PEOPLE'S PARTICIPATION IN COASTAL RESOURCES AND ENVIRONMENTAL MANAGEMENT FOR TOURISM DEVELOPMENT IN CHANG ISLANDS, THAILAND

Sangtien Ajjimangkul, Faculty of Fisheries, Kasetsart University, sangtien.a@ku.ac.th
Sansanee Wangvoralak, Faculty of Fisheries, Kasetsart University, ffissnw@ku.ac.th
Kungwan Juntarashote, Faculty of Fisheries, Kasetsart University, kungwan.j@ku.ac.th

ABSTRACT

The objective of this study is to clarify the participation of coastal communities on coastal resources and environmental management in Chang Islands. The individual interview technique with structural questionnaire was used as the tool for data collection. The samples include fishers, aquaculturists, employees, traders, tour operators and government officials. Two hundred and two samples were interviewed for this study. The results revealed that the samples have utilized fishery resources and other natural resources for supporting their livelihoods as a main. In addition, the samples also realized that the aquatic resources including mangrove forest and wild life are depleted and tourism development is the main cause. Air and noise pollution are the other problem of this area. In addition, the following activities, i.e., garbage dumping, oil and grease disposal, overfishing, misplaced anchoring of tour boats, overexploiting of natural resources have created more impacts. The samples require transportation improvement, waste water treatment system, garbage management and proper management on natural resources and environmental management. However, the study showed that the all samples had low level of participation in their communities. The Kruskal Wallis test indicated that participation level among the samples had a significant difference at least one pair of comparison (95% confidence level, asymp.sig. 0.005). In addition, the Spearman's rank test showed that participation level in resources and environmental management activities had low relationship to the opinion on environmental and resources utilization impact problems (95% confidence level, r=0.147 and 0.185). However, they preferred to participate in some activities when they have free time. There were only 10-30 per cent of samples agreed with resources management measures which include type, area, time, and quantity of utilization. Although it is very hard to establish the development guidelines for resources management through participation of communities but it is possible to enhance the participation awareness through young generation. Therefore, local school should be used as the center of knowledge transfer and then it can lead to sustainable resources and environmental management.

Keywords: Resources and environmental management; people participation

INTRODUCTION

Chang Islands National Park in Trat Province, the eastern part of the Gulf of Thailand, is one of the famous marine tourism areas. Additionally, according to Ramzar Convention, it has been classified as an important wetland, and is developed to be an attractive ecotourism area. Chang Islands National Park covers 65,000 hectares and incorporates 40 islands. Among these, Chang, the largest island, is renowned as the second largest island in Thailand after Phuket. Nowadays, Chang Island is rapidly changed due to investors from outside. The increasing in number of tourists resulted to changing of local culture and livelihood. However, Thai government intends to promote Chang Islands by establishing Chang Island as core area of ecotourism since 2002. The aim is to develop Chang Island to be ecotourism place basing on three elements: (1) awareness on natural resources and environment of people, (2) satisfaction of tourist,

and (3) participation of local community (Tourism Authority of Thailand, 2002). Therefore, the study on reliance of people to natural resources and environment, participation of people on natural resources and environmental management including factors affecting people's participation can be lead to increase the successful and effective participation of people in ecotourism development.

MEHTHODOLOGY

The area of this study covered nine villages locating in two sub-districts of Chang Islands (Fig.1). The population in this study covered various groups, i.e., fisher, aquaculture farmer, employee, trader, tour operator, and government official. The required dataset for this study were collected both from primary data and secondary data sources in 2003. Primary data were collected by using individual interview technique with structural questionnaire with two hundred and two samples. Secondary data were collected from various sources depending upon the characteristic of information.

The quantitative analysis was used to analyze data from questionnaires in which the results were presented with the descriptive statistics such as frequency, percentage, mean, median, and standard deviation. In addition, the inferential statistics such as Independent-sample Kruskal Wallis test, and Spearman's rank test among different factors, were used to analyze comparative and correlation between dependent and independent variables. Furthermore, the content analysis was also used for qualitative analysis.

