding and data procession were carried out at Prince of Songkla University, Responses from the questionnaires were coded, copied onto data sheets and then fed into a computer data file. Analyses subsequently performed used programs in SPSS (Statistical Package for the Social Sciences.)

RESULTS AND DISCUSSION

Characteristics of the respondents

It was found that about one-half of the respondents were males. In terms of occupational groupings, about one-half were members of the general public who lived close to the mangrove forest, and about one-third were government officers. Students represented about one-fifth, while the remaining were members of state or private enterprises or religious and local leaders. About one-half of the total had finished primary and secondary school,and about one-third had received either certificates from vocational schools or bachelor's or higher degrees Around one-tenth were still studying in secondary school or universities. As for their status in terms of habitation, about two-thirds were natives and one-third were migrants. Durations of habitation were split into three approximately equal-sized categories : 1-15 years, 16-30 years and longer than 30 years (Table 1).

Table 1 Characteristics of the respondents.

(N=412)

Characteristics	Number	Percentage
Sex		
Male	241	58.49
Female	171	41.51
Occupatioal grouping		
General public	186	45.12
Government officers	124	30.09
Students	73	17.72
Members of state or private enterprises	17	4.19
Religious and other local leaders	12	2.88
Level of education		
No education	11	2.67
Primary school (Grade 4 - Grade 7)	132	32.04
Secondary school (Grade 8 - Grade 12)	90	21.84
Certificate from vocational school	58	14.08
Bachelor's degree or higher	70	16.99
Studying in secondary school or university	51	12.38
Type of inhabitat		
Native	280	67.96
Migrant	132	32.04
Duration of habitation		
1-15 years	155	37.62
16-30 years	136	33.01
Longer than 30 years	121	29.37

Source of knowledge about mangrove forests

It was found that the mass media played a more important role in the diffusion of knowledge about the mangrove forests than personal sources. Television, newspapers, printed matter and radio were mentioned as important instruments for dissemination of information about mangrove forests (Table 2). The reason that mass media played a very important role in the diffusion of information about mangrove forests could be the result of education as about two-thirds of the responents obtained a formal education of Grade 8 or higher. In addition, the areas where the field survey took place were in urban (municipality) rather than rural. The influence of social structure was obvious. This reflected the fact that differrent patterns of village development would determine different patterns of communication and that in more developed areas people tended to use mass media sources rather than interpersonal sources. This evidence was in accordance with the study of Singh and Sahay (1970) and Chamala (1981).

Table 2 Sources of knowledge about mangrove forests.

(N=412)

Type of source	Number	Percentage[1]
Television	209	50.73
Newspaper	124	30.09
Printed matter	106	25.73
Radio	102	24.76
Government officers	77	18.69
Study tours and exhibitions	60	14.56
Friends	53	12.86
Relatives	46	11.16
Local leaders and private organizations	41	9.95

[1]Quoted more than one source.

Knowledge of mangrove forests

Respondents were asked to respond to statements to ascertain knowledge of mangrove forests. It was evident that most of the respondents had a good knowledge of mangrove forests, as more than 90 percent answered each statement correctly (Table 3). It was clear to most respondents that mangrove forests had numerous advantages as habitats for various species of plants and animals, as resources rich in biodiversity which are important to the economy and as primary sources of food and energy for human. In addition, it was realized that mangroves can also protect the seashore from wind and soil erosion, maintain a natural ecological balance and protect the coastal environment by trapping pollutants which would otherwise flow out to sea. The reason that most of the respondents had a good knowledge of mangrove forests could be a result of a high level of education coupled with the influence of mass media exposure.

Interest and participation in the management of mangrove forest conservation

From Table 4, it was found that most respondents (more than 90 percent) were interested in mangrove forest conservation and agreed that mangrove forests were useful to human. Furthermore, most agreed that it is regrettable that the area of mangrove forests are decreasing, that there is a need for mangrove forest conservation and that local communities should participate in the conservation of mangrove forests. Most also agreed that a conservation campaign would be of interest and should be supported, that there should be a conservation program designed for children, and that when illegal encroachment occurred, the police should be notified. It can be concluded that most people were interested and willing to participate in the conservation of mangrove forests. This reflected a strong possibility for cooperation and participation by the general public if the SERC was to be established.

Table 3 Knowledge of mangrove forests.

(N=412)

Statements	Pattern of response		
	Yes	No	No response
1. The mangrove forest has value as a habitat for various species of plants and animals along the seashore.	99.27	0.49	0.24
2. The mangrove forest is a primary source of food and energy for human.	95.39	4.37	0.24
3. The mangrove forest protects the seashore from wind and soil erosion.	97.09	2.43	0.48
4. The mangrove forest is rich and full of plants and animals, of all sizes, which are important to the economy.	90.78	8.98	0.24
5. The mangrove forest contributes nutrients to the ecosystem and provides shelter and other support to an extensive variety of aquatic species.	98.55	1.21	0.24
6. The mangrove forest maintains the natural ecological balance in estuaries by protecting them against tidal bores.	94.90	4.13	0.97
7. The mangrove forest can protect coastal environments by trapping pollutants, which would otherwise flow out to sea.	93.45	5.83	0.72

Opinions about the establishment of an SERC

Most of the respondents (more than 80 percent) agreed that establishment of Yaring's mangrove forest as an SERC was obviously necessary and that walking tracks and spots for relaxing should be built to allow peole to travel around the mangrove forest on foot (Table 5). Response to the establishment of small food and souvenir shops was divided. Those who did not agree gave the reason that they were afraid that such establishments would immediately destroy the natural environment of the mangrove forest if poorly managed. Furthermore, most agreed to the provision of accommodation for sleeping, an exhibition showing the life cycle of plants and animals in the mangrove forest, a herbarium containing representative species of plants as well as stuffed animals, a series of slides, a movie film on the subject of mangroves and a simulation model of the mangrove forest, including walking tracks. From the overall responses, most people had at least a favorable opinion of the establishment of an SERC.

