

**A PARTICIPATORY ACTION RESEARCH FOR SUSTAINABLE
TOURISM DEVELOPMENT THROUGH ENVIRONMENTAL
EDUCATION PROCESS: A CASE STUDY OF THE SIRINDHORN
INTERNATIONAL ENVIRONMENTAL PARK.**



KITTI ARIYANON

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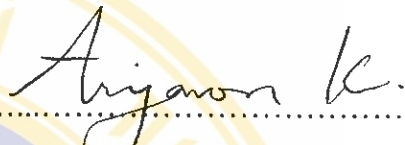
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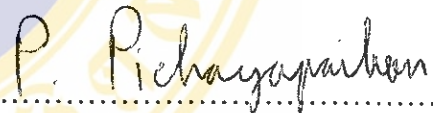
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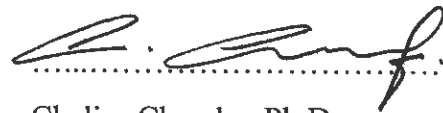
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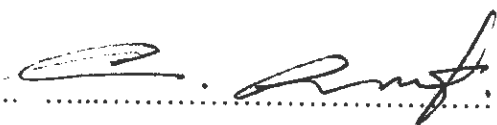
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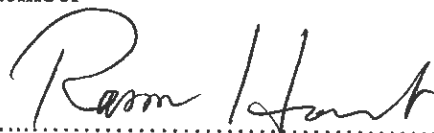
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A PARTICIPATORY ACTION RESEARCH FOR SUSTAINABLE TOURISM DEVELOPMENT THROUGH ENVIRONMENTAL EDUCATION PROCESS: A CASE STUDY OF THE SIRINDHORN INTERNATIONAL ENVIRONMENTAL PARK.

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ABSTRACT

The objectives of this research were to develop participation, knowledge, attitudes and practices in conserving ecotourism resources, and to study and compare economic, social, and environmental goals of administrations, tourists and locals before and after undertaking Participatory Action Research (PAR) in a National Park. The sample groups for studying were 30 tourists, 30 fishermen and 30 border patrol police officers in the Sirindhorn International Environmental Park, Cha-Am sub-district, Cha-Am district, Phetchaburi province Thailand, all selected by accidental sampling. The study monitored the activities and procedures encouraged by PAR. It was estimated that the tourists and the local people would increase knowledge, attitudes, practices and participation in tourism resources conservation. The Sirindhorn International Environmental Park should apply for the new government tourism status. This would help generate new alternatives for developing ecotourism occupations, increase income from tourism, decrease destruction of tourism resources, and lead to development of the economy, society, environment and sustainable tourism. Research instruments used in this study were researcher constructed questions; testing knowledge and attitude. Percentage, mean, standard deviation, T-test, and Pearson product moment correlation coefficient were employed for data analysis.

Results revealed that after undertaking PAR the problems in the Park were as follows: environment, environmental education management, human resource development and community attitude. It was found that an increase in the learning achievement of the sample groups before and after PAR was statistically different at the 0.05 level. The sample groups showed an improvement in economic, social and environmental change. The border patrol police officers who are local guides on duty in the Park, received extra income. The revenue of tourism supported maintenance of the Park. Fishermen united for tourism resource conservation. They also established other social units such as a group of tourism resource conservators. They realized that tourism had triggered the deterioration of tourism resources. The Park had rules for visiting and an increase in cleaning by tourists and locals was reported. This research integrated theories and processes of environmental ethics which were analyzed and summed up as the learning process of PAR for sustainable tourism development. After PAR, it was found that the natural study manual booklet provided for the tourists and the people in order to study before, during and after a trip accounted for an adjusted in the environment in Pak Klong Bangkra Yai. Work to better effect growth of mangrove trees in the Sirindhorn Mangrove Plantation was conducted. In the future the Park should build an embankment as a long-term solution to sea sand blowing over Pak Klong Bangkra Yai and clogging the waterway. Ecotourism in the Park increased as small-medium group of tourists came in the morning and left in the evening. Some groups stayed for long-stays within the Park and still continued to do so long after the study.

This research concluded that PAR was an appropriate means of environmental education regarding tourism resource conservation, and results in sustainable tourism development. Therefore, it is recommended that action research should be studied in the process of environmental education aimed at learning achievement and behavioral practice development, thus contributing to development of economic, social and environmental conditions. Emphasis also should be on study within other areas or tourism places, which do not have proper maintenance and management, or wish to improve their tourism. PAR encourages local income and does not deteriorate tourism resources thereby contributing to the sustainable tourism development.

KEY WORDS : PARTICIPATORY ACTION RESEARCH / SUSTAINABLE TOURISM DEVELOPMENT / ENVIRONMENTAL EDUCATION PROCESS.

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การวิจัยเชิงปฏิบัติการแบบมีส่วนร่วมเพื่อการพัฒนาการท่องเที่ยวที่ยั่งยืน กรณีศึกษาอุทยานสิ่งแวดล้อมนานาชาติสิรินธร ตำบลชะอำ อำเภอชะอำ จังหวัดเพชรบุรี (A PARTICIPATORY ACTION RESEARCH FOR SUSTAINABLE TOURISM DEVELOPMENT THROUGH ENVIRONMENTAL EDUCATION PROCESS: A CASE STUDY OF THE SIRINDHORN INTERNATIONAL ENVIRONMENTAL PARK)

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อส่งเสริมการมีส่วนร่วม และพัฒนาความรู้ เจตคติ และพฤติกรรมในการอนุรักษ์ทรัพยากรการท่องเที่ยวของผู้บริหาร นักท่องเที่ยว และประชาชนในท้องถิ่น ศึกษาเปรียบเทียบการเปลี่ยนแปลงทางเศรษฐกิจ สังคม และสิ่งแวดล้อมตามที่ได้กล่าวไว้แล้วข้างต้น ก่อนและหลังทำการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม และพัฒนาการท่องเที่ยวในอุทยานให้เป็นการท่องเที่ยวเชิงนิเวศ ซึ่งเป็นรูปแบบหนึ่งของการพัฒนาการท่องเที่ยวที่ยั่งยืน ศึกษาจากกลุ่มตัวอย่าง ได้แก่ นักท่องเที่ยว จำนวน 30 คน, แกนนำชาวประมง จำนวน 30 คน และเจ้าหน้าที่ตำรวจตระเวนชายแดน จำนวน 30 คน ในอุทยานสิ่งแวดล้อมนานาชาติสิรินธร ตำบลชะอำ อำเภอชะอำ จังหวัดเพชรบุรี โดยทำการจัดตัวอย่างแบบบังเอิญ สมมติฐานผู้วิจัยคาดว่าหลังร่วมกระบวนการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม นักท่องเที่ยว และประชาชนในท้องถิ่นจะมีความรู้ ทักษะ การปฏิบัติ และการมีส่วนร่วมการอนุรักษ์ทรัพยากรการท่องเที่ยวเพิ่มมากขึ้น จะมีการดำเนินการพัฒนาให้การท่องเที่ยวในอุทยานแห่งนี้เป็นการท่องเที่ยวเชิงนิเวศ โดยมีการเพิ่มรายได้ให้กับประชาชนในท้องถิ่นจากการท่องเที่ยว ลดการทำลายทรัพยากรการท่องเที่ยว ซึ่งจะนำไปสู่การพัฒนาทางด้านเศรษฐกิจ สังคม สิ่งแวดล้อม และการท่องเที่ยวที่ยั่งยืน เครื่องมือที่ใช้ได้แก่ แบบสอบถามทดสอบความรู้ เจตคติ และการมีส่วนร่วม สถิติที่ใช้ได้แก่ ร้อยละ, ค่าเฉลี่ย, ส่วนเบี่ยงเบนมาตรฐาน, การทดสอบค่า T-test และการหาความสัมพันธ์ของเพียร์สัน

ผลการวิจัยภายหลังร่วมกระบวนการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วมพบว่า มีปัญหาและความต้องการของอุทยานที่สำคัญ ได้แก่ ปัญหาด้านสิ่งแวดล้อมในอุทยาน, ปัญหาด้านการจัดสิ่งแวดล้อมศึกษา, ปัญหาด้านการพัฒนาทรัพยากรมนุษย์ และปัญหาชุมชน ผลการดำเนินการวิจัยพบว่า กลุ่มตัวอย่างมีความสัมฤทธิ์ผลการเรียนรู้ด้านการอนุรักษ์ทรัพยากรการท่องเที่ยวเพิ่มมากขึ้น โดยก่อนและหลังวิจัยมีความแตกต่างอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 กลุ่มตัวอย่างมีแนวโน้มในการเปลี่ยนแปลงทางด้านเศรษฐกิจ สังคม และสิ่งแวดล้อมในเชิงบวก ประชาชนในท้องถิ่นมีรายได้เพิ่มมากขึ้นจากรายได้ประจำ โดยทำหน้าที่เป็นผู้นำเที่ยวท้องถิ่น รายได้ส่วนหนึ่งจากการท่องเที่ยวยังนำมาใช้ในการอนุรักษ์ฟื้นฟูทรัพยากรการท่องเที่ยวในอุทยาน นอกจากนี้เกิดการรวมกลุ่มของชาวประมงชายฝั่งเพื่อการอนุรักษ์ทรัพยากรการท่องเที่ยว โดยจัดตั้งเป็นกลุ่มอนุรักษ์ทรัพยากรการท่องเที่ยว ซึ่งตระหนักว่าการท่องเที่ยวจะก่อให้เกิดการทำลายของทรัพยากรการท่องเที่ยว อุทยานมีกฎระเบียบในการเข้าเยี่ยมชมอุทยาน ซึ่งเป็นมาตรการหนึ่งในการอนุรักษ์ทรัพยากรการท่องเที่ยว และมีความสะอาดมากขึ้น โดยการดูแลรักษาของนักท่องเที่ยว และประชาชนในท้องถิ่น ซึ่งไม่ทิ้งขยะเกลื่อนกลาด โดยทิ้งขยะลงในถังขยะที่ทางอุทยานจัดเตรียมไว้ จากผลการวิจัยที่ได้ ผู้วิจัยได้วิเคราะห์บูรณาการทฤษฎีและสรุปเป็นกระบวนการจริยธรรมสิ่งแวดล้อม และกระบวนการเรียนรู้การวิจัยเชิงปฏิบัติการเพื่อการพัฒนาการท่องเที่ยวที่ยั่งยืน ภายหลังจากสิ้นสุดกระบวนการวิจัยพบว่า ยังคงมีความต่อเนื่องของการดำเนินการทั้งนักท่องเที่ยว ประชาชนในท้องถิ่น และผู้เกี่ยวข้อง มีการนำแผนปฏิบัติการศึกษาระบบนิเวศในแหล่งท่องเที่ยวของอุทยาน ไป จัดทำ เพื่อให้แก่นักท่องเที่ยว และประชาชนทั่วไปได้ศึกษาเรียนรู้ก่อน ขณะ และหลังการท่องเที่ยว อุทยานมีการปรับปรุงทัศนียภาพบริเวณปากคลองบางกรวยใหญ่เพื่อให้ น้ำทะเลสามารถไหลเข้าออกได้สะดวก ป้องกันปัญหาระดับความเค็มของน้ำทะเลในสวนป่าชายเลน ทูลดระหม่อม ซึ่งจะส่งผลกระทบต่อการใช้เรือใบโดยชาวประมง และสัตว์น้ำ โดยในอนาคตทางอุทยานจะทำการก่อสร้างกำแพงกันน้ำทะเลไม่ให้ น้ำทะเลพัดทรายเข้ามาปิดปากคลองดังกล่าว การท่องเที่ยวในอุทยานเป็นการท่องเที่ยวเชิงนิเวศมากยิ่งขึ้น โดยนักท่องเที่ยวจากเดิมที่เข้ามาในลักษณะเข้าไปเย็นกลับ สามารถเข้ามาพักในแหล่งท่องเที่ยว เพื่อชื่นชมและเรียนรู้ธรรมชาติมากยิ่งขึ้น

ผลสรุปที่ได้จากการวิจัยทำให้ได้ข้อค้นพบว่า กระบวนการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม มีความเหมาะสมที่จะใช้ในการทำให้เกิดการเรียนรู้เรื่องการอนุรักษ์ทรัพยากรการท่องเที่ยวซึ่งเป็นแนวทางการพัฒนาการท่องเที่ยวที่ยั่งยืน และเป็นส่วนหนึ่งของกระบวนการสิ่งแวดล้อมศึกษา จึงเสนอแนะว่า ควรนำวิธีการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วมไปใช้ในกระบวนการพัฒนาสิ่งแวดล้อมศึกษาด้านอื่นๆ ที่มีวัตถุประสงค์การวิจัยเพื่อให้เกิดสัมฤทธิ์ผลการเรียนรู้และการปฏิบัติ รวมทั้งเกิดพัฒนาการทางด้านเศรษฐกิจ, สังคม และสิ่งแวดล้อม โดยมุ่งเน้นสถานที่ท่องเที่ยวอื่นๆ ที่ขาดการดูแลรักษา และจัดการที่ดี นอกจากนี้ควรคำนึงถึงปัญหา และต้องการของสถานที่ท่องเที่ยวอื่นๆ และควรมีความต่อเนื่อง เพื่อให้ประชาชนในท้องถิ่นมีรายได้ และทรัพยากรการท่องเที่ยวไม่เสื่อมโทรม อันจะนำไปสู่การพัฒนาการท่องเที่ยวที่ยั่งยืน

CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
ABSTRACT	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
CHAPTER I INTRODUCTION	
1.1 Background and Significance of the Issues	1
1.2 Objectives of the Research	5
1.3 Scope of the Research	5
1.4 Definition of Terms Used in the Research	5
1.5 Hypotheses of the Research	7
1.6 Expected Benefits	7
1.7 Research Conceptual Framework	7
CHAPTER II LITERATURE REVIEW	
2.1 The Sirindhorn International Environmental Park	10
2.2 Participatory Action Research (PAR)	18
2.3 Environmental Education	25
2.4 The Concept and Learning Theory	33
2.5 Conservation	37
2.6 Sustainable Tourism	45
2.7 Ecotourism	48
2.8 The Concept and Theories of Environmental Ethics	64
2.9 Review Study	81

CONTENTS (Cont.)

	Page
CHAPTER III MATERIALS AND METHODS	
3.1 Population and Sample Groups	104
3.2 Research Instruments and Procedures	105
3.3 Questionnaire Development	114
3.4 Data Analysis	115
CHAPTER IV RESULTS	
4.1 Pre-Research Phase	125
4.2 Research Phase	147
4.3 Post-Research Phase	171
CHAPTER V DISCUSSION	
5.1 Finding on PAR for Sustainable Tourism Around the Sirindhorn International Environmental Park	313
5.2 Apply PAR Method to Sustainable Tourism Development in the Other Areas	224
CHAPTER VI CONCLUSION	
6.1 Conclusion	231
6.2 Recommendations from the Research	246
6.3 Recommendations for the Further Study	249
BIBLIOGRAPHY	250
APPENDIX	256
BIOGRAPHY	322

LIST OF TABLES

Tables	Page
1 PAR Procedures, Activities and Duration Using the Program Evaluation and Review Technique (PERT).	119
2 Numbers and Percentages of the Personnel as Classified by General Characteristics.	139
3 Percentages of the Value of Tourism Resources Conservation Before PAR.	144
4 Percentages of Characteristic of Valuing in Tourism Resources Conservation.	157
5 Percentages of Opinion Concerning the Model Behaviors Forming.	163
6 Means of the Behavioral Practice of Tourism Resources Conservation	167
7 Percentages of Knowledge of Tourism Resources Conservation Before and After PAR.	171
8 Comparative and Correlation among the Knowledge of Tourism Resources Conservation between Before PAR and After PAR.	175
9 Percentages of Attitude Towards Tourism Resources Conservation Before and After PAR.	177
10 Comparative and Correlation among the Attitude Towards Tourism Resources Conservation between Before PAR and After PAR.	183
11 Percentages of Knowledge of Ecotourism Before and After PAR.	183
12 Comparative and Correlation among the Knowledge of Ecotourism between Before PAR and After PAR.	188
13 Percentages of Attitude Towards Ecotourism Before and After PAR.	189
14 Comparative and Correlation among the Attitude Towards Ecotourism between Before PAR and After PAR.	195
15 Means of the Participation in Tourism Resources Conservation of Implementation Project.	197
16 Means of the Participation in Education on the Ecotourism of Implementation Project.	199
17 Means of the Participation in Environmental Ethics Development of Implementation Project.	201
18 Percentages of the Evaluation on the Project.	202

LIST OF FIGURES

Figures	Page
1 Planning Circle of PAR.	24
2 Teamwork Development Circuit of Participatory Action Research.	24
3 Integrated Cycle of Participatory Action Research.	25
4 Interrelated Components of Environmental Education.	33
5 Environmental Education Model.	34
6 Learning Process.	39
7 Sustainable Tourism Model.	51
8 Buckley's Definition of Ecotourism.	53
9 Sustainable Ecotourism Values and Principles Model.	54
10 Ecotourism Accommodation Spectrum.	56
11 Hard and Soft Ecotourism Dimensions Matrix.	58
12 Ecotourism Components Model: Overlap of Ecotourism with other Tourism Types in Brazil.	59
13 Model of Potential Ecotourism Motivations, with Generalists and Specialist Dimensions.	60
14 Sustainable Ecotourism Motivational Domain Model: Motivations Overlain by Ethics and Principles.	61
15 Natural Tourism, and Ecotourism Relation.	62
16 Ecological Sustainability, and Economic Sustainability Relation.	63
17 Component Processes Governing Observational Learning in the Social Learning Analysis.	79
18 Diagrammatic Representation of the Difference between Efficacy Expectations and Outcome Expectations.	80
19 Major Sources of Efficacy Expectations and the Sources Through Which Different Models of Influence Operate.	81
20 Component Processes in the Self-regulation of Behavior by Self-produced Consequences.	82
21 Details of Activities and Durations for the Participatory Action Research for Sustainable Tourism Development Through Environmental Education Process by PERT Technique.	119
22 Process on Participatory Action Research for Sustainable Tourism Development (pre-research).	228
23 Process of Environmental Ethics.	229
24 Learning Process on Participatory Action Research for Sustainable Tourism Development (post-research)	230

CHAPTER I INTRODUCTION

1.1 Background and Significance of the Issues

Tourism is one of the world's most significant industries. World Travel and Tourism Council (WTTC) has projected that tourism is the world's most significant economic branch presently and that it will continue to become even more important in the future. In 2003 World's Travel & Tourism Industry is expected to generate 3.7% of GDP and 67,441,100 jobs while the Broader Travel & Tourism Economy is expected to total 10.2% of GDP and 194,562,000 jobs. Looking ahead, the forecast for travel of tourism demand is expected to total 2.9% real growth in 2003, and 4.6% real growth per annum between 2004 and 2003 (<http://www.wttc.org/measure/pdf>, Dec. 2003).

Thailand is still known as one of the countries with the richest tourism resources in Asia with its 2,579 tourist attractions nationwide, 1,385 of which are natural and 1,194 of which are cultural (Tourism Authority of Thailand, 1997). It enjoys the popularity of the tourists in the same fashion as other countries. Tourism plays a substantial role in the economic system and the country's development. Its continued expansion has generated most of national revenue for almost twenty years. Number of tourist arrival to Thailand has generated 1.7 million persons more number of tourist arrival to Thailand in 2002 (11.8 million persons) and than in 2001 (10.1 million persons). Tourist revenues has generated 0.1% of GDP (%) more tourist revenues in 2002 (5.9% of GDP (%)) and than in 2001 (5.8% of GDP (%)). And tourist expenditures in Thailand has generated 102.1% of GDP (%) more tourist expenditures in Thailand in 2002 (3,850% of GDP (%)) and than in 2001 (3,747.9% of GDP (%))(<http://www.tat.or.th>, Dec. 2003).

While tourism generates great economic and social benefits, it inevitably consumes tourism resources such as natural and cultural tourism resources. Although it was believed that such resources are inexhaustible, it is now realized that the growth of tourism has triggered the deterioration of tourism resources. For example, the

development of facilities and services to accommodate the increasing tourists which has affected the environment and led the unjustified consumption of resources. There is no perfect country with unlimited abundance. Each and every country experiences different problems of varied magnitudes depending upon their management capability. These problems may stem from internal factors within the system or external factors which affect tourism namely social characteristics, economy and domestic and foreign politics. Tourism itself may affect external environments as well. As for Thailand, the Tourism Authority of Thailand has conducted a research and concluded that 172 tourist attractions of the country are in a poor state with critical problems. Physical problems of the tourist attractions is the major problem (34.06%) with environmental problems, management policy, facilities, tourists' welfare and on-site activities following at 27.19%, 19.69%, 11.25%, 6.56% and 1.25% respectively (Tourism Authority of Thailand, 1997).

In the mean time, many countries have joined the extensive and global movement to strive for environment and natural resource conservation. The reason being those environmental problems are becoming more serious and are more threatening to the lives and well-being of humans and other living creatures. Tourism development, as well as agricultural and industrial developments, is accused as the root of environmental problems with related conflicts and protests abound. The Earth Summit held at Rio De Janeiro, Brazil, in June 1992, has encouraged the cooperation of the public and the private sections in establishing systems and procedures to foster sustainable development from the decision-making level to the specification of important practical guidelines in order to make sustainable tourism development. The Summit was a part of Agenda 21 on travel and tourism industry which realized that the world's natural resources are deteriorating and diminishing at a rate faster than the replenishment. Certain travel and tourism related activities consume primarily the fragile natural and cultural resources. Therefore, care should be taken in preserving such resources so that they will last long into the future. The Earth Summit has detailed the results of ignorance which may lead to a fatal destruction in the short term, resulting in the introduction of regulations on economic punishments as well as irreversible destruction of the scenery, wildlife, construction and cultural diversity – the supporting factors which the tourism industry need to rely on in the long term.

Consequently, there is an attempt to develop tourism in a conservation-oriented manner. Thailand has previously defined clear categories of tourism as

natural tourism and cultural (as well as historical) tourism. Tourism Authority of Thailand has employed a tourism development strategy which is preventive of effects on the tourism resources under the concept of “conservation-oriented development for the sustainability of Thai tourism” (Tourism Authority of Thailand, 1997). The principal of conserving tourism resources is that they must be consumed in a sustainable manner known as sustainable tourism. The World Tourism Organization (WTO) defines sustainable tourism as “the kind of tourism that brings satisfaction to the tourists and the locals as the owners of the tourist attractions while considering loss prevention and continued development.” As well, there is ecotourism, which focuses on the study at the tourist attractions in order to save the ecosystem with a special consideration of local participation, which is a part of tourism in natural, cultural or historical sites. Ecotourism is a measure, which encourages participation in the preservation of tourism resources and a guideline to the realization of sustainable tourism under the national tourism management master plan.