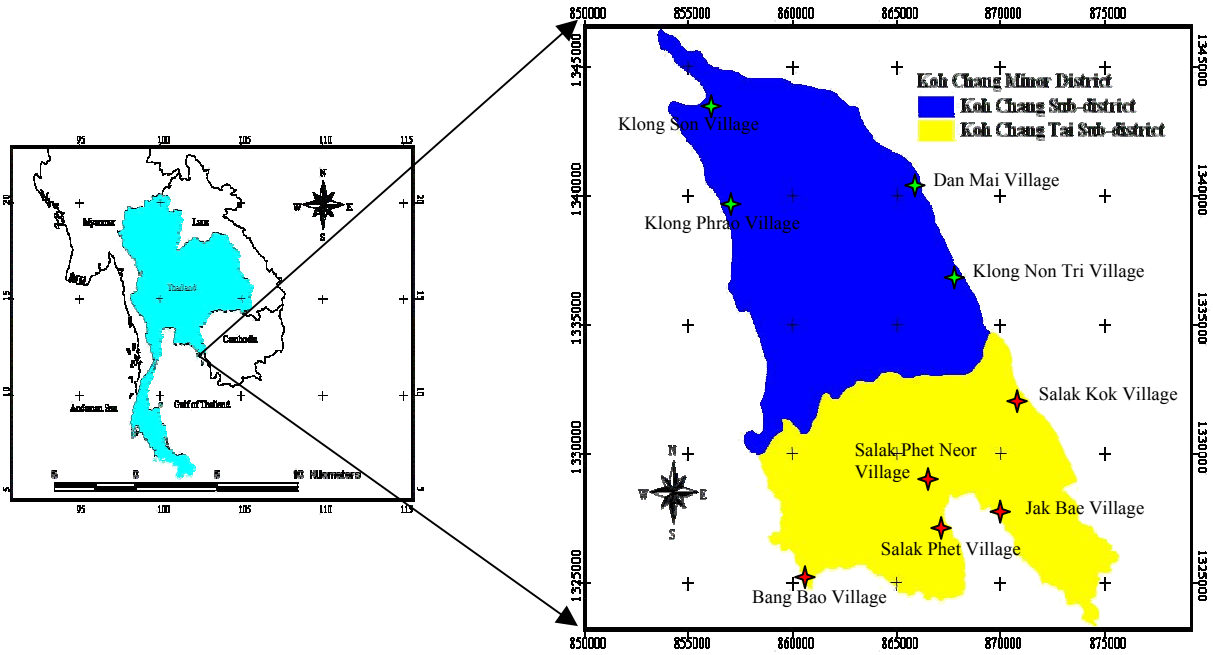

Fig.1 Location of the study area

RESULTS

Background of the Study Area

Chang Islands is administrated by Koh Chang Noi District that consists of two sub-districts, namely, Koh Chang and Koh Chang Tai. The first sub-district covers the areas on the north, most of east and west of Chang Island which consist of four villages, namely, Klong Non-tri, Dan Mai, Klong Son, and Klong Plao Villages. The second sub-district covers the areas on the south, some part of east and west of Chang Island which consist of five villages, namely Bang Bao, Salak Phet, Jak Bae, Salak Kok, and Salak Phet Neor Villages.

In 2003, the population of Koh Chang Noi District was 4,629 and 1,036 households, of which they comprised of 1,803 male and 1,783 female. The average density of population was 29.7 capita per km^2, and the average household was 99 households per village. The average population was 406 capita per village, while the average of family member was 4.1 capita per family.