Table 4 Interest and participation in the management of mangrove forest conservation.

(N=412)

Statements	Number	Percentage
1. Are you interested in mangrove forest conservation?		
Yes	386	93.69
No	26	6.31
2. Are the mangrove forests useful to human?		
Yes	409	99.27
No	3	0.73
3. Is it a matter of concern to you that the area of mangrove forests are decreasing?		
Yes	394	95.63
No	18	4.37
4. Is there a need for mangrove forest conservation?		
Yes	407	98.79
No	5	1.21
5. Should local communities participate in activities concerned with mangrove forest conservation?		
Yes	405	38.30
No	7	1.70
6. Is a campaign concerning mangrove forest conservation of interest and should be supported?		
Yes	409	99.27
No	3	0.73
7. Should there be a program of mangrove forest conservation especially for children?		
Yes	398	96.60
No	14	3.40
8. When illegal encroachment occurs, should the police be notified?		
Yes	398	96.60
No	14	3.40

Table 5 Opinions about the establishment of an SERC.

(N=412)

Statements	Pattern of response		
	Agree	Not agree	No response
1. To establish an SERC in Yaring's mangrove forest is imortant.	98.06	1.46	0.48
2. There should be walking tracks in the mangrove forest.	88.35	10.92	0.73
3. There should be places set aside along the walking tracks for relaxing, so as to break down the long distances involved.	85.19	13.11	1.70
4. There should be small shops for food and souvenirs located in the mangrove forest.	58.74	39.81	1.45
5. Within the SERC,there should be			
5.1 Sleeping accomodation.	80.10	10.63	1.21
5.2 Exhibitions representing the life cycle of plants and animals in the mangrove forest.	98.30	0.49	1.21
5.3 A herbaium displaying representative of species of plants as well as a variety of stuffed animals.	94.42	3.64	1.94
5.4 A display of slides.	95.39	2.67	1.94
5.5 A movie film on mangrove forests.	96.84	1.70	1.46
5.6 A simulation model of the mangrove forest, including walking tracks.	96.12	2.18	1.70

CONCLUSIONS AND RECOMMENDATIONS

From the overall investigation, it can be concluded that respondents displayed considerable attention to and interest in mangrove forests, including the subject of conservation. They had a fairly good knowledge of mangrove forests and were willing to participate in conservation activities. They showed positive attitudes towards the establishment of Yaring's mangrove forest as an SERC.

The following steps are strongly recommented :

1. The government should pay more interest to mangrove forests. Strict laws relating to encroachment into mangrove forests should be enacted, and those who encroach illegally should be severely punished.

2. Those who are competent and those who are dedicated to conservation work should be selected

to work at the challenging task of mangrove forest conservation.

3. An extension and public relations service for mangrove forests should be encouraged using the local dialect.

4. Activities concerning mangrove forests should be organized or held continuously.

5. Participation of local communities in mangrove forest conservation should be encouraged.

6. Organizations for protecting the mangrove forests should be established and supported by local communities.

7. The importance of mangrove forests should be taught in educational institutions as part of the curriculum.

ACKNOWLEDGMENTS

The authors wish to thank the Coastal Resources Institute for financial support and Dennis Welsh and Susan Henry for their contribution in reading and correcting the English version of this paper.

LITERATURE CITED

Aksornkoae,S. 1993. *Ecology and Management of Mangroves.* The International Union for Conservation of Nature and Natural Resources, Bangkok, Thailand.

Boonyobhas, C. 1982. "Situation and Policy of Mangrove Forest Management in Thailand." *In Proceedings of NRCT-JSPS Rattanakosin Bicentennial Joint Seminar on Science and Mangrove Resources.* 2-6 August 1982, Phuket Merlin Hotal, Phuket, Thailand.

Chamala, S. 1981. Differential Source-utilization Patterns : At Awareness Stages in the Progressive and Non-Progressive Village in India. *In* Burce R. Crouch and Shankariah Chamala (Eds.). *Extension Education and Rural Development.* Vol 1. pp. 281-291. New York : John Wiley & Sons.

Food and Agriculture Organization. 1985. *Mangrove Management in Thailand, Malaysia and Indonesia.* FAO Environment Paper No.4.

Komkris, T. 1993. *The Structure of Mangrove Plants.* Bangkok : Chalongrat.

Singh, I.B. and B.N. Sahay. 1970. "Communication Behavior of Kosi Farmers in Relation to High Yielding Varieties Program." *Indian Journal of Extension Education.* 6 : 20-31.