The Sirindhorn International Environmental Park was previously the station of the 1st Sub-division, Tactical Training Division (Rama VI camp) and Airborne Reinforcement Sub-division, Supporting Division, Border Patrol Bureau (Narasuan camp). It was once a perfect mangrove forest with pleasant natural beauty as well as natural and cultural tourism resources. One particular example is the Mrigadayavan Palace built by the King Rama VI as a summer palace, which attracts as many as 200,000 tourists per year (Source: Mrigadayavan Palace Foundation, 2001-2003). This is considered a mass tourism where a large group of tourists come in the morning and leave in the evening. The facts those tourists generally leave problems behind and that the maintenance is below standard have led to the severe deterioration of natural, environmental or tourism resources. This is most obvious in the fast failing and reducing the mangrove forest area, which harmonizes a research of tourist attractions of the country are in a poor state with critical problems. Her Royal Highness Princess Maha Chakry Sirindhorn has presided over the site on 17th August 1994 in order to plant different mangrove forests in the areas of the Park in Klong Bangkra Yai and Klong Bangkra Noi, Cha-Am sub-district, Cha-Am district, Phetchaburi province and witness the condition of the ground and deserted area with salty flakes on the surface. She has suggested that a solution should be found in order to restore them to the green and lush natural beauty for recreational and ecosystem study related purposes.

The Border Patrol Police Bureau, Huay Sai Development and Education Center under the Royal Patronage of His Majesty the King and the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Sirisopapannawadee have joined efforts in maintaining the Park as a living natural museum and a testimonial to H.R.H Princess Maha Chakry Sirindhorn's contribution to and ability in environmental, historical and cultural conservation for people of all nations to see. Additionally, it is to be an educational site for the conservation and restoration of mangrove forest, beach forest and variety forest, a habitat for various creatures and an invaluable site for ecotourism and historical tourism of Thailand and of the world. However, the Park lacked proper maintenance and management. It is very important that awareness and environmental ethics are created in people for the conservation of natural resources and the environment. New tourism management must be found for the development of sustainable tourism through the collaboration of the administrators and the local people living in the Park for the benefits of community environmental education which will lead the locals to realize the significance of the situation and finally to participate with the tourism resources conservation.

Selfishness and the lack of a conservative mind are a foundation of the natural resources and environment destruction. It is supported by the concept of economic growth-oriented development, which does not consider the effects it might have as well. The environment awareness promotion needs to address a new vision in which all humans live in the same age and share the same resources. They must realize their ownership and rights to benefit from the environment and natural resources together in simple ways. It must be consisted of a thinking system or a value which is far for the natural resource allocation which must not be based only on the economy but also the values of the society and the lives or environmental ethics. That is, people in the society must take part in remedying environmental problems with awareness of the environmental problems on the basis of actual natural understanding and responsibility to oneself and the society. However, environmental problems can be resolved only with the collaboration of the people, organizations or agencies. Those who are to participate in the effort must have love, understanding, unity, sacrifice, and ability to express one's opinions and the willingness to listen to those of the others. This kind of collaboration will reduce power-based relationship and the chain of command. Participatory action is democratic in terms of thoughts, decision making, planning, acting and following up. Participatory Action Research (PAR) is one of the

procedures which promotes joint efforts in solving problems in order to achieve the goals of communities, agencies or organizations. PAR is a scientific method which provides proof to the facts of every stage of the operation, allows for supporting information based planning, real-world experiments and the use of data to improve the operational system which results in innovations that contribute to the sustainable development in the operational areas.

Environmental education is a long-term preventive and remedial measure for environmental problems. It is a learning process, which focuses on the establishment of knowledge, thoughts, awareness, responsibility as well as appropriate and sustainable practices regarding environment in the learners. As well, it is the foundation for the development to citizens with awareness of and concerns about the environment and related problems. They must be have the knowledge, skills, enticement, and commitment in the mission of remedying environmental problems for the conservation of environment quality and the informed, balanced and sustainable consumption of natural resources and the environment for the people of the present and the future.

The researcher is concerned about the background and significance of the issues above. Therefore, the researcher is interested in conducting a participatory action research for sustainable tourism development through environmental education process in order to create in administrators, tourists and the local people for the tourism resources conservation awareness and practices – a contribution to the national sustainable tourism development.

1.2 Objectives of the Research

1.2.1 To promote participation and develop knowledge, attitudes and practices in conserving tourism resources to administrators, tourists and the local people.

1.2.2 To study and compare economic, social, and environment goals appearances of above-mentioned administrations, tourists and the local people before and after undertaking PAR.

1.2.3 To develop tourism in the Park as a ecotourism form of sustainable tourism development.

1.3 Scope of the Research

The researcher has arranged for a participatory action research for sustainable tourism development through environmental education process. The target area for this research is the Sirindhorn International Environmental Park, Cha-Am sub-district, Cha-Am district, and Phetchaburi province. Area scope of the 1st Sub-division, Tactical Training Division (Rama VI camp), which had approximately 1,700 rai of area, cover four villages as follows: Ban Bangsai Noi, Ban Bokia, Ban Hnayshai Tai, and Ban Huayjig. It had a natural and cultural tourism site with over 200,000 tourists per year; administrators and the local people were consisted of 185 border patrol police officers.

1.4 Definitions of Terms Used in the Research

Participatory Action Research means the process working together for studying sustainable tourism development on the Sirindhorn International Environmental Park. The product of the research will be stable develop tourism occupation in the Park. The team of researchers was composed with 3 groups, such as administrators, tourists and the local people group, the official group and the researcher group. The process of participatory action research comprises brain storming analysis of community problems by starting from the stages of problem identification, actions, follow-up and evaluation gathering for stable tourism development. It is measured by observation form of participation activities.

Sustainable Tourism means the form of tourism that responds to the requirements of tourists and the local people which focuses on the national resource management for the stabilization of the ecosystem, culture and local way of life for present and future benefits. It is measured by three sets of goals, such as economics goal namely economic benefits to locals, economically viable industry, social goal namely community benefits, participation planning education employment, and environmental goal namely resource benefits, reduce resource degradation, supply-oriented management, and acceptance of resource values.

Ecotourism means one of the tourism forms, which is tourism in natural and/or social and cultural environments with educational and recreational purposes through the

nature and environments of such ecosystem. The learning pattern and procedure is one that tourists and people involved with such ecosystem can learn together under the tourism management that does not affect the nature and the environment. The local community is to participate and gain the most from tourism activities in order to establish an awareness for of sustainable ecosystem conservation. It is measured by form of testing knowledge, attitudes, and practises.

Tourism Resources Conservation means the use of tourist attractions in such a manner that least affects the area in order to benefit the majority in a long term and maintain a sustainable ecosystem. It is measured by form of testing knowledge, attitudes and practises.

Environmental Ethics means moral behavior about choices and decisions we make which affect the environment and hence affect human life. It is measured by form of testing value, characteristics of valuing and observing behavior.

Environmental Education means a systemic procedure which makes it possible for individuals to attain knowledge, idea, awareness, response, skills and the ability to make decisions involved with the environment for oneself and for all as well as to solve present and future environmental problems.

Environmental Education Process means an educational and developmental procedure for the people in terms of:

- 1) The knowledge and attitude towards tourism resources conservation and ecotourism.
- 2) The awareness of tourism resources conservation problems in order to search for solutions.
- 3) Participation in conserving tourism resources.
- 4) The encouragement to create in conservative behavior, which leads to a quality of life and environment.

1.5 Hypotheses of the Research

After the conduct of this research, it is knowing the procedure activities of occupation development through PAR method. Researcher estimates that the tourists and the local people have increased the knowledge, attitudes, practices and

participation of tourism resources conservation. The Sirindhorn International Environmental Park can apply into doing the new tourism form. This also will help generate new alternatives used for developing ecotourism occupation, increased income from tourism, decreased destroy tourism resources, leading to development of economy, society, environment and sustainable tourism.

1.6 Expected Benefits

1.6.1 The Sirindhorn International Environmental Park and the community are developed. The administrators, tourists and the local people have attained tourism resources conservation knowledge, attitudes and practices.

1.6.2 The administrators, tourists and the local people participate in tourism resources conservation.

1.6.3 After PAR, the Park can apply into developing ecotourism occupation, reduce destroy tourism resources, leading to sustainable tourism

1.6.4 The new tourism form is adapted to the Park and helps with the sustainable tourism development.

1.7 Research Conceptual Framework

PAR for sustainable tourism development will be successful if the framework and proceeding of this research are relates with 3 groups of people. The first are administrators, tourists and the local people whose join with PAR project. The second are the officails, who work in areas doing PAR. The last one is the researcher who advises PAR methodology. Everybody has the ability to think and works in teamwork in order to better the quality of life. Let is begining to be originated from personal conception on community problems and needs, and lead to a better understanding and action that will provoke a change on oneself and community in intellectual mind and physical aspects. The research is consisted of three classifications of projects:

1) Tourism resources learning and conservative project.

Activities requiring participation, which focuses on the development of tourism resources conservation, related knowledge, understanding and attitudes in administrators, tourists and the local people. The activities are as follows:

1.1 Educational activity on tourism resources conservation.

1.2 Plantation activity within the area of the Park.

2) Educational project on the ecotourism.

Activities requiring participation, which focuses on the development of the ecotourism, related knowledge, understanding and attitudes in administrators, tourists and the local people. The activities are as follows:

2.1 Educational activity on ecotourism.

2.2 Natural interpretation conveyance activity.

3) Environmental ethics project.

Activities requiring participation for the improvement, conservation or refurbishment or the development of the awareness of the local people in the appropriate direction, making it possible for them to live seamlessly with the nature and the environment. The activities are as follows:

3.1 Faith inspiring activity.

3.2 Model behaviors forming activity.

3.3 Behavioral practice activity.

This research is achieved by the research and development of tourism resource conservation knowledge (K), attitudes (A), practice (P) and participation (P) of 3 groups of people, which allows them to attain tourism resources conservation awareness and tourism development. It has three sets of goals such as economic, social and environment goal in the model represent the three arenas, which must be given equal weight in striving for sustainable tourism. The model demonstrates an approach where all three spheres are as follows:

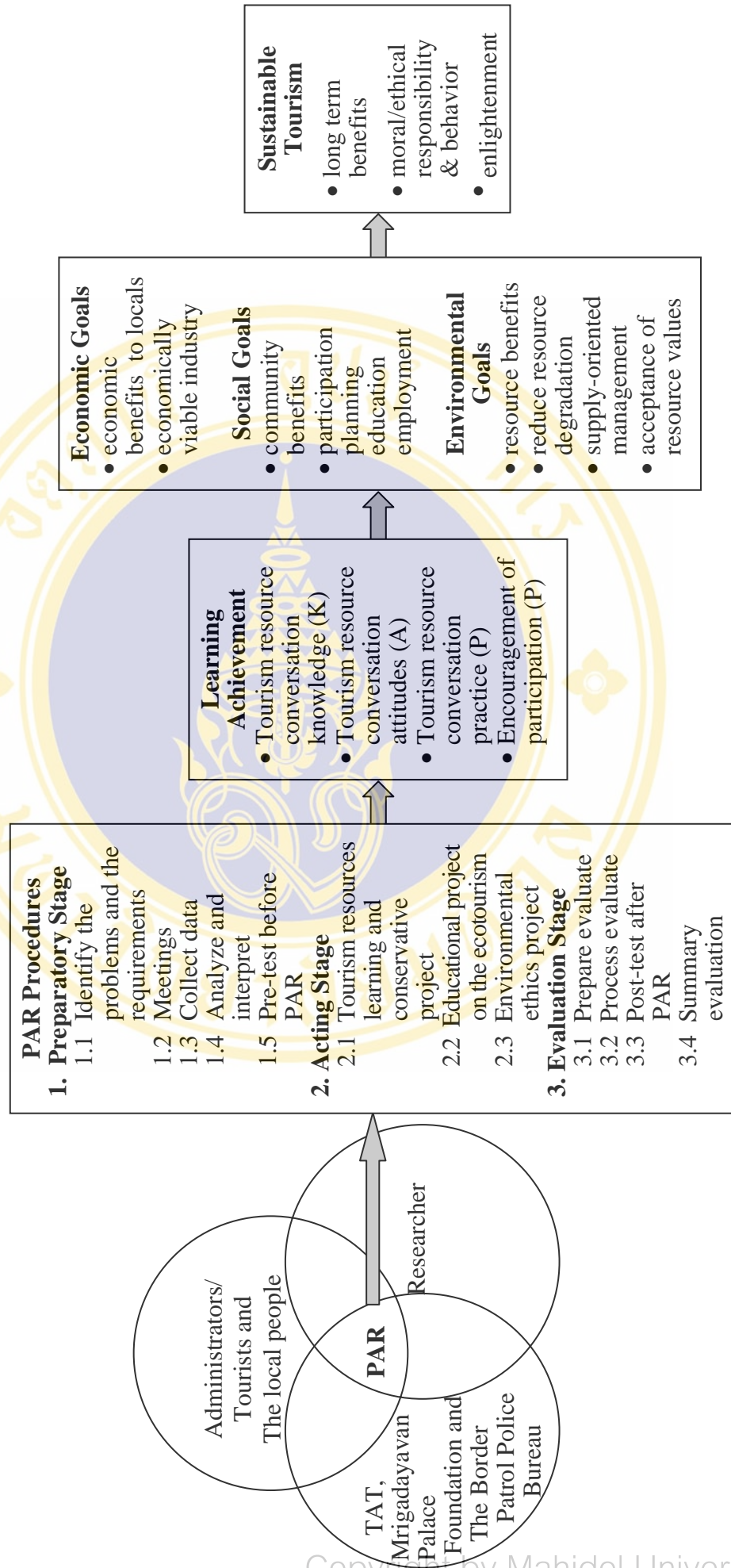
1) *Economics goal*: economic benefits to locals and economically viable industry.

2) *Social goal*: community benefits and participation planning education employment.

3) *Environmental goal*: resource benefits, reduce resource degradation, supply-oriented management and acceptance of resource values.

There must have goals fulfilled for there to be balance, which is requires for a absolute goal “*sustainable tourism*”: long-term benefits, moral/ethical responsibility & behavior, and enlightenment. It should rely on Whight’s sustainable model of ecotourism (Whight, 1993). The details have shown in conceptual framework.

Conceptual Framework



CHAPTER II

LITERATURE REVIEW

Major contents of this chapter are the bounding of conceptual framework, theory and related literature concerning this study. The contents are divided into nine parts:

- 2.1 The Sirindhorn International Environmental Park
- 2.2 Participatory action research (PAR)
- 2.3 Environmental education
- 2.4 The concept and learning theory
- 2.5 Conservation
- 2.6 Sustainable tourism
- 2.7 Ecotourism
- 2.8 The concept and theories of environmental ethics
- 2.9 Review study

2.1 The Sirindhorn International Environmental Park

The Sirindhorn International Environmental Park was situated Rama VI camp and Narasuan camp, Cha-Am subdistrict Cha-Am district, and Phetchaburi province. Phetchaburi province was far from southwest of Bangkok Metropolitan 123 kilometers. It had the total areas were 6,255.138 km² and 8 districts such as Mueang district, Kao Yok district, Ban Lam district, Ban Lad district, Cha Am district, Tha Yang district, Kang Krajan district and Nong Yapong district. It had populations were 450,040 persons, who had the most of occupation been farmers, fruit gardens and fishermen respectively.

The Sirindhorn International Environmental Park had approximate areas on 2,400 rai, cover four villages as follows: Ban Bangsai Noi, Ban Bokia, Ban Hnayshai Tai, and Ban Huayjig. The Park was previously the station of the 1st Sub-division, Tactical Training Division (Rama VI camp) and Airborne Reinforcement Sub-

division, Supporting Division, Border Patrol Bureau (Narasuan camp). It was once a perfect mangrove forest with pleasant natural beauty as well as natural and cultural tourism resources. One particular example is the Mrigadayavan Palace built by the King Rama VI as a summer palace, which attracts as many as 200,000 tourists per year (Source: Mrigadayavan Palace Foundation, 2001-2003). This is considered a mass tourism where a large group of tourists come in the morning and leave in the evening. The facts those tourists generally leave problems behind and that the maintenance is below standard have led to the severe deterioration of natural, environmental or tourism resources. This is most obvious in the fast failing and reducing the mangrove forest area, which harmonizes a research of tourist attractions of the country are in a poor state with critical problems.

Her Royal Highness Princess Maha Chakry Sirindhorn has presided over the site on 17th August 1994 in order to plant different mangrove forests in the areas of the Park in Klong Bangkra Yai and Klong Bangkra Noi and witness the condition of the ground and deserted area with salty flakes on the surface. She has suggested that a solution should be found in order to restore them to the green and lush natural beauty for recreational and ecosystem study related purposes. She visited the Rama VI camp on August 14, 1994 and gave an idea that “to make an appropriate land in order to try out and get back the condition of mangrove plantation for returning the habitat science into the nature”. After that she planted several kinds of trees in the mangrove plantation in Pak Klong Bangkra Noi and Klong Bangkra Yai on August 17, 1994 and gave an additional idea how to maintain and survive all that trees and continued to plant some more trees. The Border Patrol Police Bureau by Police Lieutenant General Kumron Leeyawanit Commissioner, Border Patrol Police Bureau, Police Major General Deerak Pongpamon Commander, Tactical Training Division, Police Major General Nipon Siritwong Commander, Supporting Division, Border Patrol Bureau and Dr.Charlies Cha-cha who is consultant of the Border Patrol Police Bureau had joined with Huay Sai Development and Education Center under the Royal Patronage of His Majesty’s King and Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee had together established the Sirindhorn International Environmental Park to dedicate for her on the occasion of the 48th birthday anniversary in the year 2003. Inside the Park had components are as follows:

2.1.1 Cultural Environmental Park

2.1.1.1 The Mrigadayavan Palace

His Majesty King Vajiravudh, Rama VI, had this summer palace built in 1923. Mr. Ercole Manfredy, an Italian architect to the public works department of royal Thai government, drew up the plans in accordance with the King's sketches. The concrete pillars holding up the golden teak palace all have niches around the pillars that were filled with water to keep ants from climbing up to the residence. The Mrigadayavan Palace built of golden teak on 1,080 concrete pillars that have niches around each pillar that were filled with water to help ants from climbing up into the residence. There are three groupings of buildings: the residence chambers and staff officers, a royal dining hall and the royal residence with a seaside pavilion; and the inner chamber and the ladies' seaside pavilion. These buildings were connected by covered walkways, as follows:

(1) The Phisan Sakorn group of residences

The Phisan Sakorn group of buildings was the residence of His Majesty King Vajiravudh, Rama VI. There is an open hall, which was used as a dining hall in the western style. There is a covered corridor linking the residence to the changing room at the beach bathing partition.

(2) The Samoson Sevakamat group of residences

The Samoson Sevakamat was constructed as a pavilion and used as an audience chamber as well as a place for staging play as a royal means of teaching the general staff about duty, love for nation, manner of behavior and other matters. The second floor across from the stage was reserved for the queen and ladies of the court.

(3) The Samut Phiman group of residences

The Samut Phiman group of residences was constructed in 1923 for Her Majesty Queen Indrasakdisachee, high ranking court ladies and their entourages. This was also a bathing pavilion for the ladies who were considered the "inner court" and therefore was separated from the king and his entourage.

2.1.1.2 Chaophraya Ramrakop residence

This teak and cement blockhouse on cement pillars is the only house remaining that was built for the entourage of the King Rama VI. It is typical of the seaside house of the 1990's with open verandahs and a lilted hip roof. It was the residence of Chaophraya Ramrakop, who was the general Aide-de-camp to the King and also a royal page from the verandah, the general could see the signal lights from

the palace yellow to signify His Majesty was getting dressed for dinner so that general could proceed to the palace before the signal lamp changed to green, which meant that the King was already at the dinner table.

2.1.2 Natural Environmental Park

2.1.2.1 The Sirindhorn mangrove plantation

The Sirindhorn International Environmental Park was once a perfect mangrove forests. Later people lived in its and attack to cut mangrove forests for agriculture. Not into 40 years ago mangrove forests were destroyed absolutely. Result rain did not to fall real reason and had decreased volumes. Land was without the rain, soil lacked maintenance to occur not balance in nature, soil erosion almost highly. Condition of forest ecosystem was destroyed, result water volumes flowed to Klong Bangkra Yai and Klong Bangkra Noi had decreased water volumes.

In 1991 the mangrove forests were most obvious in the fast failing and reducing the mangrove forest area. A survey of the Klong Bangkra Noi revealed that the areas of total mangrove forests were about 22.08 rai or 1.29% of the total areas, and Klong Bangkra Yai revealed that the areas of total mangrove forests were about 11.88 rai or 0.69% of the total areas. Her Royal Highness Princess Maha Chakry Sirindhorn has presided over the site on 17th August 1994 in order to plant different estuary forests in the areas of the Park in Klong Bangkra Yai and Klong Bangkra Noi, Cha-Am sub-district, Cha-Am district, Phetchaburi province and witness the condition of the ground and deserted area with salty flakes on the surface. Her Highness has suggested that a solution should be found in order to restore them to the green and lush natural beauty for recreational and ecosystem study related purposes.

Since August 14, 1991; Her Royal Highness Princess Maha Chakry Sirindhorn had concept to provide appropriate areas for mangrove forests rehabilitation come back. And August 17, 1994; she planted mangrove forests as following: *Avicennia marina*, *Avicennia alba*, *Avicennia officinal*, *Rhizophora apiculata*, *Rhizophora mucronata*, *Bruguiera gymnorhizs*, *Bruguera cylindirica*, *Ceriops tagal*, and *Sonneratia caseolaris*. Mangrove forests in the Sirindhorn International Environmental Park as known “The Sirindhorn Mangrove Plantation”, its had two areas such as 1) North and Northeastern of the Park and 2) Southeastern of the Park, which had components mangrove forests approximate total areas on 120 rai. In 2003 mangrove forests had increased about 86.04 rai or 215.74%. See in the pictures.

BeforeAfter

The Sirindhorn Mangrove Plantation

Mangrove forest

(1) Characteristic and importance of mangrove forest

The mangrove forest is the group of plants, which grow in the coastal, which can be flooded by the sea. Important plants are *Rhizophora*, *Avicennia marina*, *Xylocarpus* and *Leucadendron* etc. all over a mangrove forest is reproduced and developed place for aquatic animal in childhood. Most of important animals which are the economical animal grow up and reproduce in a mangrove forest such as many shrimps, white snapper, oyster and sea crab. Mangrove forest can provide a higher productivity per unit than other forest when it reaches its maximum development. Mangrove forest wood can use for firewood product especially charcoal from *Rhizophora* can get heavy, dense and hard, with a high calorific value. In fishery, mangrove forests are productive ecosystem and play crucial roles in the life cycle of many marine species. The given significant must of organic matter as plant detritus which support coastal food web, Furthermore, for the coastal protection, mangrove forest can reduce damage from, storm surge, coastal erosion, flooding, high winds, and soft toxin on land not to fall down in the sea (Aksornkaew S. & Paphavasit N., 1993).

The mangrove forest grows along the coastal area, the mouth of river, lake, and the island of country in which tropical zone: coastal area in South

America, Central America. Asia such as Bangladesh, India, Pakistan, Sri Lanka, Indonesia, Malaysia, Philippine, China, Taiwan, Thailand, and Vietnam. Not only that we found in Australia, Fiji, Japan, New Zealand, however, from the research showed that almost perfect mangrove forest can be found in Asia (Thailand, India, and Malaysia). The most appropriate are for growth is the coastal are the mouth of river, lake or bay where have sandy soil and can be flooded by the sea.