Tourism in Koh Chang

There are many tourist attraction places in Chang Island, which can be classified as follows:

Natural tourism places

There are 18 popular places for natural tourism including waterfalls, beaches and islands. Among them, ten places located in Koh Chang Sub-district, and eight places located in Koh Chang Tai Sub-district as shown in below:

Koh Chang Sub-district

- Tan Mayom Waterfall
- Klong Plu Waterfall
- Klong Nontri Waterfall
- Klong Son Bay
- Sai Khao Beach
- Klong Phrao Beach
- Kai Bae Beach
- Ta Nam Beach
- Tan Mayom Beach
- Chang Noi Island

Koh Chang Tai Sub-district

- Klong Sip Aed Waterfall
- Klong Neng Waterfall
- Kiri Phet Waterfall
- Bai Lan Beach
- Bang Bao Beach
- Sai Yao Beach
- Phrao Nok Island
- Ngam Island

Historical tourism places

There are two important places for history of Chang Island and Thai Royal Navy. One is Koh Chang Joss-house, which is located in Koh Chang Sub-district. Another place is San Tahan Beach in Koh Chang Sub-district where the braveness memorial monument of Thai Royal Navy. Both Thai Royal Navy and villagers in Koh Chang Tai has arranged the commemoration ceremony, regularly on every January, 17.

Cultural tourism places

There are four places for cultural tourism, namely Bang Bao Village, Salak Phet Village, Jak Bae and Salak Kok Village, which are located in Koh Chang Tai Sub-district. These villages are the fishery communities, where the tourist can visit and learn the culture of their life.

Social and Economic Status

There were 202 respondents in this study that distributed in nine villages of two sub-district of Koh Chang Noi District. Half of them had more than one occupation (51.0%), and about 49.0 percent had only one occupation. The characteristics of occupation consisted of agriculture (49.0%), fisheries (35.1%), aquaculture (2.5%), employees (23.3%), traders (24.3%) and tour operators (16.8%). The average monthly income of these respondents was 125 US$ (approximately 6,000 Baht). Minimum monthly income of the respondents was 23 US$ (approximately 930 Baht), and maximum monthly income was 12,500 US$ (approximately 500,000 Baht).

Regarding financial status, the results showed that about 47.5 percent of the respondents had saving, and about 52.5 percent have no saving. According to debt, more than half of them had debt (53.5%) whereas the remaining 46.5 percent have no debt. The main sources of loans were the Bank of Agriculture and Agriculture Cooperatives, village fund, neighbors, relatives, local shops, and capitalists.

In this study, the sex ration of male and female respondents was 42.6 and 57.4 percent, and most respondents are Buddhists (99.0%) and the remaining were Muslim and Christian. Most of the respondents were married (88.1%). The average number of family members of the respondents was four people. The minimum number of family members was one person and the maximum was 14 people. Regarding social status in the communities, most respondents were ordinary persons who have no any specific position (87.1%), whereas there were a few number of respondents that had position in the village (12.9 %) such as sub-district councilors, village headman, group committee, and group membership.

For the origin of the respondents, three-fifths of them originally bore in the study areas (65.3%), while 34.7 percent migrated from other areas. The average duration of their settlement in Chang Island was 34.7 years with a standard deviation of 17.8 years. The minimum and maximum duration of their settlement in Chang Island was two and 76 years, respectively.

Utilization from Fishery and Natural Resources

The finding in this section presented information on resources utilization in the aspects of fishery and natural resources including the opinion on importance of those resources in order to understand the situation of fishery and natural resources in Chang Islands. The results showed as below:

Fishery resources

The respondents utilized fishery resources with more than one aim. Most of them utilized the fishery resources for supporting their livelihoods (95%). However there were about 46.5 percent that used fishery resources for generating income. Fisheries and tour activities were main activities that directly exploit the fishery resources (35.6% and 10.9%, respectively). In addition, there were only 8.4 percent of the respondents who used fishery resources for recreation.