Mangrove forest is an ecological group of evergreen plant species belonging to several families but processing marked similarity in their physiological characteristics and structural adaptations to similar habitant preferences. The species zone of mangrove forest is subjected to the degree of inundation of tidal water and the others complex environmental factors such as soil type, soil salinity, the nature of the coast, and climatic condition. The zone of mangrove forest can be divided by means of dominant tree species. Aksornkaew S. & Paphavasit N., (1993), described the mangrove forest community structure varied form the edge of the estuary of river to inland sites. *Rhizophora apiculata*, *R. mucronata*. are dominant species occupying an area along the edge of the forest. *Avicennia* and *Bruguiera* occasionally associated with *Rhizophora* formed a more distinct zone behind the band of *Rhizophora* occur at higher level. As the land gradually rise the soils is firmer and the tidal inundation is less frequent, *Xylocarpus* and *Excoecaria* become the dominant species. Some aress behind the *Avicennia* and *Bruguiera* zone particularly the areas with a low topographic relief and soil with high clay content, *Ceriops* and *Lumnitzera* are usually found. *Nipa fruticans* is also found in this area. *Melaleuca* reaches its highest dominance further inland, in the transition to the tidal mangrove forests where the areas are regularly disturbed. The fern *Acrostichum aureum* also grow densely on the raised areas of *Xylocarpus* and *Melaleuca* zone. Associated with *Acrostichum aureum*, the thorny palm, *Phoenix paludosa*, is found scattered on the relatively dry area.

Because of the abundance of mangrove forest, it is the gathering place of marine animals and land animals, especially many shrimps, mullet, snapper, crabs and much kind of shells. Beside, we can find many other mammals animals such as birds, monkeys, gibbons and many types of reptiles, including small animals in the kind of microorganism such as *Bacteria*, *Fungi*, *Protozoa*, *Phytopankton*, and *Bentic fauna*.

(2) Mangrove ecosystem

Mangrove forest has a unique ecosystem, which can be found only in the tropical region seashore in the tidal zone. Mangrove ecosystems and life zones have a specific ecological structure and function. This ecological structure will emphasize the function of energy flow within the food chain and food web the biological components of the mangrove ecosystem are producers and decomposers. (Aksornkaew S. & Paphavasit N., 1993).

(3) Mangrove forest in Thailand and Phetchaburi province

Total area of mangrove forest in the world is said $0.17 \times 10^6 \text{ km}^2$ (0.9% of rain forest). 27% of mangrove forests area in Asia (http://www.survas.mdx.ac.uk/pdfs/3_furukaw.pdf. Dec., 2003). Total area of mangrove forest in Thailand is $1,740 \text{ km}^2$ (1% of world mangrove forest). The total length of shorelines in Thailand is approximately 3,000 km, which are located in 24 provinces in the central, eastern and southern regions. The shortest shoreline of 5 km is found in Bangkok while the longest of 240 km is in Phang Nga province (http://www.survas.mdx.ac.uk/pdfs/3_durong.pdf. Dec., 2003).

The Faculty of Forest, Kasetsart University, studied reveals that mangrove forest decreased the rate of 2,292 rai per annum. During the past 35 years (1961-1996) mangrove less was found around one million rai. Mangrove forest area at not less than one million rai (400,000 acres) by the end of the Eighth Plan (1997-2001) (<http://www.fao.org/docrep/003/x6900e>. Dec., 2003).

Mangrove forest had decreased 95.22% in 1993 and than in 1965 (55,000 rai and 2,625 rai). The presentday total area of mangrove forest in Phetchaburi province is approximate only 2,725 rai. It had generated 3.8%. The type of mangrove forests was found that *Avicennia marina*, *Avicennia alba*, *Avicennia officinal*, *Rhizophora apiculata*, *Rhizophora mucronata*, *Bruguiera gymnorhiza*, *Bruguiera cylindrica*, *Ceriops tagal*, *Sonneratia caseolaris*, *Sonneratia ovata*, *Excoecaria agallocha* and *Thespesia populnea*. (<http://www.fao.org/docrep/003/x6900e>. Dec., 2003).

(4) Factors of the loss of mangrove forest

Factors of the loss of mangrove forests were as follows (Office of Environmental Policy and Planning, NESDB, 1997):

4.1 Over cutting tree for fuel. Trees grown in mangrove forests are found best for charcoal burning. There is always a high demand in charcoal in both

rural and urban markets. Therefore, trees have always been illegally cut in the mangrove forests.

4.2 Construction of road network for better communication and transportation. Roads have been built to prevent agricultural farms from seawater intrusion.

4.3 Increasing in population has always caused decreasing in mangrove forests. Several resident and government buildings are found on previous mangrove area.

4.4 Expanding industrial sectors into mangrove forest. Most factories along shorelines are deal with canned fish business. The increased industrial rate in mangrove is 15%.

4.5 Mining concession in mangrove forests was found in Ranong (4,289 rai), Phang Nga (1,100 rai) and Phuket (335 rai). Such activity harms the mangrove ecology and creates turbid in the sea.

4.6 Shrimp farming expansion along shoreline. Large mangrove areas have been converted to shrimp farms. Beach erosion, sedimentation and water pollution occurs after the loss of mangrove.

4.7 Salt farming. This type of land use was mostly found along the shoreline of Samut Prakarn, Samut Sakhon and Samut Songkhram provinces. A few were also found in the provonce Chonburi, Phetchaburi and Pattani. The total area of salt farm was 66,000 rai. Salt farming could earn about 1,150 baht, which was considered high. High demand of seawater salt in the world markets encourages the expansion of saltpans and thus, causes the destruction of mangrove forest.

4.8 Confused government policies. Since 1966, the Thai government has resulted about 23 policies and regulations in relation to mangrove conservation. The government has, on hand, addressed about mangrove conservation, but on the other, promoted and supported shrimp farming. The Thai government has decide not to grant land title deeds to those occupy mangrove no matter how long they have made use of it.

4.9 Extensive agricultural pattern. Due to shortage of inland for agriculture, mangrove forest been converted to paddy farming and coconut plantation in Samut Songkharm province. However, the areas are not suitable for paddy and coconut because of salty soil.

4.10 Calcification process. After the mangrove has been cleared

and soil is not covered, a process of calcification occurred. It was found that seashells mixing in the uncovered soil are they of the process, and soil becomes hardened. As a result, some species of trees usually grow the area would be not longer found.

(5) Principles and rehabilitation of the mangrove forest (Office of Environmental Policy and Planning, NESDB, 1997).

5.1 Selection and prepare areas for plants.

Select areas appreciate for each plant. Considering from natural seeds which upon each zone from beach to inner forest. Select areas for *Rhizophora* must be clay, which flood always, *Avicennia* would like slushing and flooding always too. Similarly *Sonneratia caseolaris* and *Sonneratia ovata*, but clay would rather than sandy soil. *Bruguera*, *Ceriops tagal* and *Bruguiera* must be shallow slush and flood always too. *Excoecaria agallocha* would like rather than hard clay, fattening clay, and flooding sometimes. Exception marine salt factor has effectively. *Rhizophora* is growing up saltier than *Excoecaria agallocha* etc.

Prepare areas for plants got rid of *Derria* and *Acrostichum* before, which protected to catch both flood and light. For example, if you plants *Rhizophora* you would adjust area to flood always, and you must make pipe for seawater flow always too.

5.2 Selection plants

For example, *Rhizophora* selection it has produces characteristic pods to stick a branch, such as *Rhizophora apiculata*, *Rhizophora mucronata*, *Bruguiera gymnorhiza*, *Bruguiera cylindrica*, and *Ceriops tagal* etc. The harvest of their pods for plant must be old pods as its fell down from tree or its were kept from forest. If its stick to tree, some plant might observe, such as old pods of *Rhizophora mucronata* calyx have yellow color, and *Rhizophora apiculata* calyx have red color. Exception pods were providing for plant, which peels of pods do not pierce from insects. Otherwise, when you plant breed, it's weaken and die. Exception plant of mangrove forest may be using breeds, which grow up in natural forest by digging to leave in plastic bag and maintain in planting house spend approximately 4-5 months. When breeds physically strong to plant prepare areas.

5.3 Schedule to distance for plants

Plant of *Rhizophora* plants to distance between item 1 X 1 meter or 1.5 X 1.5 meters. However distant plant upon utilizing. For planting must be row and column. If you plant using pods, you might plant direct do not have main wood. If you plant using breed, you should have main wood before in order to prevent windy flow and tidal wave.

5.4 Maintenance

Necessary plant must be maintenance because may be pest insects, such as Lappet moths, Bag-worm moths, Fire flies, and Leaf-eating caterpillar etc. And important foe plants which a lot of meeting such as *Acrostichum aureum*, *Acanthus spp.*, *Derris trifoliata*, and *Finlaysonia maritima* etc. Plant got rid of them and kept all before. Exception implementation dug around the mouth of river for seawater into plot.

The Sirindhorn International Environmental Park was previously. It was once a perfect mangrove forest with pleasant natural beauty as well as natural and cultural tourism resources but the park lacked proper maintenance and management. This is most obvious in the fast failing and reducing the mangrove forest area, which harmonizes a research of tourist attractions of the country are in a poor state with critical problems. Participatory Action Research is one of the procedures, which promotes joint efforts in solving problems in order to achieve the goals of community and the Park, which results in innovations that contribute to the sustainable development in the operational areas.

2.2 Participatory Action Research (PAR)

Participatory action research is a research and development (R&D) emphasizing on the change on the development of targeted organization, institution and community. The goal is to enhance individual potentiality and encourage each individual to participate in the development of their own organization, institution and community. PAR is designed for social development. Previously the concepts of national and social, politics academic or human resources development. Hence the undergoing social development cannot reach the anticipated goal and many unexpected problems have risen. Other striking effects from such development are the increasing of less-opportunity groups in society. In spite of much effort from government and non-government organization (NGO) to help development projects on social, economics and education development have faced the same problems. As a result, a group of academics and developer have searched for a way to better the lives of less-opportunity in society. It is found that PAR is an effective method. At the

same time, WHO and World Bank also promoted and encouraged community participation particularly in community from every step of the research is recognized and exploited by community. Community defines its own problems and finds out the solutions. Community is the one who determines and insists on the resolution to solve such problems. The research is executed in forms of exchanging experiences, and ideas between community and researcher. The exchange of idea is a dialectical synthesizing method. Community will then gradually enhance their capabilities to solve community problem and manipulate self-learning. Information from such researches will be special and reflects community's ideas, needs and norms (Sudaprasert K., 1997).

Conclusion, PAR is a method of learning from experience made possible by active participation of all parties involved with the research activities such as administrators, tourists, the local people, the officials and the researcher from the stages of problem identification, actions, follow-up and evaluation.

2.2.1 The Philosophy of PAR

The philosophy of PAR emphasizes to help less-opportunity group in society believe in human capacity to solve their own problems when they have to make a decision. Education should encourage the confidence of people that they can achieve something for themselves. Education should support the learning which is most beneficial to people. The highest goal of PAR is to help community set their own to support the goal for individual development. (Sudaprasert K., 1997).

2.2.2 The Concept of PAR

PAR is a methodology consisting of two key words: participation and action. This research applies 2 concepts of research methodology, which is participatory research and action research (Department of Non-Formal Education, 1995).

For alternative developer, participation means that people members in community, researcher and staffs have exchanged ideas and assessed community needs. Together they analyze current situation and point out problems a weakness of community, and then find out the solution for such problems. Several of community resources are investigated. Ranging from natural resources, human resources both inside and outside community that are organization and institutions in that area. Problem solving, action plan, follow-up, and evaluation process are accomplished by all parties especially the members in that community who have joined the entire process. (Department of Non-Formal Education, 1995).

2.2.3 The Objectives of PAR

The goal of PAR is to give more chance to less-opportunity group to learn so that they can develop themselves. This will lead to a development in community and society. Quality of living will be better. (Department of Non-Formal Education, 1995). Thus, the objectives of PAR is as follows:

- (1) Stimulate the consciousness of less-opportunity groups to recognize their own problems and make them realize their responsibilities to solve their own problem and community.
- (2) Execute the research emphasizing on data collection and analysis with scientific approach. The data will help in decision-making process. Defining problem finding solution and problem solving. This process will be accomplished by community may be with the cooperation by organization and institutions in charge.
- (3) Join with community to carry out socio-economical and political activities.
- (4) Encourage group forming as well as teamwork in problem solving, and community development. All activities must be run continuously.

2.2.4 The Principles of PAR

Chaitheeranuwatsiri M. (1996), said that principles of PAR is as follow:

(1) PAR is a dynamic and living process. In other words, it is not static. The research executed in real situation and searches for the problems and the origin of such problem in society. It is from economics situation, society, politics, culture or belief. Then this research will move towards the possible end in the future, though it is not predictable. As a result, PAR must have a distinct characteristics which are:

- Flexible and adjustable.
 - Unfixed timing.
 - Unfixed activities (particularly for problem solving).
- (2) PAR will be successful if researchers and involving entities believe that:
- Everybody has the ability to think and works in teamwork in order to better the quality of life.
 - Indigenous knowledge is equally important as knowledge if researcher, academics or developer.
 - Everything in community – knowledge, skills, existing and potential resources must be equally distributed.

(3) PAR must be originated from personal conception on community problems and needs. PAR then will leads to a better understanding and action that will

provoke a change on oneself and community in intellectual mind and physical aspects.

(4) PAR is a continuous process and will not end only one cycle. It would rather leads to a new cycle will exist and continue as long as local people and community members can hold on together.

(5) Impacts of PAR on community and researcher are as follow:

- Local people and less-opportunity groups will be more educated so that they can figure out and analyze the situation more precisely. They will be confident to participate in economics social and politics activity that will be development is bringing about.

- Major problems in community will be solved. Less opportunities group will be given more chance. Resources and benefits will be allocated thoroughly and fair knowledge and information is a mean to a better living quality in community.

- Research and developer will learn from community and gain experience from working with community. Leading to a better understanding on community and accomplish a genuine development.

- Researchers will accomplish their ideal development.

2.2.5 PAR Methodology

PAR does not only aim to find out the answer to establish a concept theory or problem-solving planning, but it is also a development on individual and community involving with studying process for personal potential development (Department of Non-Formal Education, 1995). As a consequence PAR must consists of the following methodologies:

(1) It is adult education and group forming. PAR relates to adult education in terms of encouraging people to think to be confident and decisive. This kind of personal development is an education process but the teaching strategy is not like teacher and students. An effective strategy is to get close to people and have them working as well as problem solving. As a result grouping process and group forming is a key for the success of PAR.

(2) Apply qualitative research (participatory research), which aims to find facts together with people in the process of data collection and analysis.

(3) Apply actipn research in which community members must solve their own problem by action plan and expedient problem solving.

(4) Apply problem-solving methodologies in every process ranging from identifying problem analyzing problem presenting situation. In all step of problem-solving process community will think to solve problems by their own but will apply information and principles suggested by researchers.

2.2.6 The Cycle of PAR

To stimulate a sense of mutual holding is a key the process of PAR. After all activities are finished and researchers have moved out of the community people will still feel bound to activities they have done these activities will be continued. This is a basis for sustainable development. PAR is a process in which 3 principles entities-people (in this study refers to administrators, fishermen leader and the border patrol police officers), the officials and researchers will work in teamwork. (Sudaprasert K., 1997). PAR can be separated into 3 related circuits:

(1) Planing circuit consisting of significant process as follow: cooperation in determining vision, responsibilities, main mission, goal, strategy, action, evaluation, and responsiveness. These circuits will be shown in Figure 1.

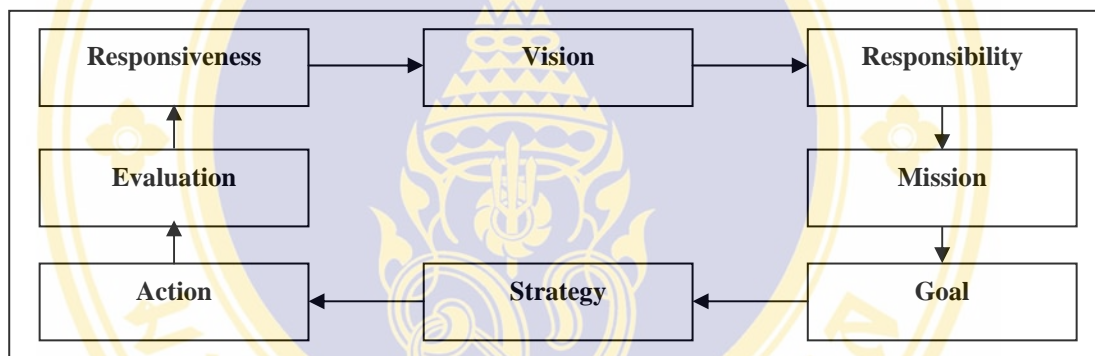


Figure 1: Planning circle of PAR.

(2) Teamwork development circuit is a process to develop teamwork in order to accomplish planning. It starts from aim and direction towards the point where all entities are alliance and have reached an agreement enlightenment and readjustment as in Figure 2.

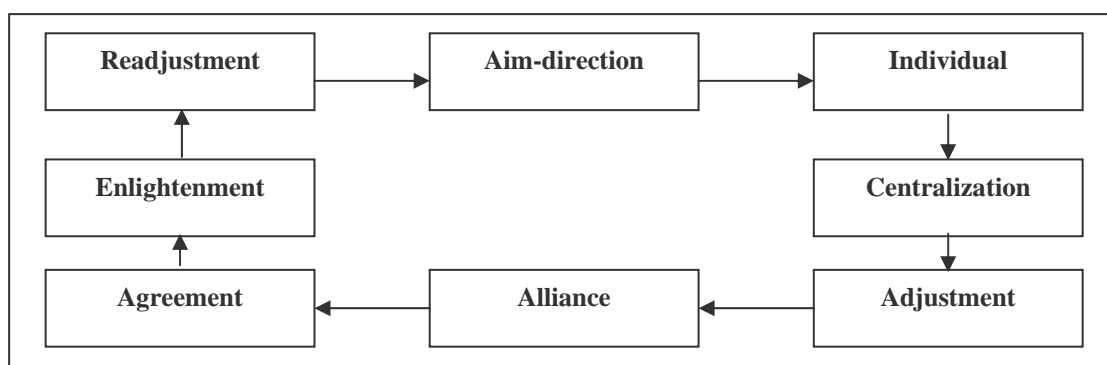


Figure 2: Teamwork development circuit of PAR.

(3) Integrated circuit is to integrate the first and second circuit. Every step in planing process will be combines with every step in teamwork development. This integration will give and experience to a small dynamic group in safe environment as in Figure 3.

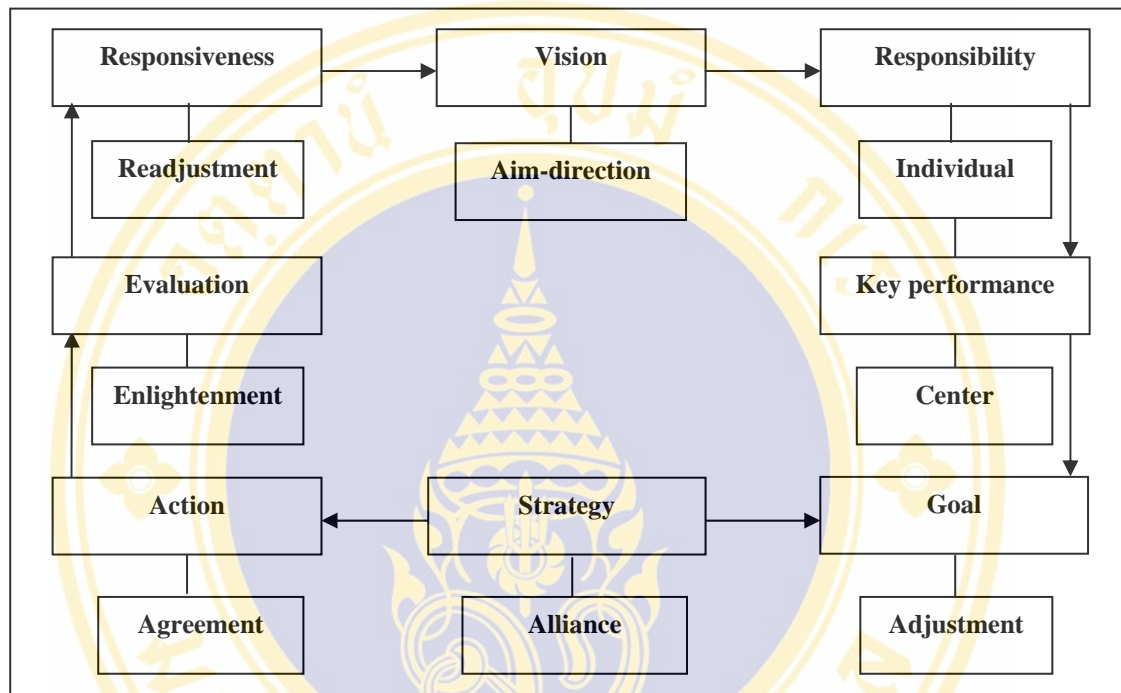


Figure 3: Integrated cycle of PAR.

There are 7 major steps in these 3 circuits, which will be clarified as follows: (Sudaprasert K., 1998)

1. Vision – Aim-Direction

An explicit vision must present positive announcement on direction that the team wishes to accomplish in some point of time such as guideline philosophy or values. This will provide a framework for policy decision and action.

2. Responsibility – individual

A responsibility should declare why teamwork is required and clearly explain the main mission and value of this teamwork. Special skills and extra activities of teamwork must be specified. The responsibilities will points out the objective of teamwork and develop a uniqueness of each individual in the team. The involving beneficiaries play a major role to determine responsibilities and uniqueness. The factor for success is change from internal organization to external beneficiary. The

understanding of needs requirement and limitation of beneficiary of involving beneficiary of those entities is therefore a very important factor to make a decision and determination on responsibilities and uniqueness of each individual.

3. Key performance – Center

Key performance area (KPA) is a critical point in the circuit, which will lead to an achievement set by vision and responsibilities. The best way to determine the mission is to brainstorm and find out strength, weaknesses, opportunities and threats (SWOT).

4. Goal – Adjustment

In determining goal, the efficiency and effectiveness of work must be considered. Most of the goal should to beneficiary. A process leading to an agreement on goal will assist in teamwork readjustment. Everybody will understand the goal of the team and is able to assist to reach that goal.

5. Strategy – Alliance

After determining goal a strategy to accomplish that goal must be defined. This can be reached by establishing alliance with related group or people and brainstorm to breakdown the obstacle to accomplish that goal.

6. Action – Agreement

The successful a specific action plan for each goal under the framework of strategy and alliance will point out the starting point of the plan and point out the responsibilities of each entity. All of these will help to accomplish the goal.

7. Evaluation – Enlightenment

The successful teamwork needs some responses on the transformation of both internal and external plan needs to be developed. Development conference is necessary if not there would be some problems on the whole process.

PAR can be adapted by dividing into 3 stages, according to the stage of the research, as follow: preparatory stage, acting stage and evaluation stage. The aim of the research separation is to clarify the operational process. However in practise the research steps might not be simple be done in one stage and continued in another stage they might be returned to the beginning.

This research is both research and development. It is research for sustainable tourism development through environmental education process because researcher,

administrator and the officials work with the local people in order to develop the community and strengthen community in the Park. The community people will be able to solve the problems and responsible to its community leading to self-reliance. However, the accomplishment cannot be done in the short period of time, we cannot determine the specific time frame. Thus, before conducting this research, the crucial concepts of participatory action research should be referred to. These crucial concepts are problem solving emphasis, community problem- oriented and community people development project.