Regarding opinion on importance of fishery resources for themselves and their families, most respondents stated that fishery resources had importance at almost high to high level (84.2%). About 7.9 and 5.0

percent stated that the fishery resources have importance in the level of almost low and low, respectively. There were only 3.0 percent of them who stated that the fishery resources have no importance for themselves and their family.

Natural resources

About 21.8 percent of the respondents used floras and products from forest for supporting their livelihood and earning income (14.4% and 7.4%, respectively) in term of foods, drugs, and material for construction. There were a few of them that caught wild animals for their food (5.9%). In addition, some respondents also stated that forest provided indirect benefits when it was an origin of water resources as well as recreation area.

Regarding opinion on importance of natural resources for themselves and their families, especially mangrove forest, two-fifths of the respondents stated that mangrove forest have no importance (45.0%). Nevertheless about 40.6 percent of the respondents stated that mangrove forest has almost high to high importance, and the remaining of 12.4 and 2.0 percent stated that mangrove forest have importance at almost low and low level, respectively. When considering to the importance of wild forest, half of the respondents revealed that the wild forest has no importance (50.0%). One-third of the respondents stated that wild forest have almost high and high importance (32.2%), and about 13.4 and 4.5 of the respondents stated that wild forest have almost low and low importance.

Opinion on Fishery Resources, Natural Resources and Environment

This section showed the opinion of the respondents on current condition of forest resources, natural resources, and environment comparing to the condition of resources three years ago, before implementation of government development policy in 2002.

Fishery resources

Most respondents stated that there were depletion in the quantity of fish, shrimp, crab, and mollusk (83.9%, 82.3%, 83.8%, and 82.0%, respectively), and half of the respondents also stated that the diversity of aquatic animals has decreased (57.3%). For coral resources, two-fifths of the respondents stated that they have decreased both in quantity and diversity (45.3% and 44.2%, respectively). Moreover, about 35.6 percent of the respondents stated that there was decreasing of sea grass, but it was not as much as the depletion of other resources that mentioned above.

Natural resources

Almost four-fifths of the respondents stated that the number of fireflies was decreased more than other natural resources (75.5%). About 52.5 percent of the respondents stated that number of wild boars is decreased. In addition, two-fifths of the respondents also stated that birds have decreased both in number and diversity (43.5% and 41.9%, respectively). For other wild animals, three-fifths of the respondents revealed that the diversities of those are not change (62.0%), while about 35.7 percent of the respondents stated that they have decrease. Regarding the number and diversity of tree in the forest, the respondents stated that they have decreased (27.7% and 23.2%, respectively)

Environment

Most of the respondents stated that there were no problems on odor, water quality, and soil pollution (86.1%, 91.1%, and 97.0%, respectively). There were only 5.5, 3.5, and 1.0 percent of the respondents

stated on those problems at high level. In addition, two-thirds of the respondents stated that there were no problem on air and noise pollution (61.9% and 69.8%, respectively), while about 11.4 and 12.4 percent of the respondents stated that there were air and noise pollution at high level.

Affecting activities on natural resources and environment

Three-fifths of the respondents stated that there were illegal mangrove utilization and overfishing (68.3% and 67.3%, respectively), and two-fifths of the respondents revealed that there were careless exploiting on coral resources, illegal forest logging, misplaced anchoring of tour boats, public areas invasion, and increase of population on Koh Chang (47.0%, 46.5%, 51.5%, 59.4% and 46.0%, respectively). Most of the respondents also stated that garbage dumping, and oil and grease disposal were the activities that directly affecting to natural resources (82.2% and 72.3%, respectively). About 25.2 and 33.2 percent of the respondents mentioned to the problem on lacking of external entrepreneurs awareness, land filling in the sea, and lacking of construction control (50.0%, 42.1% and 33.7%, respectively). One-fifth of the respondent stated that there were problems on lacking of local entrepreneurs awareness, and too many tourists (25.2% and 33.2%, respectively) (Fig.2-4). However, most of the respondents stated that there were no problems on accommodation standard, temptation source, asset and life safety (87.6%, 86.6%, 79.2% and 76.2%, respectively).