2.3 Environmental Education

Environmental education has been evolving for many years. It got a big stimulus in 1972, when representatives at the United Nation Conference on the Human Environment in Stockholm, Sweden recommended that the UN established an international environmental education program. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) followed up on the recommendation by sponsoring a series of environmental education workshops and conferences around the world. In 1975, representatives from member nations met in Belgrade, in the former Yugoslavia, to outline the basic definition and goals of environmental education. Then in 1977, representative from more than 60 nations gathered in Tbilisi in the former Soviet Republic of Georgia for a follow-up to Belgrade. Delegates to these two international conferences ratified the following definition of environmental education.

2.3.1 Definition of Environmental Education

UNESCO-UNEP (1976), the environmental education is defined as a process aims at developing a world population that is aware of, and concerned about, the total environment and its associated problem, and which has the knowledge, attitudes, skills, motivations, and commitment to work individually and collectively towards solutions of current problems and the prevention of new ones. From the National Resource Commission of Education International Meeting on Environmental Education in the School Curriculum (IUCN) in Paris France 1970 (UNESCO, 1977), give similar definition; that the environmental education is defined as a process that accepts values

and improves concept and attitude, environment and related culture, all of which are combined to make decisions and determine behavior towards the environment. Lucko B. J. (1982), give similar definition; the environmental education as the studying process with the aim to promote knowledge of the population in the relationship between life and physical and social environment. Environmental education also aims to create awareness of the environmental problem and to persuade to yielding responsible behavior, which leads finally to problem solutions. Also, Stapp and Cox (1974), give similar definition; that is, the basic process leading towards the development of a citizenry that is aware of and concerned about the environment and its associated problems, and that has the knowledge, skill, motivation, and commitment to work towards solutions to current and projected problems.

Many Thai environmental scholars have various definitions of the environmental education, each focusing on a certain point. Chunkao K. (1993), for example, summarizes the concept of environmental education that is a well-systematic process emphasis the use of technology. Also, Veeravatnanond V. (1996), give similar definition; that is a studying process emphasis on physical environment; concrete factors that change environment, and the impact on human beings.

Conclusion, environmental education is a systemic procedure which makes it possible for individuals to attain knowledge, idea, awareness, response, skills and the ability to make decisions involved with the environment for oneself and for all as well as to solve present and future environmental problems.

2.3.2 The Concept and Philosophy of Environmental Education

2.3.2.1 The Concept of Environmental Education

Stapp and Cox (1974) said that we share space is a narrow band of land, air, and water on the surface of the third planet from the sun. Included in that spaces are all the resources we will ever have. We are a closed system run by the radiant energy from the sun.

We are members of one of the many populations of living species on spaceship earth, which, like all populations, live, and consume resources, and die. But, unlike any other species, we have developed an economic system using a technology, which has consumed vast amounts of resources, brought about rapid environmental

changes, and overloaded the environment with waste. We have developed the potential to destroy ourselves.

By our decisions and action we determine the quality of our environment. We have an obligation to our generation and future generations to preserve a quality of life that we perceive to be necessary for a healthful, productive existence for all people

2.3.2.2 The Philosophy of Environmental Education

To provide knowledge about the environment, scholars must create a clear-cut philosophical framework. Tanner (1980), wrote the article “Significant Life Experience”, explained the idea about the spaceship earth, revealing the related system of environment and the environmental education program. Learners should be encouraged to understand the basic philosophical idea of the spaceship earth. This frame of thought can be an overview of the environmental education program.

Ratanatasanee T. (1986), referred to the Environmental Education Act in the U.S.A., indicating the basic concept of environmental education that those who have undergone through environmental education must possess all basic knowledge on global environment, nature law delineating the ecological system, including the relationship between man and ecological system. Besides, learners have to know about the impact of ecological system on human ways of living; the responsibility humans should take in all environmental changes. We as members of society should be cautious in using things in nature.

2.3.3 The Principles of Environmental Education

The general consensus, which has emerged on the nature of environmental education, reflects the goals and principles set out at Tbilisi in 1977. The following set of statements is based upon The Tbilisi Report Recommendation 2 (UNESCO, 1978).

Environmental education:

- is a lifelong process;
- is interdisciplinary and holistic in nature and application;
- is an approach to education as a whole, rather than a subject;
- concerns the interrelationship and interconnectedness between human and natural systems;
- views the environment in its entirety including social, political, economic, technological, moral, aesthetic and spiritual aspects;

- recognizes that energy and material resources both present and limit possibilities;
- encourages participation in the learning experience;
- emphasizes active responsibility;
- uses a broad range of teaching and learning techniques, with stress on practical activities and first hand experiences;
- is concerned with local to global dimensions, and past/present/future dimension;
- should be enhanced and supported by the organization and structure of the learning situation and institution as a whole;
- encourages the development of sensitivity, awareness, understanding, critical thinking and problem-solving skills;
- encourages the clarification of values and the development of values sensitive to the environment;
- is concerned with building environmental ethics.

Chunkao K. (1993), summarized the principle of environmental education as three principles, which related as follows:

(1) Principle I: substance of environmental knowledge, which wanted the depth and width certainly. It should be component, 1) what is that story? 2) how much it has meaning and covering, and how do it has present and future situation? 3) what problem do it occur, what is it lose, and what is it trouble? 4) what do the reason occur, and what is the root problem? 5) concept of problem solving and 6) plans of solving, improve development rehabilitation and protection.

(2) Principle II: environmental technology, which technology transfers environmental knowledge. It should be component of four parts as follows:

2.1 Curriculum and substance

2.2 Tools and equipment

2.3 Personnel

2.4 Processes and knowledge strategies

(3) Principle III: target person to concern knowledge, whom has different of age, nationality, level of education, status economics, maturity, habit and domicile, has

different receiving capacity.

2.3.4 The Goals of Environmental Education

The goals of environmental education have been established in the International Environmental Education Workshop in Belgrade, Yugoslavia, 1979 (UNESCO, 1980).

(1) To instill awareness and concern for the interdependence in economy, society, politics and ecological system in urban and rural areas.

(2) To provide an opportunity for people to get knowledge, value, attitude, association, necessary skills to protect and develop environment.

(3) To construct behavioral patterns on environment of individual group and society.

Stapp and Cox (1974), taking the goals of planned change for environmental education are to make all citizens knowledgeable about their surroundings and to help them use this environmental knowledge effectively to make their community, state, and world a better place to live.

Veeravatnanond V. (1996), summarized the environmental education goals as follows:

(1) to provide knowledge and understanding on environment.

(2) to bring about appropriate behavior that is determined by the sake of environment condition.

In conclusion, the goals of environmental education are to provide knowledge on environment, and to create the conscience of responsibility in protecting and improving the quality of environment.

2.3.5 The Objectives of Environmental Education

Environmental education objectives have been set according to the Belgrade Charter (UNESCO-UNEP, 1976), environmental education stress these five objectives:

(1) Awareness: help students acquire an awareness and sensitivity to the total environment and its problem develop the ability to perceive and discriminate among stimuli; process, refine, and extend these perception; and use this new ability in a variety of contexts.

(2) Knowledge: help students acquire a basic understanding of how the environment function, how people interact with environment, and how issues and problems dealing with the environment arise and how they can be resolved.

(3) Attitudes: help students acquire a set of values and feeling of concern for the environment and the motivation and commitment to participate in environmental maintenance and improvement.

(4) Skills: help students acquire the skills needs to identify and investigate environmental problem and to contribute the resolution of these problems.

(5) Participation: help students acquire experience in using their acquired knowledge and skills in taking thoughtful, positive actions toward the resolution of environmental issues and problems.

2.3.6 The Components of Environmental Education

Planning for the inclusion of environmental education in the curriculum needs to take account of the three interlinked components, which comprise the theme (Plamer and Neal, 1994):

- education about the environment;
- education for the environment;
- education in or through the environment.

These elements are interlinked and are essential components of a planning at every level, ranging from whole school and year-group curriculum planning to the more specific plans for topics, programmes of study and tasks applicable to a class, group of learners or an individual. An integral part of the planning process must take account of the need to develop an understanding of the interrelationship between the three components. Figure 4 represents these components of environmental education in diagrammatic form. The dimensions of skills, concepts and attitudes are inextricably bound into the core content of the three structural elements:

- education **About** the environment has the purpose of developing knowledge and understanding about values and attitudes;

- education **For** the environment encourages students to explore their personal response to and relationship with the environment and environmental issues. This is linked to the development of attitudes and values, including elements of human understanding and behavior necessary for the development of sustainable and caring use of the environment;

- education **In** or **Through** the environment uses the environment as a resource for learning. It is a resource, which enables the development of a great deal

of knowledge and understanding as well as skills of investigation and communication.

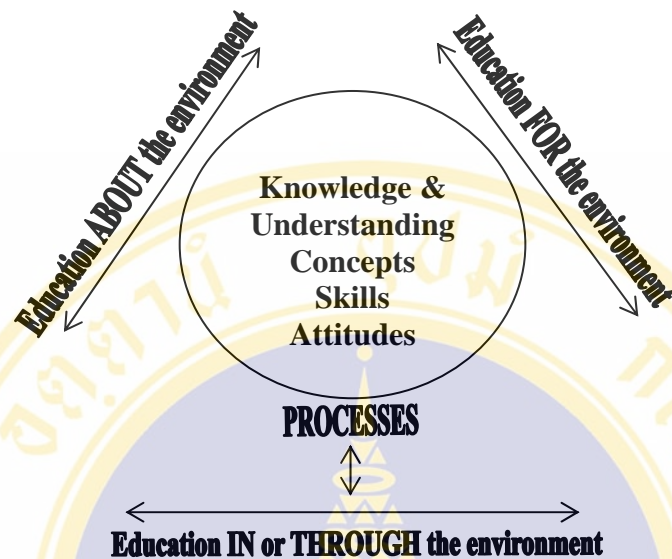


Figure 4: Interrelated components of environmental education.

2.3.7 The Concept of Environmental Education Model

Dr. George Lowe (1972), U.S. Office of Environmental Education, summarized the environmental education model as follows:

- (1) Environmental Education is not conservation education.
- (2) Environmental Education is not a subject, it is a process.
- (3) Environmental Education is multidisciplinary.
- (4) Environmental Education is community oriented.
- (5) Environmental Education is problem of focused.
- (6) Environmental Education includes all components of society.
- (7) Environmental Education builds on the past, good work.
- (8) Environmental Education is teacher-student orient.
- (9) Environmental Education is both formal and non-formal.
- (10) Environmental Education could be educational reform.

William B. Stapp and Dorothy A. Cox (1974), taking the development of students into effective decision makers who have an environmental ethics can be implemented by means of an effective environmental education program. Successful programs can be based on different model. The model described in this manual is action-oriented and include many processes and techniques advocated by leading

environmental educators. The model consists of four integral parts: philosophy and concepts, processes, teaching-learning model, and emphasis (Figure 5).

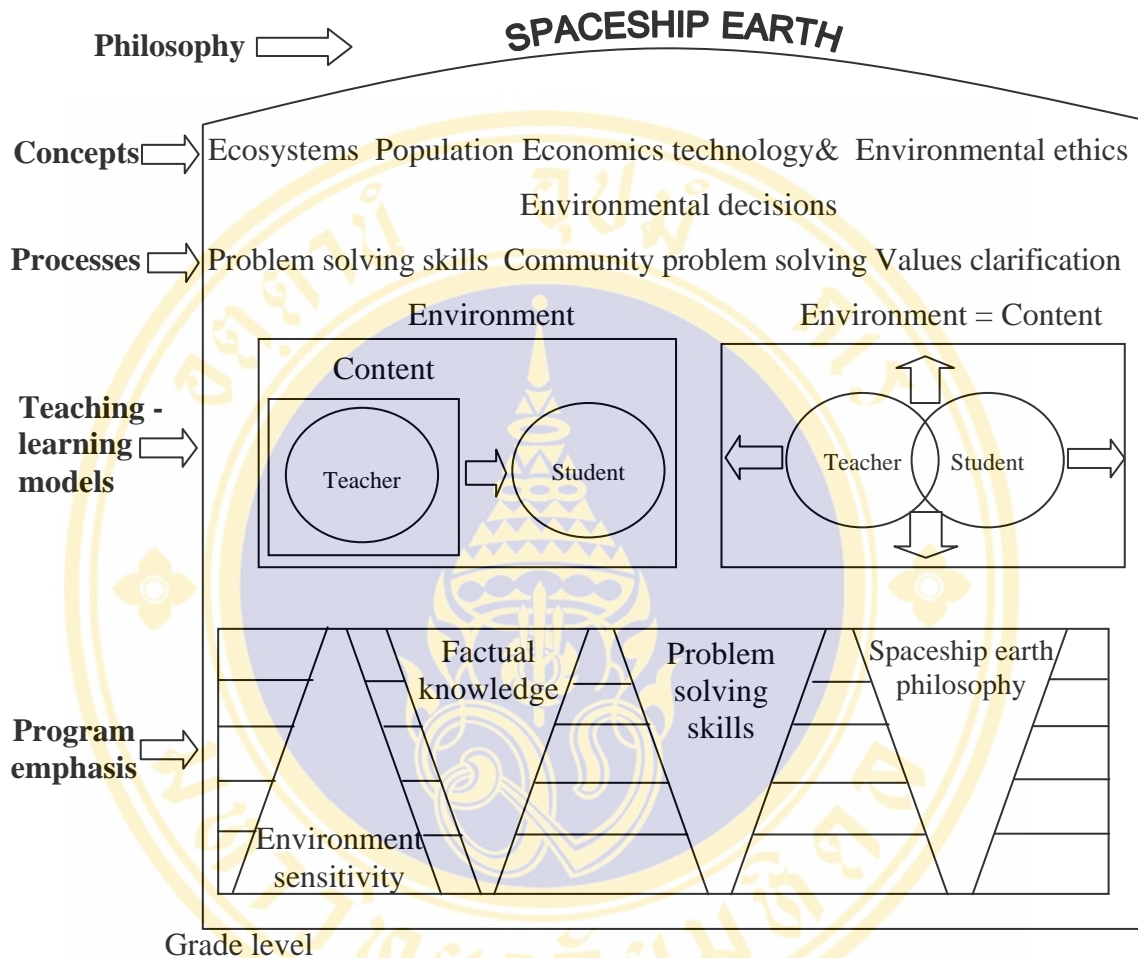


Figure 5: Environmental Education Model (Stapp and Cox, 1974).

2.3.8 Teaching Approaches to Environmental Education

Environmental education is the field of study delineating the relationship between and environment, and humans’ roles on the improvement of the environmental quality. Environmental education is taught to shape a right concept in the students.

To build up conscience and right attitudes towards the environment is the key of class management. Students are required to participate actively and to make decision based on democratic values.

The following ten-point guidelines give some idea of the approaches schools are asked to consider (Phatsangthai N.,1977):

- (1) the study (topic or theme) should be based on the immediate school surroundings, the local neighborhood or town;
- (2) the study should focus on particular features and areas and on local issues and problems that affect the quality of life of the community;
- (3) the study should be directly related to the basic aims of environmental education;
- (4) the study should be a local educational experience that may be related to a national or international environmental problem or issue;
- (5) students should be involved in direct personal exploration of their locality and town and be required to make first hand observation;
- (6) the work should improve the student's understanding of the processes and people that plan, manage and change our surroundings;
- (7) the study should involve local agencies;
- (8) the study should encourage student's appreciation of importance of involvement in maintaining and improving the quality of the built environment;
- (9) the study should teach specific skills, techniques and concepts and encourage the operational use of basic skills;
- (10) the work should reflect the overall environment policy of the school.

Phatsangthai N. (1977), gives some idea of the teaching approaches to environmental education in schools for example, by the following:

- (1) field trip study: students can be directly touched to natural environment and man-made environment;
- (2) audio visual study: photos, slides, film, television, documentary;
- (3) journal-keeping activity: record experiences;
- (4) field study: co-operating with members in community;
- (5) classroom activity: teacher's methods in creating direct experience;
- (6) geographical study: map reading;
- (7) camping: students can be directly exposed to real experience from nature;
- (8) anthropological & geological study: tree aging measurement;
- (9) outside-classroom study: students can be directly exposed to real experience.

(10) environmental project: individual and group working.

Conclusion, environment was everything on the earth, maybe included universal, but practical meaning was mean as everything around human. It divides as natural environment and man-made environment, which concrete and abstract call to social environment. When human used natural resources and environment, them had necessary management and environmental conservation for balancing and the longest using. Environmental education is a learning process and important procedure, which should develop human to originate knowledge, skill, attitude, and good behavior to respond between human and environmental relation in order to quality of life and environmental quality for present and next generation. Teaching approaches to environmental education were being art and practical tendency to take environmental knowledge for learners to originate knowledge, awareness, skill, and attitude. According to the teaching approaches started above, teaching approaches to environmental education do not employ just only one approach but their require various approaches altogether.

2.4 The Concept and Learning Theory

Learning enhances human to develop their intellectual skill, which animal cannot do so. To be clear understanding about the learning, its definitions, theories, type of learning and learning process are studied respectively.

2.4.1 Definition of Learning

Sarnoff A. M. (1964), defined learning, had a number of defining characteristics as follows:

- 1) It results in a change in behavior.
- 2) It comes about as a result of practice.
- 3) Learning, though, is a relatively permanent change.
- 4) Learning is not directly observable.

Cronbach (1963), said that learning was changeable behavior, which result of experience. Cecco (1968), gave similar definition; that learning was permanent

changeable behavior, which result of experience and reinforcement. Also, Burapadacha S. (1985), gave similar definition; that learning was permanent changeable behavior, which result of practical or experience. And Phasittiratana A. (1984), gave similar definition; that learning was permanent changed behavior, which result of practical.

To sum up, learning is the process of gathering experience in order to make a behavioral change. In addition learning is the process of transforming external impacts to be a better and permanent change.

2.4.2 Learning Theory

This research used Tolman's theory of learning related cognitive theory, which described that learning was intellectual process.

Tolman's Theory of Learning

Edward C. Tolman (1886 – 1959) stood with Guthrie well outside the mainstream of learning theory. But he did not stand with Guthrie. Their theoretical positions were antithetical at many points. Tolman's view of behavior was molar rather than molecular. He was strongly opposed to S-R associationism and tried to replace it with system emphasizing the adaptive, creative, and intelligent aspects of behavior. His system was therefore characterized as cognitive. Tolman was so opposed to mechanism that he was often accused of being mentalistic. Nearly all of Tolman professional career was spent at the University of Carifornia at Berkeley; his writings and the of research that came out of the Berkeley laboratory made it the center of cognitive psychology for many year.

We have described some parts and pieces of Tolman's theory of learning. Let us now see if we can put these pieces together into a coherent picture. Tolman started from the premise that all behavior is directed toward some goal, that the rat has a "demand" for some object such as food, a mate, safety, or whatever. In the laboratory the situation is often arranged so that the rat is hungry and the goal is obtaining food. This situation is brought about intentionally by the experimenter to give him better control, but the same purposiveness of behavior is apparent when the animal's goals are less insistent. In short, we work with animals that are highly motivated, and we provide a goal object because this guarantees that the animal's behavior will be directed toward the goal that we provide.

In instrumental-learning situation we arrange that the animal must produce some particular behavior. It must run a certain path, press a certain bar, or make some other specific response to obtain food. As we order the rat's world by programming this contingency, we are making one event necessarily follow another. What learning involves is the meaning of these different ordered events. An early event such as a stimulus in the apparatus becomes a sign for the final event, food. If one event invariably follows another, that is, if food always follows the occurrence of a particular sign cue, then what the animal learning is just that: food follows the sign. It was desirable to introduce a new word to describe this kind of learning, and Tolman's word was "expectancy."

Over a series of trials the rat's behavior become more predictable, more orderly, and better organized. The rat comes to behave as if it expects food when it sees the sign cue. Note that just as Tolman's definition of purposive had an "as if" quality to it, so did the definition of expectancy. Expectancy does not reflect a guess about what is going on in the animal's mind; it is a term that describes the animal's behavior. Expectancy had been a mentalistic term, but Tolman did not mean to imply that the rat is thinking about or is conscious of aware of the goal. To say that the rat expects food is really to say only that its behavior is organized "as if" it expects food, in the conventional sense. If we put food in a certain place in the apparatus, then the animal will behave as if it expects food in that place: It runs toward that place. If we impose a particular task that must be performed to obtain food, the rat acts as if it expects the performance of the task to produce food: It presses the bar or whatever. What learning consists of then is the expectancy that a particular event will have a particular consequence. The most general formula for an expectancy is S-R-S*. The animal expects that in the presence of a particular sign (S) a particular behavior (R) will have a particular consequence (S*).

2.4.3 The Types of Learning

Rattanaubol A. (1997), divided five types of learning as follows:

- 1) Skill learning is the learning, which the learners relates the stimuli with responsiveness. The most important thing is to appropriately and orderly organize the stimuli and responsiveness.
- 2) Verbal association is quite similar to the skill learning. However, language as used as a connector. This concerns with two main connectors. This type

of learning is known as translation response.

3) Concept learning. According to this learning, learners' behavior is not controlled by any physical matter. Yet, it depends on an abstract qualification of each stimulus.

4) Principle learning is the learning that relates a concept with another one.

5) Problem solving is the usage of principles to reach the goal and further learning of things related. There is a capability to create new things using gained knowledge. Hence, this is the thinking process.

2.4.4 The Learning Process

The learning process is external learning from real experience, and self-learning. It has freedom learning, which can schedule to goal learning, step of learning and self-learning result. Learning process is begun to want to change, to mention problem, analysis of problem, goal of solving, project of solving, implement the project, and evaluate methodology, implementation, and evaluation. It is continuous cycling (Tourism Authority of Thailand, 1999), as shown in Figure 6.

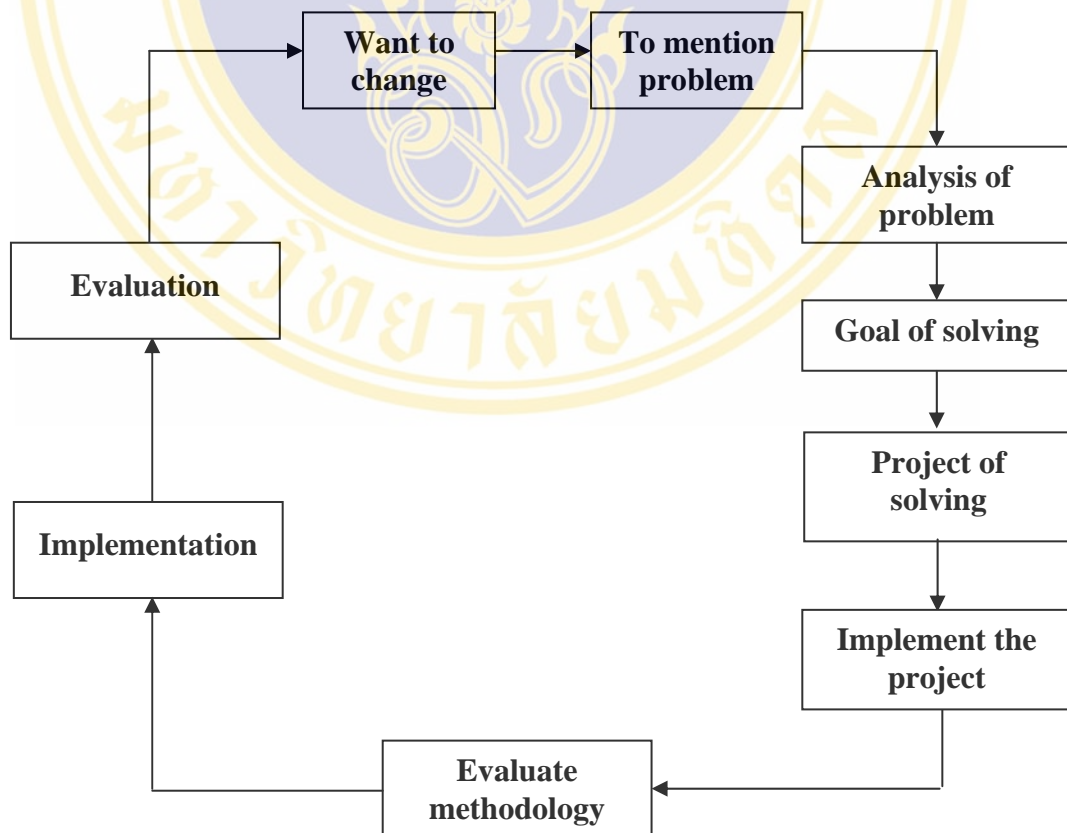


Figure 6: Learning Process (Tourism Authority of Thailand, 199).