Fig.2-Fig.4 The activities affected natural resources and environment

People's Need for developing Chang Islands

Three-fifths of the respondents required transportation improvement (64.8%), and half of the respondents required waste water treatment system and garbage management (53.5% and 57.5%, respectively). In addition, the proper management on natural resources and environment including mangrove forests, corals, water falls, and other areas around Chang Islands were also required (54.8%, 46.5%, 38.2% and 33.7%, respectively). However, three-fifths of the respondents did not require more construction on accommodations and piers (61.9% and 71.7%, respectively).

Participation of the People on Natural Resources and Environmental Management

This section presented the people's participation on natural resources and environmental management in the management aspects of mangrove forest resource, coral reef resource, beach and bay, garbage, waste water, tourist utilization, and ecotourism. The results showed as below:

Mangrove forest resource

Majority of the respondents had no participation on information board setting for mangrove forest management campaign (98.5%) and were not members of mangrove conservation group (96.9%). However, about 22.8 and 14.9 percent of the respondents attended training program on mangrove conservation and mangrove plantation during 1991 and 2003.

Coral reef resources

Most of the respondents had no participation in coral reef conservation campaign. However, they preferred to conserve coral reef resources. Two-third of the respondents agreed that local school should be used as the center of coral conservation knowledge transfer (71.8%), and half of the respondents agreed that penalty on illegal activities should be increased. They also stated that coral reef resources could be conserved by set up a conservation unit, specify type of utilization activities, prohibit utilization in specified area and limit number of users (31.2%, 28.7%, 21.6% and 21.3%, respectively). In addition, other conservation strategies such as all coral areas should be closed, limit utilization duration and grant a concession on coral management to private sector were also possible (16.3%, 15.8% and 8.4%, respectively).

The allowed activities in coral reef areas were snorkeling (22.8%), scuba diving (16.8%), swimming (15.3%), hook and line fishing (9.4%), and boat anchoring in specified areas (9.4%). The results of this study indicated that about 69.7 percent of the respondents tend to participate in coral reef conservation activities in the future; nevertheless, most of them preferred to participate in some activities when they have free time. There was only 7.9 percent preferred to join every activities.

Beach and Bay

Most of the respondents or about 98.5 percent had no participation on beach conservation campaign.

Garbage management

One-third of the respondents dumped their garbage into provided bin (33.7%) at the frequency of 15-20 times per month. Half of the respondents did not pay for garbage collecting fee. However, if there is a charge for this service, the acceptable rate is 30-50 Baht per month. Although about 75.8 and 92.1 percent of the respondents did not participate in garbage clear up activity on the beach and in the sea respectively, the rest had participated in these activities 2-3 times a year. However, about one-third of the respondents preferred to participate in garbage management campaign.

Waste water management

About 11.9 and 25.7 percent of the respondents participated in setting up information board for waste water campaign, and in conducting of waste water treatment, respectively. Most of them were willing to construct a hygienic septic tank (82.2%), and intend to not dispose the used oil and grease into the sea or the public water body. Only 9.4 percent of the respondents were willing to pay the water treatment fee at the rate of 30-100 Baht per month. Additionally, 18.3 percent of the respondents agreed to be the watchdog for illegal activities, and 11.9 percent would participate in establishing marine conservation group, and 10.9 percent preferred to be a group member.

Tourist utilization

Most of the respondents were not want to participate on specification of proper number of tourists (96.5%). Meanwhile, 90.3 and 12.4 percent did not want to take part in controlling of invasion of the public usage areas, and resort and bungalow construction for tourists.

Ecotourism

The resulted showed that about one-third of the respondents recognized on ecotourism group establishment (35.3%), however the majority of them did not join as membership (93.4%). About 6.5 percent of participated respondents preferred to share their opinion on planning process. Whereas 5.0 percent preferred only to know that what are being conducted. The other 3.0 percent preferred to participate in provisional thinking and discussion. Only 2 percent preferred to express their opinion. About 6 percent had participated in acting such as support of gasoline, foodstuff, boat and other supplies as well as labor. Concerning the benefit from group participation, the majority of the respondents felt that nothing gained from participation (93.5%). About 5.0 percent stated that they got benefit from joining ecotourism group at middle level up to high level. Only 1.5 percent stated that they gained less benefit. The majority of the respondents stated that they did not participate in evaluation either or monitoring the activities of communities as well as government sector and tour operator.

In case of participation on natural resources and environmental management, most of the respondents considered that many people ought to join that matter at the following chances: local people (80.6%), tambon administrative organization member (79.1%), local official chief (58.2%), tour operator (45.3%), forestry officer (43.8%), Tourism Authority of Thailand officer (37.3%) and others such as local development officer, health officer, district officer and conservation officers (about 10.9%). Regarding main responsible, it should be local people (31.8%), local government in sub-district (29.3%) and Royal Forest Department (11.0%).

When considering the overall level of participation, the result showed that participation of local people in communities was low. The Kruskal Wallis test indicated that participation level among the respondents had a significant difference at least one pair of comparison (95% confidence level, asymp.sig. 0.005). It cloud be said that the agriculturists and fishers took part in natural resources and environmental management at the different proportion compared with those who were in tourism business, traders, employees and government officers. In addition, the Spearman's rank test reflected that participation level in resources and environmental management activities had low relationship to the opinion on environmental and resources utilization impact problems at 95 percent confidence which $r = 0.147$ and 0.185, respectively.

CONCLUSION AND DISCUSSTION

Conclusion

In this study, the data was collected by interviewing of two hundred and two samples with various occupations which composed of fisher, aquaculturist, employee, trader and tourist operator. The results of this study could be concluded as following:

Most of the respondents utilized fishery and natural resources for supporting their livelihood more than other purposes. However fisheries and tourist activities are the main features, which used fishery resources for generating their income. When considering the overall importance, the major of the respondents concerned the importance of fishery resources more than other natural resources such as mangrove forest, forest and wild animal.

Regarding the opinion on current condition of fishery and natural resources such as forest and wild animal have decreased both in number and diversity, but the decline on number of those resources was more recognized than the decline on diversity. When considering between fishery resources and natural resources, it reflected that the decrease of fishery resources was more recognized than other natural

resources. For the environmental problem, air and noise pollution are the main problems according to the opinion of respondents.

The main affecting performances on natural resources and environment of Chang Island were garbage dumping, and oil and grease disposal. Moreover, there were other problems as following: illegal mangrove and forest utilization, overfishing, public areas invasion, lacking of external and local entrepreneurs awareness, misplaced anchoring of tour boats, careless exploiting on coral resources, increase of population on Chang Island, land filling in the sea, lacking of construction control, and exceeding tourists.

Although the respondents required transportation improvement, waste water treatment, garbage management and proper management on mangrove, coral, water fall, and scenery around Chang Island. Nevertheless, construction on accommodations and piers were not desired.

The participation of people on natural resource and environmental management in aspects of garbage, mangrove forest, coral reef resources, beach and bay, waste water, resource utilization and ecotourism was low. The result reflected that agriculturists and fishers took part in natural resources and environmental management at the different proportion with tourism business, traders, employees and government officers. In addition, the participation level in resources and environmental management associated with opinion on environmental and resources utilization impact problems.

Discussion

People's awareness on the activities those were negative impact to natural resources and environment could enhance the increment of participation level in communities. The important factor lead to the high level of participation was the establishment of people's awareness and perception on the problem of natural resources and environment utilization on tourism purpose. In addition, local school should be used as the center of knowledge transfer to people, especially young generation, and then it can lead to sustainable resources and environmental management.

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