Conclusion, learning was managed experience processes for potential increasing, and brought to changeable behavior knowledge, understanding, skill and attitude to permanent increasing. And learning maybe formal or informal education should be solving problem and life long education. According to human's learning employ Tolman's theory of learning. Learning process therefore should concern about principles and goal parallelly. It should not rely on any specific model. Otherwise building of good, clever, happy, and social devoted person will be abandoned. In according to sustainable tourism development trainee should be knowledge, understanding, skill and attitude towards tourism resources conservation.

2.5 Conservation

Any portion of our natural environment—such as soil, water, rangeland, forest, wildlife, minerals, or human populations—that man can utilize to promote his welfare may be identified as a natural resource. Natural resources vary greatly in quantity, mutability, and reusability (Owen O. S., 1985). Because the best type of management for a given resource depends upon these characteristics, the following classification scheme is presented:

(1) **Inexhaustible**

1.1 **Immutable.** Seemingly incapable of much adverse change through man's activities.

1) Atomic energy. Vast quantities of fissionable materials available in granitic rocks.

2) Wind power. The result of climatic conditions.

3) Precipitation. An unlimited supply. Man, however, will very likely alter the distribution pattern in the future. Weather modification.

4) Waterpower of tides. Resulting from sun-moon-earth relationships.

1.2 **Miserable.** Little danger of completes in exhaustion, but when improperly used there resource quality may be impaired.

1) Solar power. The total amount received by growing plants has been reduced by air pollution caused by man.

2) Atmosphere. Local and worldwide pollution because of smoke, exhaust fumes, nuclear fall-out, and so on.

3) Waters of oceans, and streams. All currently being polluted at increasing rates as a result of human activity.

4) Waterpower of flowing streams. The reaction of water to gravity.

5) Scenery in its broadest sense. Aesthetic values subject to impairment by human activities.

(2) Exhaustible

2.1 Maintainable. Those resources in which permanency is dependent upon method of use by man.

1) Renewable. The living (biotic) or dynamic resources whose perpetual harvest is dependent upon proper planning and management by man. Improper use results in impairment by man. Improper use results in impairment or exhaustion with adverse socio-economic consequences for man.

1.1 Water in place. The quantity and quality of water in specific places of use: streams, lakes, subterranean sources.

1.2 Soil fertility. The ability of soil to produce plant substance desirable to man. Renewing soil fertility takes time and money.

1.3 Products of the land. Those resources grown in or dependent on the soil.

1.3.1 Agricultural products. Vegetables, grains, fruit, fibers, and so on.

1.3.2 Forests. Source of timber and wood pulp.

1.3.3 Forage land. Sustains herds of cattle, sheep, and goats for the production of meat, milk, leather, and wool.

1.3.4 Wild animals. Deer, wolves, eagles, bluebirds, bullfrogs, spotted salamanders, sphinx moths, fireflies, and so on.

1.4 Products of lakes, streams, and impoundments. Freshwater fish: black bass, lake trout, and catfish.

1.5 Products of the ocean. Marine fish: herring, tuna. Marine mammals: porpoises, gray whales.

1.6 Human powers. Physical and spiritual.

2) Nonrenewable. Once gone there is no hope of replacement.

2.1 Species of wildlife. The passenger pigeon, great auk, and Carolina parakeet have become extinct. They represented the end products of perhaps a million years of evolution.

2.2 Specimen wilderness. Within several human life spans wilderness values cannot be restored even with the most dedicated program.

2.2 **Nonmaintainable.** The mineral resources. Total quantity is static. Mineral resources are regarded as wasting assets. When destroyed or consumptively used, they cannot be replaced.

1) Reusable. Minerals whose consumptive usage is small. Salvage or reuse potentialities are high.

1.1 Gem minerals. Rubies, emeralds, and so on.

1.2 Nonconsumptively used metals. Gold, platinum, and silver; some iron, copper, and aluminum. These metals can be extracted and reworked into new products: jewelry, silverware, vases, and so on.

2) Nonreusable. Those minerals with a high or total consumptive use. Exhaustion is a certainty.

2.1 Fossil fuels. When consumed, gases (potential pollutants), heat, and water are released.

2.2 Most nonmetallic minerals. Glass sands, gypsum, salt, and so on.

2.3 Consumptively used metals. Lead in high-octane gasoline and in paint, zinc in galvanized iron, tin in toothpaste containers, iron cans, and so on.

2.5.1 Definition of Conservation

The word conservation is derived from two Latin words—*con*, meaning “together,” and *servare*, meaning to “keep” or “guard.” Literally, therefore, conservation means, “to keep together.” Leopold A. defines conservation as a state of harmony between man and the land. Harlick S. defines modern conservation as an operational collection of ecological knowledge and skill applied in a way to understand and manage as many consequences of an environmental activity as possible in keeping with the expectations of all participants—plants and animals including man. Rose M. H. (cited by Owen O. S., 1985), defines conservation as the optimum allocation of natural, human, and cultural resources in the scheme of national development, whereby maximum economic and social security will be assured. And Kennedy F. J. (cited Owen O. S., 1985), defines conservation as the wise use

of our natural environment: it is in the final analysis, the highest form of national thrift-the prevention of waste and despoilment while preserving, improving and renewing the quality and usefulness of all our resources.

Thai environmental scholar has various definitions of the conservation, each focusing on a certain point. Chunkao K. (1993), for example, summarizes the concept of conservation that is a reasonable utilization for well-systematic process emphasis the using of technology. Also, Veeravatnanond V. (1996), give similar definition; that is, a studying process emphasis on physical environment; concrete factors that change environment, and the impact on human beings.

2.5.2 The Crisis on Planet Earth

Owen (1985) said that human beings are degrading their natural environment. We pride ourselves on conquering outer space, yet after two centuries of technological “progress” we still do not know to manage the space right around us here on planet Earth. This global environmental crisis is the result of three major factors: 1) rapid population increase, 2) excessive consumption of resources, and 3) pollution.

(1) Population Increase

This “cancerous” growth of the human population clouds the future of planet Earth and is the underlying cause of our environmental crisis. Unless this population surge is restrained within the very near future, even the most soundly conceived and effectively implemented conservation and environmental practices will be to no avail. An increase in people means and increase in all types of environmental practices. It means an accelerated depletion natural resources, most of which are already in short supply or of deterioration quality. It means that greater numbers of people, living in overcrowded conditions, will suffer from increasing emotional stress and will make increasing demands on wilderness and recreation areas to “get away from in all.” With each upward surge of the number of human beings on earth, there will be a corresponding surge in the urgency and complexity of our conservation and environmental task.

After two million years of gradual population growth, our global population has moved around the bend of a J-curve and is now moving almost straight up.

(2) Excessive Resource Consumption

The world’s industrialized nations are consuming nonrenewable resources (coal, oil, gas, copper, zinc, and cobalt, for example) at in accelerating pace. Our

enormous consumption of cars, color television sets, dishwashers, air conditioners, golf carts, home computers, swimming pools, speedboats, and video games certainly does not stem from need. For the sake of a quick pickup we use high-octane gasoline and spew thousands of tons of irreplaceable lead into the atmosphere.

It is highly questionable whether our Gross National Product (GNP) or the sales of motorcars, home computers, and video games is a valid measure of real human happiness in America. And in this excessive production and consumption, called throughput by economists, the United States and other highly industrialized nations (Japan, West Germany, Great Britain, and Russia) are accelerating the depletion our planet's of resources.

(3) Pollution

Together with other industrialized segments of the global community we have degraded our environment with an ever-increasing variety and volume of contaminants. We are polluting lakes and streams with raw sewage, industrial wastes, radioactive materials, heat, detergents, agricultural fertilizers, pesticides, and a complex mixture of synthetic chemicals whose harmful effects on human health are just beginning to be recognized. We are releasing so many toxic materials into the air, water, and land around us that this period in human history has been called the Age of Positions. Our uncontrolled and indiscriminate use of pesticides has contaminated global food chains to such an extent that virtually all animals, including humans, have been affected. For example, you the reader have perhaps about six parts per million of DDT in your tissues at this very moment. The long-term effects of such concentrations are unknown. However, laboratory studies on experimental animals like rats and mice have shown that a concentration of seven parts per million of DDT may have deleterious effects on heart and liver functions, and higher concentrations may interfere with reproductive processes, generate harmful mutations, and induce cancers. Millions of tons of gases, such as carbon monoxide, sulfur dioxide, and nitrous oxide, which can contribute to serious respiratory ailments, are being spewed into the atmosphere. Our increasing dependence on nuclear power, as well as on nuclear armaments, has led to the accumulation of disturbingly large amounts of radioactive waste, some of which will pose threat to genetic material and to human health and life for thousands of years.

To summarize, then, the three most important causes of our global environmental problems today are rapid population growth, excessive resource consumption, and high levels of pollution.

2.5.3 Fundamental Principles of Conservation

Owen (1985) said that harmony between man's resource requirement and the resource base depends upon basic conservation principles, several of which follow.

(1) **Sense of individual responsibility.** Responsibility and privilege go hand in hand. The privilege of being a citizen of the world's greatest democracy is predicated upon responsibility—to government, to our fellow man, and to the natural resources upon which we depend.

(2) **Role of governments.** Our nation's resources are so extensive and the problems associated with their intelligent utilization are so complex that it is imperative that their ultimate control be a function of local, state, and federal governments rather than of private interests. State and federal governments, in particular, have at their disposal the know-how of sophisticated specialists—agronomists, hydrologists, geologists, range managers, foresters, ichthyologists, fisheries biologists, mammalogists, wildlife biologists, oceanographers, human ecologists, urban planners, and experts in the areas of pollution control and recreation development. Moreover, government are funded for research and the implementation of research-based programs. Consequently, they are in a position to get a wide view of a given resource problem and to appraise its possible consequences. An example might be gauging the affect of unsound logging practices on the quality or abundance of other resources.

(3) **Multiple use of a given resource.** A cardinal conservation goal is to “insure the greatest good for the most people over the long run.” Because most resources have multiple functions, the realization of this objective involves delicate and knowledgeable management. For example, a major river may have multiple values: for the swimmer it serves as a refreshing sanctuary from summer heat; for the angler it is the habitat of game fish; for the hunter it provides breeding sites for mallards and teal; for the canoeist it presents a challenge to his skills; for the manufacturer it is an artery for the inexpensive transport of fuel and raw materials and a channel for the discharge of industrial wastes; for the farmer it is a water source for livestock and irrigation systems; for all in the area it may be harnessed to provide inexpensive electricity. It is apparent that

the river cannot be all things to all people. Not all of the potential values of a great river can be realized concurrently at the same site. Thus, the interest of the duck hunter in productive waterfowl nesting grounds might conflict with the farmer's interest in irrigation water. Similarly, the interests of anglers and industrialists might be incompatible. The construction of a power dam would effectively block the progress of both canoeists and migratory salmon. Obviously, such conflicting interests might never be resolved. It is for this reason that local, state, and federal governments have enacted legislation to regulate resource utilization in such a manner as to serve best the interests of current and future generations.

(4) **Inventories and projections of resource use.** It is apparent that intelligent resource management is predicated upon periodic resource base inventories that are both accurate and comprehensive. Without such an integrated inventory-projection-policy, unexpected future shortages might upset the nation's economy cause extensive personal suffering.

(5) **Interlocking resource relationships.** Over 100 years ago George Perkins march observed how men had abused agricultural lands in Europe and Asia and how abuse ultimately resulted in the deterioration of the national economy and well-being. After returning to the United State he expounded the concept that man cannot degrade one part of his environment without simultaneously affecting other parts. In other words, natural environment, although infinitely complex and varied, is a dynamic, organic whole, and therefore cannot be properly investigated by studying it in isolation. Today resource specialists know that marsh was correct. For example, the removal of a block of Douglas fir, seemingly simple and conclusive in itself, may have far-reaching effects on other resource such as wildlife, fish, soil, water, rangeland, and even atmosphere and climate. The study of such interrelationships between organisms and their environment is known as ecology.

2.5.4 Basic Conservation Practices

Some of the basic practices of the modern conservationist (Owen O. S., 1985). They include the following:

(1) **Preservation:** our nation's conservation movement placed an early emphasis on preserving resources from human destruction.

(2) **Restoration:** despite our best intentions, we often make mistakes when making use of our natural resource heritage. Once those errors are identified, the professional conservationist has the responsibility of repairing the damage, so that the original value and productivity of the resource can be restored.

(3) **Beneficiation, or upgrading a resource:** originally the term beneficiation was used in connection with the development of techniques that made it profitable for the mining industry to mine low-grade ores once considered worthless. Beneficiation may be used in a much broader sense to include the upgrading of any natural resource-forest, farmland, or fishery.

(4) **Substitution:** the replacement of a scarce resource with one that is more abundant or the replacement of a nonrenewable resource with one that is renewable is known as substitution.

(5) **Maximization:** maximization refers to the reduction of waste by the most efficient use of a resource that is possible.

(6) **Reusing and recycling:** refers to intensively recycled and reused in the more densely.

(7) **Integration:** a given natural resource, such as a forest, does not stand in isolation. It is frequently associated with other resources such as soil, water, wildlife, and scenic beauty. The conservationist must decide, therefore, whether a given stand of mature pine is more valuable to society as timber or as part of the forest-soil-water-wild-life-scenic-beauty complex. Certainly, if the stand were logged off, the soil would erode, trout streams would become muddied, wildlife would be deprived of food and cover, and scenic beauty would be instantly destroyed. The determination of how the maximal value for society may be obtained from such a complex of interrelated and interacting resources is known as integration.

2.5.5 The Concept of Tourism Resources Conservation

2.5.5.1 Definition of Tourism Resources Conservation

Seetho L. (2001), defined tourism resources and environmental conservation is the prevention, improvement, amendment, and maintenance of natural resource to be good condition. This is to attract tourists and to maintain its beautiful and value for both domestic and national level. This is a clever use of natural resource in order to benefit the majority in a long term with minimal negative impact.

Conclusion, tourism resources conservation is the use of tourist attractions in such a manner that least affects the area in order to maintain a sustainable ecosystem.

2.5.5.2 Guidelines for Tourism Resources and Environmental

Conservation Seetho L. (2001).

1) Principles of Tourism Resources and Environmental Conservation in Natural Tourism.

1.1 Prevention any damages or changes, which may affect tourist attractions. For example, forest deterioration, wildlife killing, and wild plants destruction etc. These can be handled by issuing laws, and regulations.

1.2 Maintaining cleanliness.

1.3 Avoid building any unnecessary buildings and things in any tourist attraction. If necessary, the construction should be parallel with the nature.

1.4 Tourists should respect the laws and regulation concerned.

1.5 Guides should be provided for tourists. They should control and advise the tourist to follow the rule and regulation. They should not only responsible for the safety of tourists and, but also the cleanliness of the tourist attraction.

1.6 Provision of tourist handbook, which details about important information.

1.7 Enhance people to concern about tourist attraction.

2) Principles of Tourism Resources and Environmental Conservation in Cultural Tourism.

2.1 Establishing law and regulation related cultural tourist attraction. For example, ancient places, and things.

2.2 Provision of officers to pay attention for the tourist attractions.

2.3 Maintenance and fixing damaged things by skilled persons.

2.4 Seeking additional capital and budget to pay for maintaining and fixing ancient places and things.

2.5 Ancient things should be kept in safety place.

2.6 Provision of right knowledge and information for tourists and people.

2.5.5.3 The Principles of Tourism Resources Conservation

Tourism resources conservation had main principle; those tourism resources were used sustainable utilization, to called *sustainable tourism* (Tourism Authority of Thailand, 1997). It would mention next subject, and except had measurement as follows:

1) Corrective and preventive measures: negative effects are minimized or avoided, minimized.

2) Problem solving impact tourism:

- Land-use planning.
- The identification and classification of resources and of their physical carrying capacities.
- Environmental impact assessment (EIA).
- Legislative measure.
- Training and education.
- Research and monitoring.

2.6 Sustainable Tourism

2.6.1 Definition of Sustainable Tourism

The World Tourism Organization (WTO) defines sustainable tourism as the kind of tourism that brings satisfaction to the tourists and the locals as the owners of the tourist attractions while considering loss prevention and continued development.

Emphandhu D. & Chettamart S. (1997), give similar definition; that is sustainable tourism is tourism and associated infrastructures that, both now and in the future:

- operate within natural capacities for the regeneration and future productivity of natural resources;
- recognize the contribution that people and communities, customs and lifestyles, make to the tourism experience;
- accept that these people must have an equitable share in the economic benefits of tourism;
- are guided by the wishes of local people and communities in the host areas.

Conclusion, sustainable tourism is the form of tourism that responds to the requirements of tourists and owners of tourist attractions, which focuses on the national resource management for the stabilization of the ecosystem, culture and local way of life for present and future benefits.

2.6.2 The Principles of Sustainable Tourism

In summary then, sustainable tourism is based upon three principles (Moscardo G.,1998).

(1) Quality

Sustainable tourism provides a quality experience for visitors, while improves the quality of life of the host community and protecting quality of environment.

(2) Continuity

Sustainable tourism ensures the continuity, which it is based, and the continuity of the culture of the host community, and requires continuity of visitor interest.

(3) Balance

Sustainable tourism balances the needs of host, tourists and the environment.

Next, the following are ten point principles of the sustainable tourism (Shirley E., 1993).

- 1) Using resource sustainably.
- 2) Reducing over-consumption and waste.
- 3) Maintaining diversity.
- 4) Integrating tourism into planning.
- 5) Supporting local economics.
- 6) Involving local communities.
- 7) Consulting stakeholders and the public.
- 8) Training staff.
- 9) Marketing staff responsibly.
- 10) Undertaken research.

2.6.3 The Goals of Sustainable Tourism

The key goals of sustainable tourism as described in Australian Government's Ecological Sustainable Tourism Working Group Report for Tourism (1991), as follows:

- (1) to improve material and non material well being of communities;
- (2) to preserve intergenerational and intragenerational equity;
- (3) to protect biological diversity and maintain ecological systems;
- (4) to ensure the cultural integrity and social cohesion of communities.

2.6.4 Characteristics of Sustainable Tourism

The key characteristics of sustainable tourism as described in Australian Government's Ecological Sustainable Tourism Working Group Report for Tourism (1991), as follows:

- (1) tourism which is concerned with the quality of experiences;
- (2) tourism which has social equity and community involvement;

(3) tourism which operates within the limits of the resource, this includes minimization of impacts and use of energy and the use of effective waste management and recycling techniques;

(4) tourism which maintains the full range of recreational, educational and cultural opportunities within and across generation;

(5) tourism which is based upon activities or designs which reflect the characters of a region;

(6) tourism which allows the guest to gain an understanding of region visitor and which encourages guests to be concerned about, and protective of the host community and environment;

(7) tourism which does not compromise the capacity of other industries of activities to be sustainable;

(8) tourism which is regulated into local, regional and national plans.

Conclusion, sustainable tourism as is the form of tourism that responds to the requirements of tourists and owners of tourist attractions, which focuses on the national resource management for the stabilization of the ecosystem, culture and local way of life for present and future benefits. As well, there is ecotourism, which focuses on the study at the tourist attractions in order to save the ecosystem with a special consideration of local participation, which is a part of tourism in natural, cultural or historical sites. Ecotourism is a measure, which encourages participation in the preservation of tourism resources and a guideline to the realization of sustainable tourism under the national tourism management master plan, as shown in Figure 7.

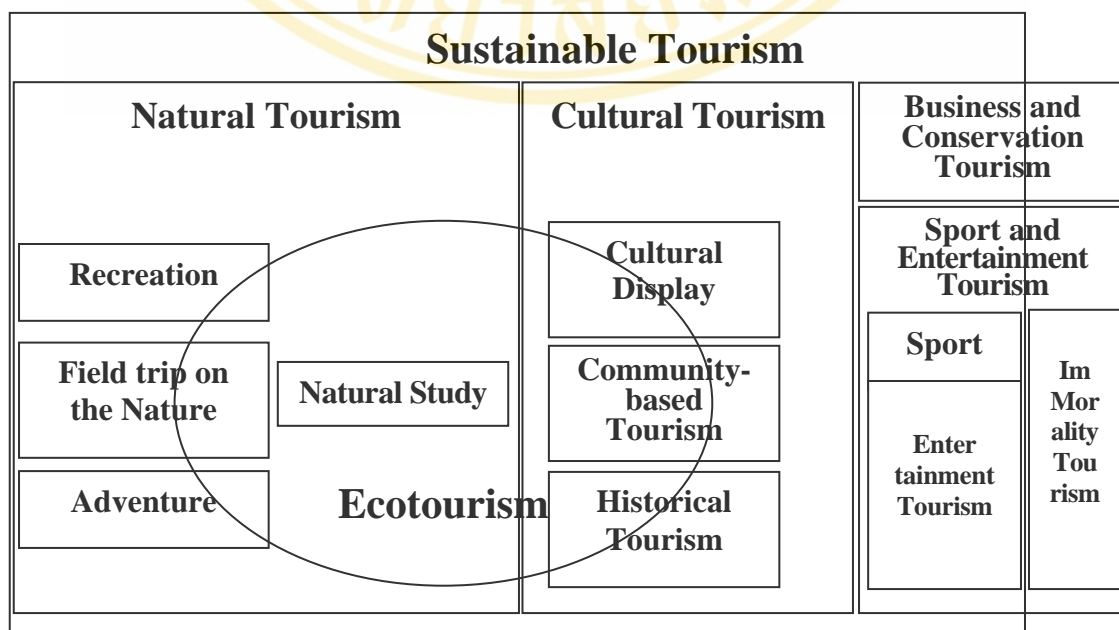


Figure 7: Sustainable Tourism Model (Source: Tourism Authority of Thailand, 1999).

2.7 Ecotourism

Since the Brundtland Report's challenge to sustainable development, responsible environmental practices have been moved to the forefront of many industry and association agendas. Canada established the National Round Table on the Environment and the Economy (NRTEE), and this body, together with the Tourism Industry Association of Canada (TIAC), initiated a national dialogue on sustainable tourism. At heart of this is a set of implicit values, which support various approaches to making the industry more sustainable. The NRTEE/TIAC initiated focused on the production of a code of ethics for tourists and for the industry, as well as specific guideline for the industry and its key sectors (D'Amore, 1992). Similar values underpin ecotourism. These values are revealed in the Canadian Environmental Advisory Council (CEAC) definition of ecotourism, which was developed, in a cross-Canadian, multi-stakeholder, consensus-oriented workshop.

2.7.1 Definition of Ecotourism

The Ecotourism Society (TES) (cited by Lash, 1977), defines the ecotourism as responsible travel to natural areas that conserves the environment and sustains the well being of local people. Scare R.C., Grifone E., & Usher R. (1992), give similar definition; that ecotourism is an enlightening nature travel experience that contributes to the conservation of the ecosystem while respecting the integrity of host communities. Hector Ceballos-Lascurain (1988), defines the ecotourism is tourism that involves travelling to relatively undisturbed or uncontaminated natural areas with the specific object of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural aspects (both past and present) found in these areas. Kutay (1989), defines the ecotourism is now seen as a model of development in which natural areas are planned as part of the tourism base and biological resources are clearly linked to social economic sectors. And Western D. (1993), defines the ecotourism is responsible travel to natural areas which conserves the environment and improves the welfare of local people.

This definition presents both a values and resource-based perspective, implying a balance of benefits among the resource, the tourism industry, the local community and the visitor. This contrasts with definitions, which take a market-oriented perspective. For example, a definition of ecological tourism presented by Barros (1991), has been adopted

by the Latin American University of Science and Technology (ULACIT), Costa Rica. It is that specialized sector of tourism characterized by a clear propensity of its practitioners for trips that take them into contact with nature, enjoying such by means of simple observation or by systematic study.

However, this ULACIT definition does not touch conservation, or other benefits and values necessary for a sustainable industry.

Also, Buckley R.C. (1994), defined the ecotourism, had two types as follows:

(1) Restrictive definition of ecotourism, it mean intersections of nature-based tourism, conservation supported tourism, environmentally educative tourism, and sustainable tourism, which them needed everything.

(2) Broader definition of ecotourism, it mean nature-based tourism, or conservation supported tourism, or environmentally educative tourism, or sustainable tourism, which it needed something enough, as shown in Figure 8.

Conclusion, ecotourism is the form of tourism in natural and/or social and cultural environments with educational and recreational purposes through the nature and environments of such ecosystem. The learning pattern and procedure is one that tourists and people involved with such ecosystem can learn together under the tourism management that does not affect the nature and the environment. The local community is to participate and gain the most from tourism activities in order to establish an awareness for of sustainable ecosystem conservation.

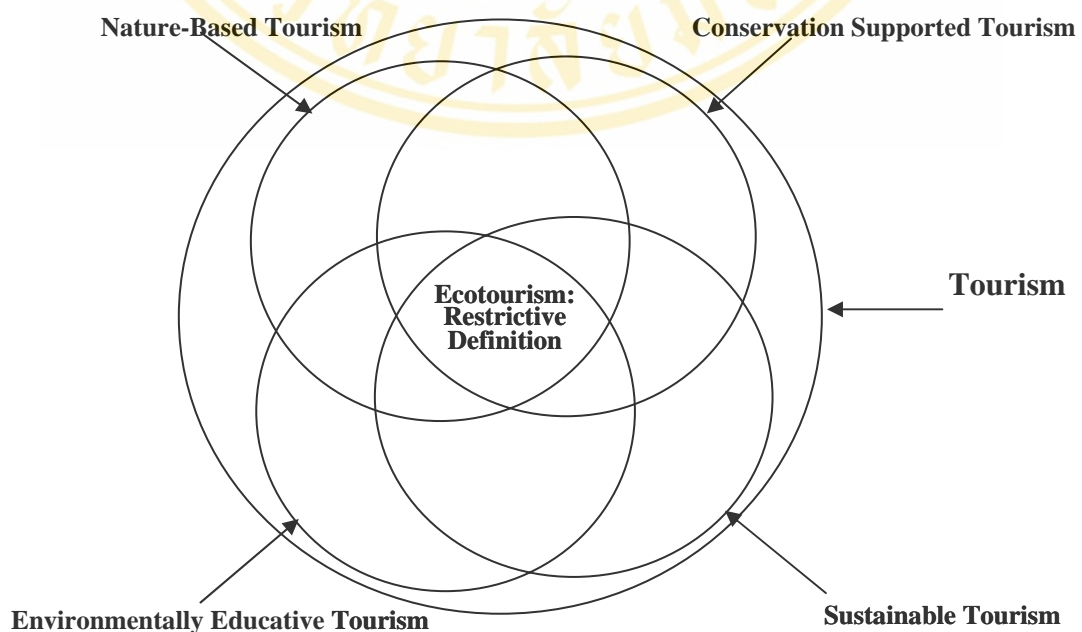


Figure 8: Buckley's definition of ecotourism.

2.7.2 The Concept and Model of Ecotourism

Whight (1993), taking the concept of sustainable tourism embodies a challenge to develop the world’s tourism capacity and the quality of its products without adversely affecting the environment that maintains and natures them. Sustainable tourism has been equated with a number of terms, such as alternative tourism, rural tourism, green tourism, appropriate tourism, responsible tourism or progressive tourism. Critics have questioned such terms as alternative tourism and suggested that it is an elitist concept, or set it on one end of a scale where “mass tourism” which is seen to be undesirable occupies the opposite end of the scale (Lane, 1990).

To illustrate a more sustainable model of ecotourism, we may usefully expend Sadler’s sustainable development systems model and incorporate the central principles of ecotourism. The three sets of goals in the model (Figure 9) represent the three arenas, which must be given equal weight in striving for sustainable tourism. The model demonstrates an approach where all three spheres (environmental, economics, and social) must have goals fulfilled for there to be balance, which is requires for a possibility of sustainability.

The model represents an attempt to analyze development (which has been examined principally, in economics terms) as if people and environment mattered, in an interdependent and integrated fashion.



Figure 9: Sustainable ecotourism values and principles model.

For the tourism industry as a whole, Wight (1988), discussed a spectrum of tourism resources and opportunities in the context of sustainability. It involved providing a spectrum of programs, services and accommodation facilities, located appropriate to the natural environments, and responding to the range of opportunities and activities sought by the markets. There has been a great deal of confusion about “what ecotourism is”, in part, because it can comprise a varying mix of so many different activities and experiences. This range of opportunities and experiences is recognized and outlined in Australia’s Draft National Ecotourism Strategy (Allock, Jones, Lane & Grant, 1993). Rather than trying to define ecotourism by specific products, it is more valuable to recognize that there is a spectrum of experiences (products) in ecotourism, which may be supplied or demanded. The spectrum may vary, for example, by the following:

(1) Supply factors:

- 1.1 nature and resilience of the resource;
- 1.2 cultural or local community performances;
- 1.3 type of accommodation, facilities and programs;

(2) Demand Factors:

- 2.1 type of activities and experience;
- 2.2 degree of interest in natural or cultural resources;
- 2.3 degree of physical effort;

Wight (1988) said that these factors are discussed in terms of an accommodation spectrum and a market spectrum, with initial examples of such spectra using information available for Brazil.

(1) Accommodation spectrum

1.1 Brazil’s range of ecotourism accommodation

The accommodation offered in ecotourism operations ranges along a spectrum, from no fixed roof accommodation, through basic shelter in the form cabins or lodges, to luxurious accommodation. Ruschmann (1992), has described a range of accommodation in the Brazilian Amazon, used by various ecotourism markets, and this Brazilian information serves as a useful example of a spectrum of ecotourism accommodation.

1.2 Ecotourism accommodation spectrum

The range of accommodation described for Brazilian ecotourism may be used as the basis for developing an accommodation spectrum model for ecotourism. Figure 10 illustrates this potential spectrum of accommodation for ecotourism. It may be on-site (located in the resource environment, whether that be remote or accessible) or off-site. The latter includes any village, town or city-based range of accommodation, and would also include, resort destination areas, where the primary attraction is other than ecotourism. Off-site accommodation serves day visitors who wish to minimize impact on resources, or who wish to be more comcampable or secure, while taking day-visits or tour to the resource. On-site accommodation may be permanent (fixed- roof) or non-permanent. Non-permanent accommodation may be relatively primitive, such as sleeping in hammock, or camping in remote locations. Fix-roof accommodation may range from the most basic cabins, with minimal amenities, to facilities with high level of comcamp and amenities. This accommodation spectrum could be described as ranging from hard (primitive) to soft (luxurious).

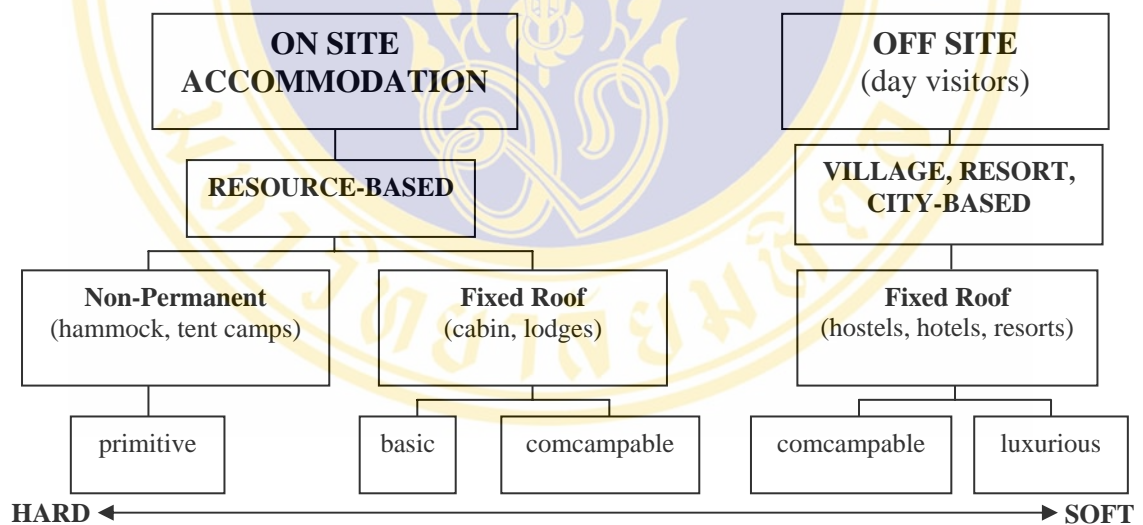


Figure 10: Ecotourism accommodation spectrum.

Decision on what type of accommodation to provide should be based on a combination of supply and demand factors related to environmental, social, and economic goals as illustrated in Figure 9. Factors may include: perceived market preference, appropriateness of site, remoteness, resilience of the resource and cultural or local community preference. Essentially, there need to be conscious decisions about

product-market matching. Too often, in ecotourism, examples are found of luxurious accommodation transplanted into inappropriate environments, in order to satisfy actual or perceived market demands: the element of resource capability then become secondary to demand, and degradation of the resource may well occur.

In addition to examining the nature accommodation offered, it is incumbent upon ecotourism operators to examine the internal aspects of their accommodation. The interest and respect for cultural and natural resources, which attract ecotourists, extends to many more aspects of environmental responsibility, than the external natural environment. If operators are to be credible in expressing a conservation ethic and concern for the environment, they should recognize that this does not stop at their doorstep. It needs to be operational within their accommodation Wight (1988), through close examination of such practices as:

- 1) environmentally sensitive infrastructure development, including sympathetic building and architecture;
- 2) efficient use and conservation a natural resources (e.g. water, energy);
- 3) waste disposal and management;
- 4) recycling;
- 5) air quality and emissions;
- 6) green purchasing policies, and;
- 7) locally produced foods and goods.

(2) Market spectrum

2.1 Brazil's range of markets

There is on specific and definable "ecotourist". The activities are interests of individual ecotourist vary, as well as the degree of effort that they are prepared to invest and their individual motivation ecotourism markets will vary accordingly. As an example, Rushmand (1992), has described the three principal types international tourism discerned the Brazilian Amazon from a study by the Department of Region Development and Environment the Organization of America States (OAS). These types are:

- 1) Traditional tourism: this is the most common type (64%), the principal motivation being relaxation and seeing the most important regional attraction and contact with nature.
- 2) Adventure tourism: related physical challenge, education experiences, sport, and contact with nature.

3) Ecotourism: where there is range of interest in nature (from specialists to generalist), as well as a range of physical effort (soft and hard). The OAS research found that ecotourism itself could be categorized as hard or soft two different respects:

3.1 Specialist (hard) and generalists (soft) interest in nature: specialist nature (or hard nature, to use OAS terminology) is where the interest in nature is intense, or scientific; these markets are sometimes described as “dedicated”. Frequently it is practiced by such specialists as ornithologists, botanists, geologists or other specialized professionals. Generalist (soft) nature is more related to general interests such as photographic safari, bird-watching, swimming, etc.; these markets are sometimes described as “casual”;

3.2 Hard and soft physical effort: this relates to the degree of physical effort involved in activities.

Figure 11 conceptualizes these hard and soft dimensions of ecotourism markets in a matrix. Each dimension (interest in nature and physical effort) moves along a gradient of hard to soft, along each axis of the matrix. The conceptual matrix indicates that within ecotourism there can be many different combinations of the hard and soft dimensions of ecotourism (e.g. hard effort/nature specialist; hard effort/nature generalist; soft effort/nature generalist). However, it should be recognized that in reality there are no clear-cut categories, and that there is a graduation between the hard and soft dimension of ecotourism and ecotourism markets (Rushmand, 1992).

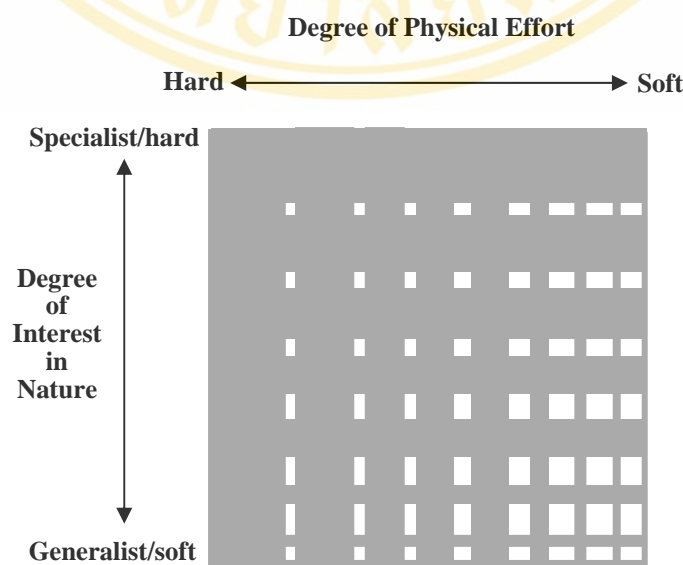


Figure 11: Hard and soft ecotourism dimensions matrix.

The OAS research emphasized that in spite of technical differences, all three types of tourism (traditional, adventure and ecotourism) interact in the Brazilian Amazon, and all are linked by a interest in contact with nature. Figure 12 is a diagram illustrating the interaction of these three Brazilian tourism types. It demonstrates how the Brazilian tourist types may overlap and partially encompass some elements of the hard or soft ecotourism experience. In this model, the hard physical effort component of ecotourism overlaps with the adventure tourism sphere. The traditional tourism component does not overlap into “hard” (physical effort or nature specialist) sphere, since the traditional tourist, who stay in city-based hotels and take day ecotourism trips, are described by Ruschmann as being principally motivated by relaxation and in seeing the most important regional attractions (rather than in hard effort of specialist interest).

2.2 Ecotourism market spectrum

The Brazilian information conceptualized in Figure 12 illustrates specific components of ecotourism (degree of effort, and degree of interest in nature) and their overlap with adventure and traditional tourism. However, it does not include the relationship of ecotourism to other forms of tourism with which ecotourism is commonly confused (e.g. nature tourism, heritage tourism, cultural tourism, aboriginal tourism or indigenous tourism, not to mention alternative or responsible tourism). There is a need for clarification in this area (Rushmand, 1992).

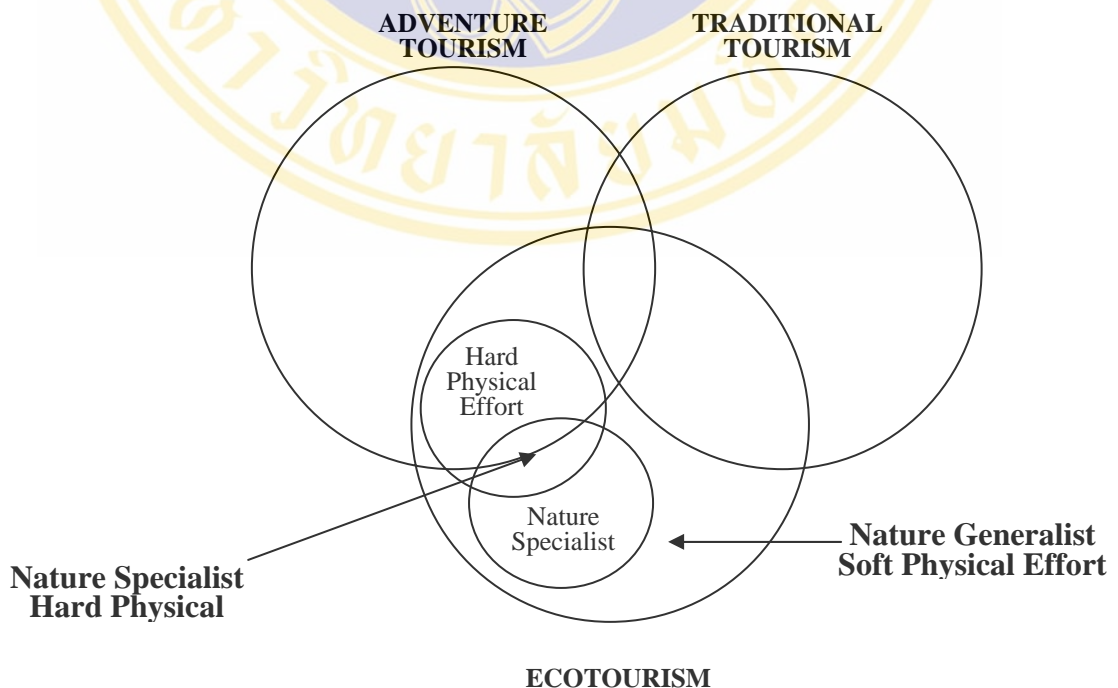


Figure 12: Ecotourism components model: Overlap of ecotourism with other tourism types in Brazil.

Figure 13 provide a model of motivations, and illustrates the spheres of interest which may relate to ecotourism. It depicts the overlap between the major tourism special interests, which may be included in ecotourism (nature adventure and culture), and illustrates the specialist and generalist components (or subsets) of each. For example, a cultural tourism specialist may be interested in aboriginal, heritage, art or ethic tourism. It is important to note that since, by definition, nature is fundamental to ecotourism, not all tourists who are motivate by adventure or culture are necessarily ecotourists. Thus, Figure 10 illustrates that the domain must have natures as a component (Wight, 1988).

However, while nature may be the principle motivation in ecotourism, it is not sufficient, as discussed earlier regarding definition, merely to describe the subjects of interest, and declare them ecotourism, although it is clear that ecotourism is nature-dependent.

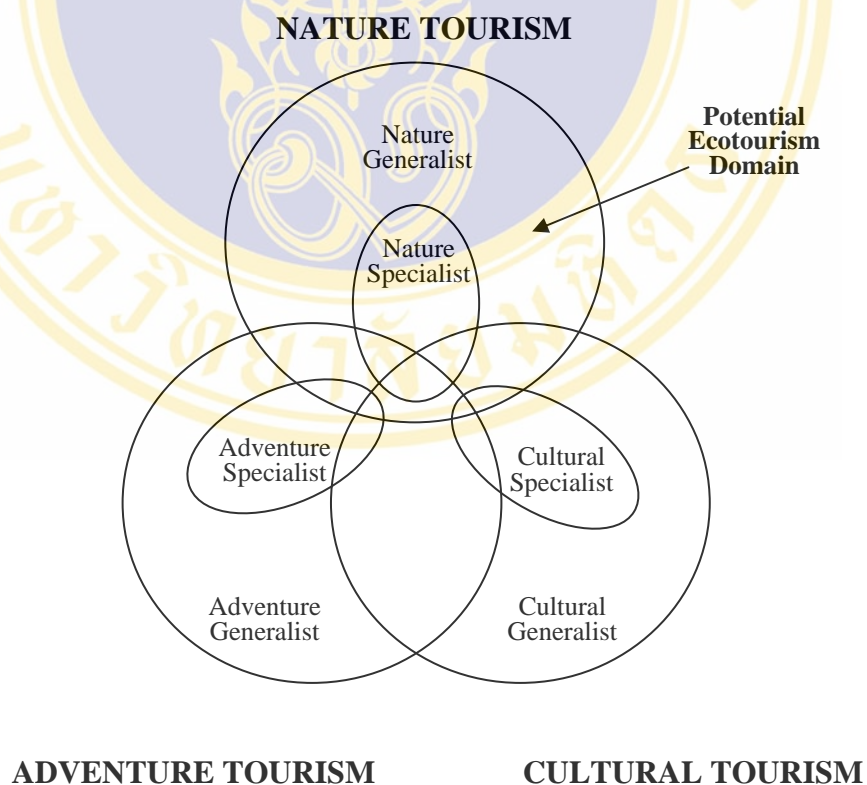


Figure 13: Model of potential ecotourism motivations, with generalists and specialist dimensions.

In order to be considered ecotourism (and sustainable), ethical values and principle must also be present. Figure 14 illustrates the major components of ecotourism, with an ethical overlay. This shows the domain of ecotourism.

Segments of other types of tourism markets may have an interest in nature tourism, for example, conventional (mass) or business travelers. However, it will only be when ethical principles are also fulfilled that these segments can be said to be ecotourists.

Ethics and values may, but need not be present in other forms of tourism, including adventure tourism, and cultural tourism. When ethical perspectives and incorporated into principal motivations then they may be described as sustainable (or alternative or responsible) forms of tourism. Ecotourism, in promoting debate and contributions related to resource-oriented and ethical perspective, may have influenced other forms of tourism towards sustainability. The hope is that the domain in which such ethics are applied will steadily enlarge, to encompass an increasing number of spheres of tourism, to increase the potential for sustainable tourism (Wight, 1988).

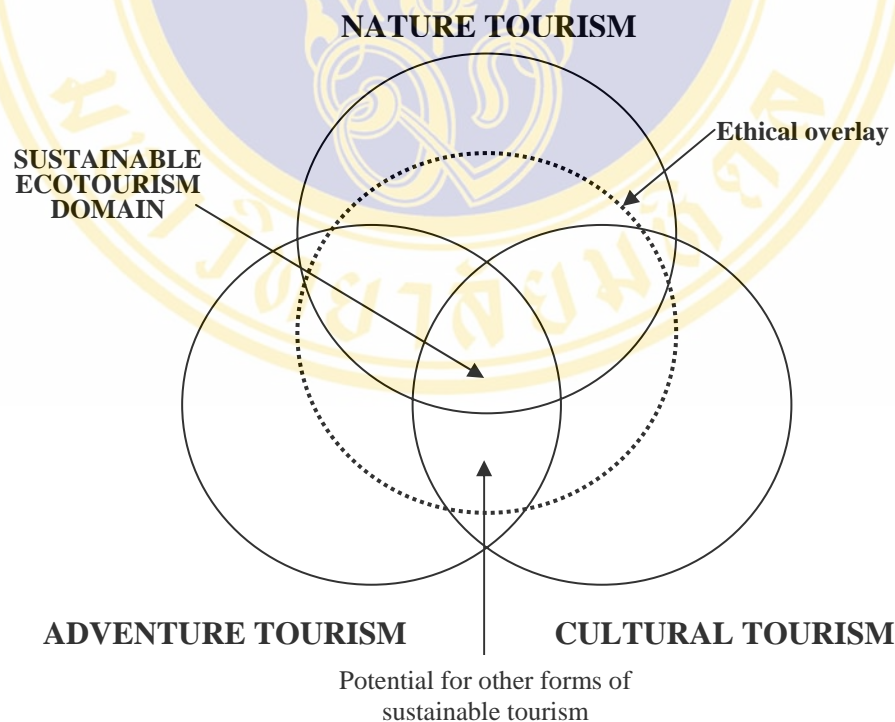


Figure 14: Sustainable ecotourism motivational domain model: Motivations overlain by ethics and principles.

The ethical overlay depicted in figure 14 is intended to encapsulate how the principles described earlier, which are considered fundamental to sustainable ecotourism, should be overlain on the principal market motivation: interest in nature-based tourism. Although the motivations reflect market (demand) motivations, the ethical perspective may originate from markets, or from suppliers, or from both. There are current examples of operations responding to market-driven ethics and desires, as well as examples of markets being influenced towards an ethical understanding by the efforts of operators (Wight, 1988). The Ecotourism Guidelines for Nature Tour Operators recently developed by The Ecotourism Society (1993), are an admirable effort towards achieving this. The key requirement is that, regardless of the initiating force, the ethical perspective should be initiated, expanded and monitored.

Dowling R.K. (1995), shown that the relation between nature-based tourism, and ecotourism as shown Figure 15.

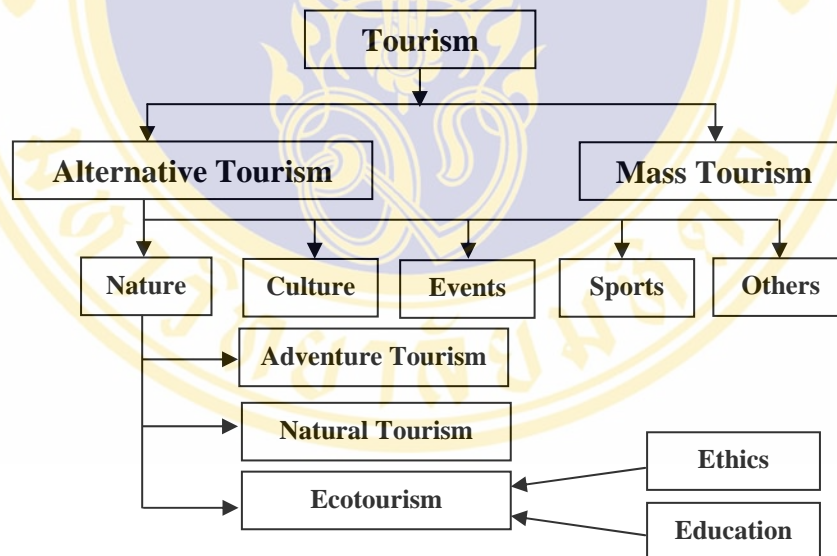


Figure 15: Natural tourism, and ecotourism relation.

Buckley (1994), shown that the connection between ecotourism, and ecology as shown Figure 16.

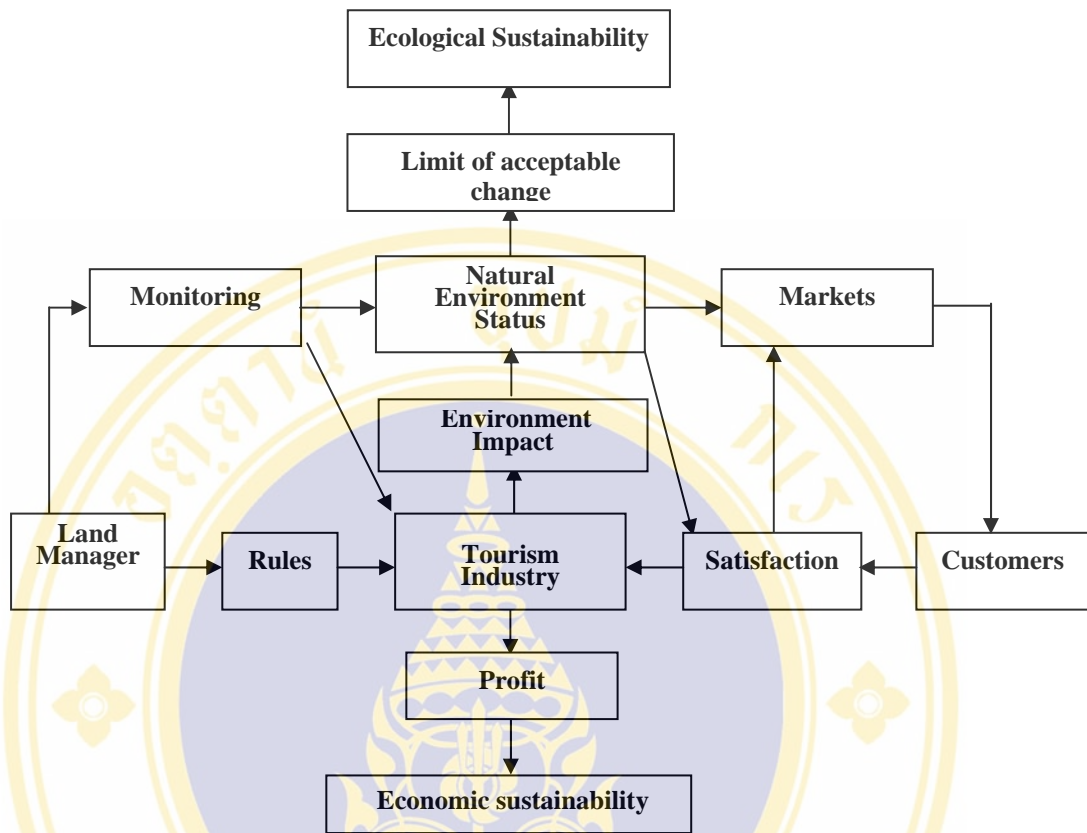


Figure 16: Ecological sustainability, and economic sustainability relation.

2.7.3 The Principles of Ecotourism

Ecotourism codes, which are essentially a subset of sustainable tourism codes, have been developed for the United States (The Ecotourism Society, 1993) and Australia (The Ecotourism Association of Australia, 1992). These codes provide general and specific guidance for both operators and ecotourists. Whight (1993), taking an ethic-based perspective, enumerates those principles considered fundamental to sustainable ecotourism:

- (1) it should not degrade the resource and should be developed in an environmentally sound manner;
- (2) it should provide first-hand, participatory, and enlightening experiences;
- (3) it should involve education among all parties-local communities, government, nongovernmental organization, industry, and tourists (before, during, and after the trip);

(4) it should encourage all-party recognition of the intrinsic values of the resource;

(5) it should involve acceptance of the resource on its own terms, and in recognition of its limits, which involves supply-oriented management;

(6) it should promote understanding and involve partnership between many players, which could include government, nongovernmental organization, industry, scientist, and locals (both before and during operations);

(7) it should promote moral and ethical responsibilities and behavior towards the natural and cultural environment, by all players;

(8) it should provide long-term benefits to the resource, to the local community, and to industry (benefits may be conservation, scientific, social, cultural, or economics);

(9) ecotourism operations should ensure that the underlying ethics of responsible environmental practices are applied not only to the external (natural and cultural) resources which attract the tourists, but also to their internal operations.

These principles represented a leading edge of sustainable ecotourism, and may be extended, in greater or lesser degree, into other tourism operations than ecotourism, which could have the effect of reorienting mainstream tourism operations, too, in the direction of greater sustainability.

Gail Y.B. Lash (1997), taking the ecotourism can help undeveloped areas achieve parity between humans and nature, thereby preserving fragile ecosystems, as well as obtaining sustainable incomes and benefits from these areas for local host, developers, and governments. Expanding on this definition, TES has developed seven basic principles of ecotourism:

(1) avoids negative and cultural impacts that can damage or destroy the integrity or character of natural or cultural environments being visited;

(2) educates the traveler on the importance of conservation;

(3) directs revenues to the conservation of natural areas and the management of protected areas;

(4) brings economic benefits to local communities and directs revenues to local peoples living adjacent to protected areas;

(5) emphasizes the need for planning and sustainable growth of the tourism industry and seeks to ensure that tourism development does not exceed the social and environmental “carrying capacity”;

(6) retains a higher percentage of revenues in the host country by stressing the use of locally-owned facilities and services;

(7) increasing relies on infrastructure that has been developed sensitively in harmony with the environment: minimizing use of fossil fuels, conserving local plant and wildlife, and blending with the natural environment.

2.7.4 Characteristics of Ecotourism

Ecotourism is characterized by (The RT. Hon. Braoness Chalker, edited by Cater E. & Lowman G., 1995):

- (1) attracting tourists to natural environments which are unique and accessible;
- (2) using tourism to bring about and/or improve nature conservation, through education, changing attitudes in local people and government, community development and altered political priority;
- (3) providing employment and entrepreneurial opportunities for local people.

2.7.5 Assessment of Ecotourism Resource Potentials

In Thailand, the sites of tourism had 2,579 sites, 1,401 sites were be natural based tourism, while 1,178 sites were be cultural based tourism. In 1994, with funding from Tourism Authority of Thailand (TAT), the Faculty of Forestry at Kasetsart University (located in Bangkok, Thailand) carried out an assessment study for the potential of ecotourism in Khao Sok National Park located in Southern Thailand as follow: (Emphandhu D. and Chettamart S., 1997).

Emphandhu and Chettamart (1997) studied approach and criteria: one hundred-nine nature-based tourism sites in 14 provinces of southern Thailand were assessed using resource assessment forms. The sites included wildlife sanctuaries, national parks, forest parks, and other natural areas suggested by the TAT. In addition to the assessment form, questionnaires and informal interviews with tour operators, resource managers and TAT Regional/Provincial Office directors were also employed. The criteria for developing both an assessment form and questionnaire were based upon management concepts being reviewed at the time.

The scores were weighted to assess the ecotourism resource potentials of the 109 tourism destinations (see equation below) (Emphandhu D. and Chettamart S., 1997). The equation included five criteria:

- 1) resource attraction,
- 2) susceptibility to impacts,
- 3) opportunity for developing interpretation and education programs,
- 4) diversity of ecotourism activities, and
- 5) compatibility of ecotourism to other tourism activities such as mass tourism.

Criteria on local participation conservation involvement and safety criteria were not part of the equation since the first two were too area-specific for a broad overview at the regional level. Likewise, safety criteria were excluded because it was found that there was no significant variation among most established tourist destinations.

Equation:

$$EP = \frac{\sum_{i=1}^n WiRi}{n}$$

Where **EP** = Ecotourism potential for a nature-based tourism destination

Wi = Weighted score for given criteria

Ri = Rated score for given criteria

n = Total number of criteria = 5

A weight of five given to the score of all criteria except the criteria on ecotourism diversity, which were given a weighted of three, a weighted of three since it was considered to have less effect on ecotourism potential. For each tourism destination, each criterion was then rated (R_i) from 0 to 3 (zero having little or no potential and three being the highest). The only reversed rating was on susceptibility to impact (zero meaning the highest or most unmanageable of impacts given costs or other constraints, with three meaning no or little expected impact or temporary or manageable impacts). The results were then classified into three potential classes (Low, Medium, and High potentials) given the standard ranged score of 0 - 1, 1 - 2, and 2 - 3, respectively (Emphandhu D. and Chettamart S., 1997).

Ten subcriteria for potential sites were also assessed (Emphandhu D. and Chettamart S., 1997). They were:

- 1) opportunity for wildlife sighting,
- 2) rate / new wildlife species found,
- 3) flora diversity,
- 4) richness of flora,
- 5) ecosystem uniqueness,
- 6) rare / new plant species found,
- 7) uniqueness of physical attributes,
- 8) landscape / seascape uniqueness,
- 9) marine resources and environment, and
- 10) cultural and historical uniqueness.

2.7.6 Interpretation

Interpretation should deliver high quality nature-based experiences to visitors and provide opportunities to increase awareness of the significance and value of the nature environment in an enjoyable fashion.

2.7.6.1 Definition of Interpretation

Society for Interpreting Britain's Heritage (cited by Tourism Authority of Thailand, 1997) defines the interpretation is the process of explaining to people the significance of the place or object they have come to see, so that they enjoy their visit more, understand their heritage and environment better, and develop a more caring attitude towards conservation. Tilden (1977), defines the interpretation is an educational activity which aims to reveal meanings and relationships through the use of original objects, by first hand experience, and by illustrative media, rather than simply to communicate factual information. And Alderson & Low (1985), defines the interpretation is a planned effort to create for the visitor an understanding of the history and significance of events, people, and objects with which the sites is associated.

Regarding to research above, the definition of the interpretation can be described as concerned with providing information to visitors about the places they are in and encouraging them to appreciate and care for these places.

2.7.6.2 The Objectives of Interpretation (Tourism Authority of Thailand, 1997).

(1) Raising of environmental awareness that fosters an ongoing commitment to environmental protection and enhancement.

(2) Delivering appropriate levels of education and interpretation to enhance the ecotourism experience.

(3) Encouraging behavior, which is sympathetic to the protection of environmental values.

2.7.6.3 The Types of Interpretation

Sharpe (1976), divided types of interpretation two types as follows:

(1) Personal or attended service: visitors will connect interpretative specialist by using multimedia as follows:

1.1 information service

1.2 the conducted activity

1.3 talk to group

1.4 loving interpreting and culture demonstration

(2) Nonpersonal or unattended service: visitors will be interpretative specialist superficial connection. It has both disadvantage and advantage, should not recompense personal or attended service but should expand more interpretation than using single interpretation only as follow:

2.1 audio devices

2.2 written material

2.3 signs

2.4 labels

2.5 publications

2.6 self-guide trial

2.7 exhibit: indoor

2.8 exhibit: outdoor

2.9 visitor center

2.10 off-site and off-season media

Conclusion, ecotourism is the form of tourism in natural and/or social and cultural environments with educational and recreational purposes through the nature

and environments of such ecosystem. The learning pattern and procedure is one that tourists and people involved with such ecosystem can learn together under the tourism management that does not affect the nature and the environment. The local community is to participate and gain the most from tourism activities in order to establish an awareness for of sustainable ecosystem conservation. This research should rely on Whight's sustainable model of ecotourism. It has three sets of goals in the model represent the three arenas, which must be given equal weight in striving for sustainable tourism. The model demonstrates an approach where all three spheres as follows: economics goal, social goal, and environmental goal must have goals fulfilled for there to be balance, which is requires for a possibility of sustainability.

2.8 The Concept and Theories of Environmental Ethics

Environmental ethics concerns itself with these global concerns: humanity's relationship to the environment, its understanding of and responsibility to nature, and its obligations to leave some of nature's resources to posterity. Pollution population control, resources use, food production and distribution, energy production and consumption, the preservation of the wilderness, and of species diversity, all fall under its purview. It asks comprehensive, global questions, develops metaphysical theories, and applies its principles to the daily lives of men and women everywhere on Earth.

2.8.1 Definition of Environmental Ethics

Environmental ethics presents and defends a systematic and comprehensive account of the moral relations between human being, and their natural environment. Also, environmental ethics refers to those values, whatever they turn out to be, associated with the environmental movement.

Hart R. E. (1992), defined environmental ethics is morality confronting technology head on and holding it accountable. And environmental ethics is about choices and decisions we make which affect the environment and hence affect human life.

Conclusion, environmental ethics is moral behavior about choices and decisions we make which affect the environment and hence affect human life.

In contrast to other forms of practical ethics. Hart (1992) said that environmental ethics moves ethics for the first time from a personal and interpersonal context to a physical and global one. The physical world itself takes on ethical significance and plays a moral role. It has a moral claim on human attention and we have responsibility to it for three reasons as follows:

(1) Because we alter the environment in ways that are better or worse, we implant our morality in it. The environment is a recipient of our ethical choices regarding it, which are incorporated within its functioning.

(2) The physical world mutely bears testimony to the quality of those choices, which it transmits, to the human community. The environment in fact related to us by conveying the import of the choices of each.

(3) The environment acts as a third party, a kind of moral medium of exchange between I and thou, transmitting the moral quality of my environmental choices to you and yours to me. It becomes a quasi-human participant in the consequences of our actions and is therefore more than what the scientist examines and more than his test tube and microscope reveal.

2.8.2 The Concept of Environmental Ethics

Researcher applied to integrate theories for environmental ethics. These were theory of value for inspire faith step or create the willingness to accept in the mind, social learning theory for model behaviors forming step so that the people may acknowledge and do the same in model behaviors forming of environmental ethics development, and behavior modification theory for behavioral practice of tourism resources conservation step. So researcher expect that its serve as the birthplace of environmental ethics are as follow:

2.8.2.1 Theory of Value

As Rath L.E., Merrill M., and Sidney S.B. (1966), become familiar with persons in this group, it is interesting to note how their common confusion about how to relate their lives to their surroundings has led to quite different patterns of behavior:

1. Some are apathetic. They are listless and uninterested, willing to let the spinning world carry them along whichever way it will.

2. Other is flighty, interested in many things but only for fleeting moments. They often are involved in something with high spirit; but with equal spirit

and in short order, they abandon it for another favorite.

3. Some are very uncertain, seemingly unable to make up their minds about the many choices with which the world continues to face them.

4. Then there are very inconsistent ones, persons involved in many things that are mutually inconsistent if not mutually destructive. Unlike their flighty compatriots, they may have patterns in their lives but, if so, the patterns tend to be incompatible. One thinks of the student who is alternately generous and selfish, or who is hard working this and totally without energy the next week.

5. Others at this end of the continuum might aptly be called drifters. For these persons there is a pattern of behavior characterized by plan less and unenthusiastic drift from this to that, like humans without power or rubber in the sea of life.

6. A large number are overconformers. Not having a clear idea of what they want to do with their lives, many take the road of conformity, accommodating themselves the best they can to what they perceive to be the dominant viewpoint of the moment. Other-directed with a passion, are those in this subgroup.

7. Some are overdissenters, not occasional and reasoned dissenters, but chronic, nagging, and irrational dissenters. It's as if some confused persons try to obtain an identity by opposing the prevailing winds. This behavior pattern is, course, no more independent of others than is that of the over conformer.

8. Finally, they note a group of poseurs or role players, persons who cover their lack of clarity about what life is for by posturing in some role other that is no more real for them than a made-up cardboard image. One thinks of the class clown or the bully on the block as often being of this type. Each poseur adopts a counterfeit existence to conceal his lake of a real one.

(1) Definition of Value

The meaning of the term "value" is by no means clear in the social sciences or in philosophy. One can find consensus for no definition. About the only agreement that emerges is that a value represents important something important in human existence. Perhaps because it is such a pivotal term, each school of thought invests it with its own definition. For the same reason, a particular definition is not often acceptable elsewhere (Raths L.E., Merrill M., and Sidney S.B., 1966).

(2) Process of Valuing

From this assumption comes what they call the process of valuing. A look at this process may clear how they define a value. Unless something satisfies all seven of the criteria noted below, they do not call it a value. In other words, for a value to result, all of the following seven requirements must apply. Collectively, they describe the process of valuing (Raths L.E., Merrill M., and Sidney S.B., 1966).

2.1 Choosing freely. If something is in fact to guide one's life whether or not authority is watching it must be a result of free choice. If there is coercion, the result is not likely to stay with one for long, especially when out of the range of the source of that coercion. Values must be freely selected if they are to really value by the individual.

2.2 Choosing from among alternatives. This definition of value is concerned with things that are chosen by the individual from which to choose. It makes no sense, for example, to say that one value eating. One really has no choice in the matter. What one may value is certain types of food or certain forms of eating, but not eating itself. They must all obtain nourishment to exist; there is no room for decision. Only when a choice is possible, when there is more than one alternative from which to choose, do they say a value can result.

2.3 Choosing after thoughtful consideration of the consequences of each alternative. Impulsive or thoughtless choices do not lead to values as they define them. For something intelligently and meaningfully to guide one's life, it must emerge from a weighing and an understanding. Only when the consequences of each of the alternatives are clearly understood can one make intelligent choices. There is an important cognitive factor here. A value can emerge only with thoughtful consideration of the range of the alternatives and consequences in a choice.

2.4 Prizing and cherishing. When they value something it has a positive tone. They prize it, cherish it, esteem it, respect it, and hold it dear. They are happy with our values. A choice, even when they have made it freely and thoughtfully, may be a choice they are not happy to make. They may choose to fight in a war, but be sorry circumstances make that choice reasonable. In our definition, values flow from choices that they are glad to make. They prize and cherish the guides to life that they call values.

2.5 Affirming. When they have chosen something freely, after consideration of the alternatives, and when they are proud of our choice, glad to be associated with it, they are likely to affirm that choice when asked about it. They are willing to publicly affirm our values. They may even be willing to champion them. If they are ashamed of a choice, if they would not make our position known when appropriately asked, they would not be dealing with values but something else.

2.6 Acting upon choices. Where they have a value, it shows up in aspects of our living. They may do some reading about things they value. They are likely to form friendships or to be in organizations in ways that nourish our values. They may spend money on a choice they value. They budget time or energy for our values. In short, for a value to be present, life itself must be affected. Nothing can be a value that does not, in fact, give direction to actual living. The person who talks about something but never does anything about it is dealing with something other than a value.

2.7 Repeating. Where something reaches the stage of a value, it is very likely to reappear on a number of occasions in the life of the several different times. They would not think of something that appeared once in a life and never again as a value. Values tend to have a persistency, tend to make a pattern in a life.

To review this definition, they see values as based on three processes: choosing, prizing, and acting.

Choosing: (1) freely

(2) from alternatives

(3) after thoughtful consideration of the consequences of each alternative

Prizing: (4) cherishing, being happy with the choice

(5) willing to affirm the choice publicly

Acting: (6) doing something with the choice

(7) repeatedly, in some pattern of life

Those processes collectively define valuing. Results of the valuing process are called values.

(3) Value Indicators

Obviously not everything is a value, nor need it be. They also have purposes, aspirations, beliefs, and many other things that may not meet all seven of those criteria. However values often do grow from our purposes, aspirations, beliefs,

and so on. Let us briefly discuss some things that could indicate the presence of a value but that are different from values. They call these expressions which approach values, but which do not meet all of the criteria value indicators.

3.1 *Goals or purposes.* To have purposes gives direction to life, the purpose is important to us, they cherish it and they organize our life in ways by which they can achieve the purpose. This doesn't mean that every stated purpose is a value. Instead, they should think of a stated purpose as a potential value or a value indicator.

3.2 *Aspirations.* They sometimes indicate a purpose that is remote in terms of accomplishment. It is not something that they wish or expect to accomplish today or tomorrow, or within a week or sometimes even a month. The statement of such an aspiration frequently points to the possibility of something that is valued.

3.3 *Attitudes.* Sometimes they give indications that they may have value by expressing attitudes. They say that they are for something or against something. It is not always a sound practice to infer that such a statement represents a value.

3.4 *Interests.* Very often you hear people say that they are interested in something. Care should be taken, however, in concluding that this means that a value is present.

3.5 *Feeling.* Our personalities are also expressed through our feelings and through statements about how they feel. Our feelings are sometimes hurt. Sometimes they feel outraged.

3.6 *Beliefs and convictions.* When they hear someone state what he believes, it is all too easy to accept the statement as a value.

3.7 *Activities.* They sometimes say about a figure in public life "That's what he says, but what does he do?" They seem to be saying that not until a person does something do they have some idea of what he values. With values, as with other things, actions speak louder than words. Of course, it isn't true that every thing they do represent our values.

3.8 *Worries, problems, obstacles.* They hear individuals talk about worries that they have, and they sometimes infer from the context they know the values that are involved. Here again they may be giving undue importance to verbal statement. If they were to ask questions bearing upon the seven criteria which have been proposed, they might

find out that nothing of great importance is involved; that the statement represented conversation piece. Many of us talk a good deal, and they may mention problems or worries only as ways of entering into a conversation.

They have explained something about eight categories of behavior, which have a significant relationship to valuing. There is no implicating that other categories of behavior may not be just as important. However, these eight categories---goals and purposes, aspirations, feeling, interests, beliefs and convictions, attitudes, activities, and worries---are often revealed in the classroom. They believe it is important that opportunities for revealing these become a vital---part of teaching, for the next step is for the teacher to help those children who choose to do so to raise these value “indicators” to the level of values, that is, to the level on which all seven of the valuing processes operate.

(4) The Value Clarifying Method (Raths L.E., Merrill M., and Sidney S.B., 1966).

4.1 The Value Sheet

The technique for the clarifying response is used to help one student think more clearly and independently about something he has said or done. Other students may well overhear the exchange and profit indirectly---as they learn to use the valuing process themselves and as they hear talk about an issue that may also be relevant to their lives---but the clarifying response is essentially an individually focused strategy. The strategy of the value sheet is focused on the group.

There are many things in our complex world that are worth getting clearer about, and the value sheet offers a strategy for bringing some of these to the attention of students in a non-threatening and stimulating way. This is consistent with the value theory because each student is faced with the issue and its alternatives; and each one is encouraged to make an intelligent choice freely and thoughtfully and to act in ways consistent with that choice.

A value sheet in its simplest form consists of a provocative statement and a series of question duplicated on a sheet of paper and distributed to class member. The purpose of the provocative statement is to raise an issue that the teacher thinks may have value implication for students. And the purpose of the question is to carry each student through the value clarifying process with that issue. Since valuing is an

individual matter, each student completes the value sheet by himself, preferably by writing answers on a separate sheet of paper. Later, that writing may be shared with other students or the teacher and/or used as a basis for large or small group discussions. Value sheets can also be used as programmed instructional material. But perhaps some examples will help make this clearer.

4.2 The Value – Clarifying Discussion

They must first differentiate between different kinds of discussions and point to a common pitfall in value-clarifying discussions. Some discussions have as their purpose the teaching or review of subject matter. In such discussions, the teacher can point to errors in data, make judgments about the adequacy of answers, and provide standards of rightness and wrongness. Other discussions have as their purpose the clarifying of student values. When the discussion has this purpose, the teacher must be non-judgmental and accepting. If the teacher—no matter how subtly—were to make judgments or provide standards of the privilege of making their own decisions about the topic under consideration. Moreover, he would be implying that students could not do their own thinking and their own valuing, an implication that, if frequently repeated, would tend to convince students that it is so. The result would be the conformity, apathy, indecisiveness, and overdissenting of which they spoke earlier. Value confusion, in short, cannot be cleared by a process of clever teacher direction.

The importance of this point cannot be overstressed. Many teachers habitually use leading question in a discussion to help the student see, for example, that honesty is the best policy. This kind of “guided” discussion is well suited to the teaching of subject matter but disastrous for consideration of values. If the teacher thinks his students are not ready to judge the issue of honesty. To use the same example, he should not pretend that he permits them to do so. He should up and tell them, “Students, they cannot let you decide this for yourselves right now. This decision is one that is too complicated (or dangerous) to give you. Most adults around here believe that honesty is the best policy and you can expect to run into trouble if you behave in ways that contradict this.

Below is an except from a discussion between a class and a teacher who is concerned with value development but yet who will not permit dishonest

behavior in his classroom. The problem here is to give students free choice while preventing unacceptable behavior. Note how this teacher attempts to do this.

2.8.2.2 Social Learning Theory

Social learning theories were developed by psychologists, but they had a similar and difference concepts as follows: Rotter's theory, Mischel & Mischel's theory, and Bandura's theory. This research mentioned Bandura's theory to be guideline. Because it was received and influenced the best concept.

Social Learning Theory

Social learning theory emphasizes the prominent roles played by vicarious, symbolic, and self-regulatory processes in psychological functioning. Changes in theoretical perspectives added new paradigms to the standard methods of research. Acknowledgement that human thought, affect, and behavior are markedly influenced by observation, as well as by direct experience, fostered development of observation paradigms for studying the power of socially mediated experience (Bandura, 1977).

Social learning theory approaches the explanation of human behavior in terms of a continuous reciprocal interaction between cognitive, behavioral, and environmental determinants (Bandura, 1977).

1) Learning by Response Consequences

The more rudimentary mode of learning, rooted in direct experience, results from the positive and negative effects that actions produce. When people deal with everyday events, some of their responses prove successful, while others have no effect or result in punishing outcomes. Through this process of differential reinforcement, successful forms of behavior are eventually selected and ineffectual ones are discarded.

Learning by reinforcement is commonly portrayed as a mechanistic process in which responses are shaped automatically and unconsciously by their immediate consequences. Simple actions can be altered by their effects without awareness of the relationship between actions and outcomes. However, extensively from experience than if they were unthinking organisms.

Response consequences have several functions. First, they impact information. Second, they serve as motivators through their incentive value. The third, and most controversial, function concerns their capacity to strengthen responses

automatically. A full understanding of learning by response consequences therefore requires detailed consideration of these functions (Bandura, 1977).

1) Information function

In the course of learning, people not only perform responses but also notice the effects they produce. By observing the different outcomes of their actions, they develop hypotheses about which responses are most appropriate in which settings. This acquired information then serves as a guide for future action. Accurate hypotheses give rise to successful performances, whereas erroneous ones to ineffective course of action. Cognitions are thus selectively strengthened or disconfirmed by the differential consequences accompanying the more remotely occurring responses.

Contrary to the mechanistic view, outcomes change behavior in humans largely through the intervening influence of thought. Reinforcing consequences serve as an unarticulated way of informing performers of what they must do to gain beneficial outcomes and to avoid punishing ones. Because learning by response consequences is largely a cognitive process, consequences generally produce little change in complex behavior when there is no awareness of what is being reinforced. Even if certain responses have been positively reinforced, they will not increase if individuals believe, from other information, that the same actions will not be rewarded on future occasions.

2) Motivational function

Anticipatory capacities enable humans to be motivated by prospective consequences. Past experiences create expectations that certain actions will bring valued benefits, that still others will avert future trouble. By representing foreseeable outcomes symbolically, people can convert future consequences into current motivators of behavior. Most actions are thus largely under anticipatory control. Homeowners, for instance, do not wait until they experience the distress of a burning house to purchase fire insurance; people venturing outdoors do not ordinarily depend on the discomfort of a torrential rain or a biting snowstorm to prompt them to dress appropriately; nor do motorists usually wait until inconvenienced by a stalled automobile to replenish gasoline.

The capacity to bring remote consequences to bear on current behavior by anticipatory thought encourages foresightful behavior. It does so by providing both the

stimulus for appropriate action and the sustaining inducements. Because anticipatory incentives increase the likelihood of the kind of behavior that is ultimately reinforced time and time again, this type of incentive function has great utility.

3) Reinforcing function

Explanation of reinforcement originally assumed that consequences increase behavior automatically without conscious involvement. This view was challenged by the results of verbal learning experiments in which experimenters reinforced certain classes of words verbalized by participants and ignored all others. Changes in how frequently subjects produced reinforced verbalizations were then examined as a function of whether the participants recognized which types of words produced rewards.

2) Learning Through Modeling

Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Campunately, most human behavior is learned observationally through modeling from observing others one forms ad idea of how new behavior are performed, and on later occasions this coded information example what to do, at least in approximate form, before performing any behavior, they are spared needless errors.

According to social learning theory, modeling influences produce learning principally through their informative function. During exposure observers acquire mainly symbolic representations of the modeled activities, which serve as guide for appropriate performances (Bandura, 1977). In this conceptualization, which is summarized schematically in Figure 17, four component processes govern observational learning (Bandura, 1977).

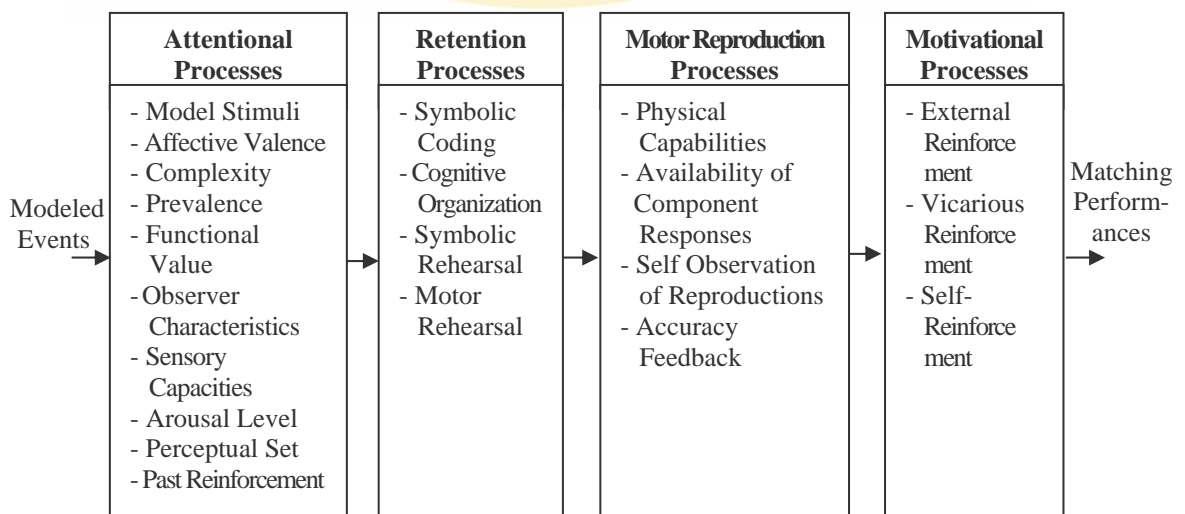


Figure 17: Component processes governing observational learning in the social learning analysis.

3) Corrective Learning

Until recently, efforts to eliminate defensive behavior relied heavily upon the interview as the vehicle of change. Eventually it became apparent from results of such applications that conversation is not an especially effective way of altering human behavior. In order to change, people need corrective learning experiences.

Developments in the field of behavioral change reveal two major divergent trends. This difference is especially evident in the modification of dysfunctional inhibitions and defensive behavior. On the one hand, explanations of change processes are becoming more cognitive; on the other hand, it is performance-based treatments that are proving most powerful in effecting psychological changes. Regardless of the method involved, treatments implemented through actual performance achieve results consistently superior to those in which fears are eliminated to cognitive representations of threats. Symbolic procedures have much to contribute as components of a multiform performance-oriented approach, but they are usually insufficient by themselves.

In the social learning view, psychological changes, regardless of the method used to achieve them, derive from a common mechanism. The apparent divergence of theory and practice is reconciled by recognizing that changes are mediated through cognitive processes, but the cognitive events are induced and altered most readily by experiences of mastery arising from successful performance.

Psychological procedures, whatever their form, alter expectations of personal efficacy. Within this analysis, efficacy and outcome expectations are distinguished, as shown schematically in Figure 18.

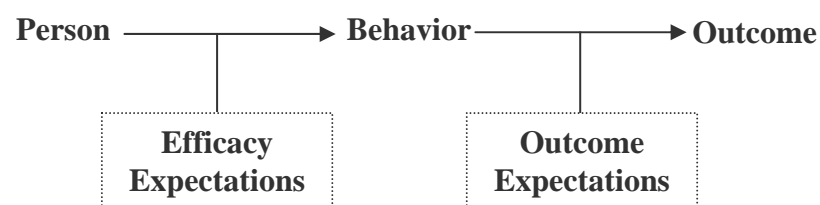


Figure 18: Diagrammatic representation of the difference between efficacy expectations and Outcome expectations.

An outcome expectancy is defined here as a person's estimates that a given behavior will lead to certain outcomes. An efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes. Outcome and efficacy expectations are differentiated because of action will produce certain outcomes, but question whether they can perform those actions.

Expectations of personal efficacy are based on several sources of information. Figure 19 presents the diverse influence procedures commonly used to reduce defensive behavior and the source through which each treatment operates to create expectations of mastery. Any given method, depending on how it is applied, may of course draw on one or more sources of efficacy information. By postulating a common mechanism of operation, this conceptual scheme is designed to account for behavioral changes achieved by different modes of treatments.

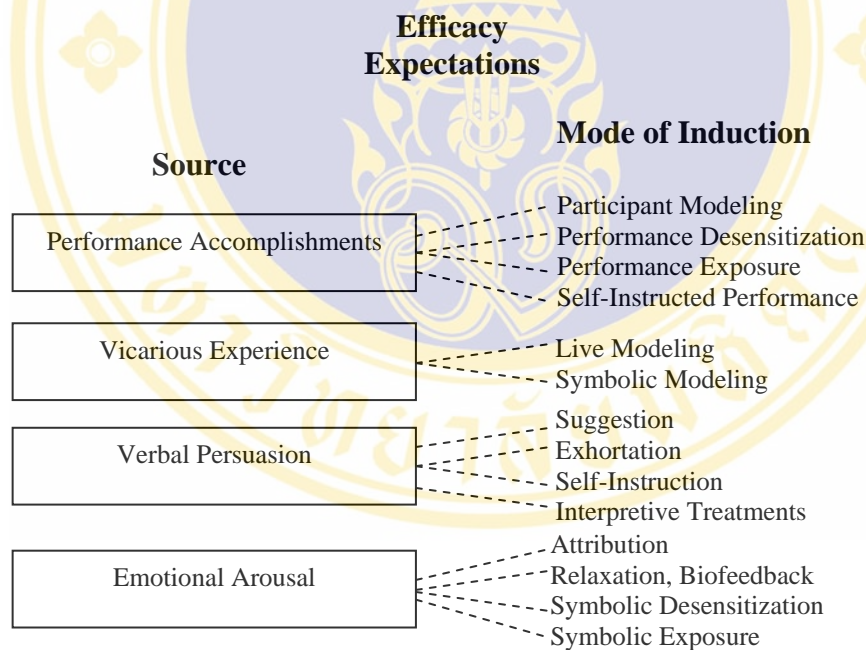


Figure 19: Major sources of efficacy expectations and the sources through which different models of influence operate.

4) Component Processes in Self-Regulation

Self-reinforcement refers to a process in which individuals enhance and maintain their own behavior by rewarding themselves with rewards that they control whenever they attain self-prescribed standards. Because behavior can also be reduced by

negative self-reactions, the broader term self-regulation will be used to encompass both the enhancing and reducing effects of self-reactive influences.

According to social learning theory, self-regulated reinforcement increases performance mainly through its motivational function. By making self-reward conditional upon attaining a certain level of performance, individuals create self-inducements to persist in their efforts until their performances match self-prescribed standards. The level of self-motivation generated by this means will vary according to the type and value of the incentives and the nature of the performance standards. Figure 20 summarizes the different component processes in the self-regulation of behavior through self-managed incentives.

Behavior may vary along a number of evaluative dimensions, some of which are listed in the figure. The importance of these dimensions will vary according to the activity. Track performances, for example, are gauged in terms of speed. Achievement-oriented activities are evaluated on the basis of quality, quantity, or originality. Social conduct is judged along such dimensions as authenticity, consequentialness, and deviancy, just to mention a few.

Behavior generates self-reactions through a judgmental function, which includes several subsidiary processes. Whether a given performance will be regarded as rewardable or punishable depends upon the standards against which it is evaluated. Actions that measure up to internal standards give rise to positive appraisals, while those that fall short are judged negatively.

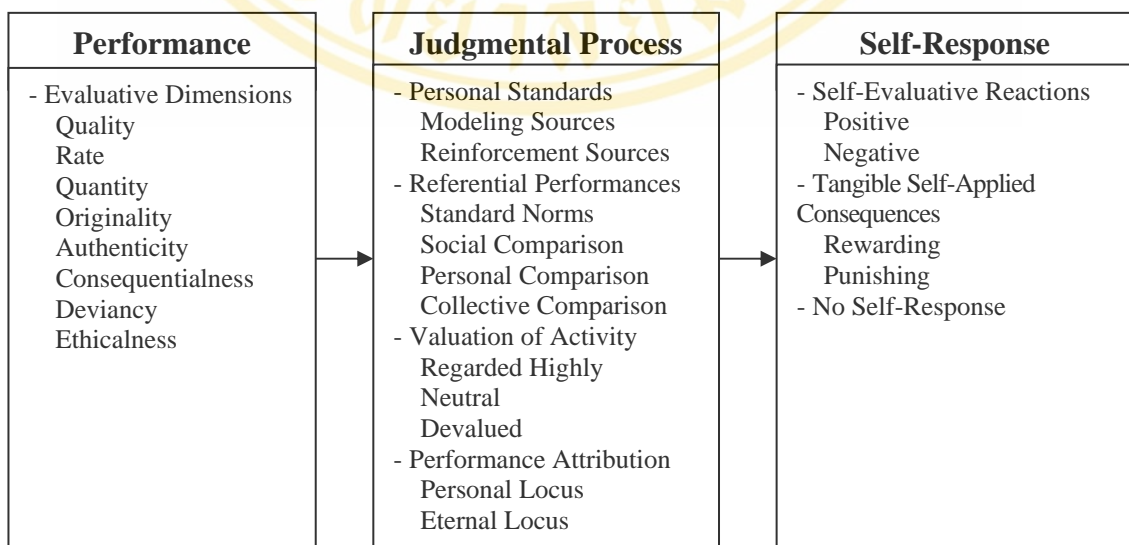


Figure 20: Component processes in the self-regulation of behavior by self-produced consequences.

2.8.2.3 Behavior Modification Theory

Behavior modification theory was developed from operant conditioning theory (Skinner's theory of learning, 1931) by reinforcement method, and classical conditioning theory (Pavlov's theory of learning, 1927) by stimulus and behavioral response.

1) Pavlov's Theory of Learning

Ivan P. Pavlov is Russia's most famous scientist. He first won great distinction for his research on the physiology of the digestive system. This research was characterized by a variety of ingenious procedures. Just before the turn of the century, at the same time a methodological problem that was ultimately to prove more important and more interesting than his physiological research. He had discovered conditioning. From then on all energies and all the resources of his laboratory in Leningrad were devoted to conditioning. Pavlov was above all else a dedicated scientist. One story told of him is that, because of his distinction, he was offered an increased food allowance during the hard of the revolution but that he refused it until extra food was also made available for his dogs.

Let us begin with Pavlov's where he began it, with his research on the digestive system of the dog. He originally discovered that, when food is placed in the dog's stomach, the stomach walls secrete a variety of juices that facilitate digestion. A series of studies showed that the amount secreted and the duration of secretion are functions of the kind and amount of food put in the stomach. To simplify the measurement of what is going on inside the dog, Pavlov developed an ingenious surgical technique for externalizing a portion of the stomach. A slice of stomach tissue was cut loose and brought out and attached to a hole made in the side of the body. Pavlov's skill as a surgeon was demonstrated by the fact that he was able to accomplish this surgery without disrupting the blood supply or the nervous connections to the stomach.

The basic conclusion that Pavlov reached from this research was that there is an innate physiological reflex controlling the amount of gastric secretion in a very precise manner as a function of the amount and kind of food in the stomach. The same conclusion applies to salivary secretion. The kind and amount of saliva produced by the dog are very precisely graded to the kind and amount of substance put into the dog's mouth.

There can be little doubt learning occurs in a Pavlovian experiment. The question is how this learning is best conceptualized. To keep the proper historical perspective, we shall stress Pavlov's own interpretation and shall mention only briefly of the alternative views that have been formulated. In a later chapter some contemporary interpretations will be discussed.

It should be emphasized that Pavlov's primary concern was not to establish a theory of learning but rather to develop techniques for studying the brain. He was particularly with the cerebral hemispheres. He assumed, as did most scientists early in this century, that learning is the special province of the cortex. He also assumed that learning can occur only in an animal as high as a carnivore and only if the cortex is intact. His research led him to formulate a rather specialized theory of the role of the cortex in learning. The basic idea is that. When the US stimulates the cortex, it produces maximum activation at some definite point; but, because it is a strong stimulus, there is a field of neural activity radiating this point. Similarly, the CS activates maximally a somewhat different location on the cortex, and it produces an area of activity somewhat smaller than that produced by the US. If these two fields overlap, Pavlov assumed, the sensory fields stimulated by the two stimuli should become integrated into a common field. Specifically, a neural path should develop between the two points. The two stimuli should become functionally equivalent, but because the US is the stronger of the two, producing an invariable response, the basic modification must be in the activity by the CS (conditioned stimulus). The CS produces the same response originally elicited by the US (unconditioned stimulus). Pavlov eventually elaborated his theory of the brain in considerable detail and developed it to explain many of the basic of conditioning generalization was explained as the production by similar stimuli of similar and partially overlapping fields of activity. As another example, the importance of temporal factors in conditioning was explained in terms of how fast brain activity spread from the point of maximum stimulation and how fast the area of activity contracted afterward.

Few psychologists today take Pavlov's brain theory very seriously. The brain theory is mentioned at all only to emphasize at all only to emphasize two facts. One is that, in Pavlov's thinking learning consisted not so much in the

construction of a new S-R connection as in the learned equivalence of stimuli. The second point is that, for Pavlov, learning arose from the altered relation of neurons in the brain, especially in the sensory areas. Because Pavlov was not a psychologist and not particularly concerned with psychological theory, he did not speak very informatively about the psychological aspects of conditioning. He described these aspects of conditioning in a number of different ways, using a number of different analogies (Pavlov, 1927).

Most of this theory has been devoted to the phenomena of conditioning and the various procedures, most of them discovered by Pavlov himself, for studying these phenomena. One reason for this emphasis is that many of these phenomena are basic to any analysis of learned behavior, but they have often been distorted and reinterpreted in terms of later theorists' own convictions. A second reason for emphasizing the procedures for conditioning, rather than the hypothetical process of conditioning, is that Pavlov's own theory of conditioning was really extremely simple. Putting aside his special theory of brain functioning, the general theory of conditioning can be summarized as follows:

- (1) Conditioning is a hypothetical process by which a response comes to be elicited by a CS that does not elicit it initially.
- (2) Conditioning occurs when the CS is consistently paired with a US that does elicit the response.
- (3) All learning in man and beast is due to conditioning.

2) Skinner's Theory of Learning

From the outset of his professional career, B.F. Skinner has used his own methods for studying behavior, his own apparatus for observing it, his own techniques for analyzing it, and his own ideas about how it should be explained. Gradually at first and then at an accelerated pace, Skinner's methods and his approach to the problems of behavior have become popular. Their success is apparent not only in laboratory situations but also in a broad range of practical applications. Over the years Skinner has attracted an increasing number of followers who, if not willing to call themselves Skinnerians, are at least happy to call themselves operant conditioners, and who vigorously extol the virtues of Skinner's experimental analysis of behavior.

Skinner (1931), observed that the terms stimulus and response had both come to acquire a double reference. Even the relationship between stimulus and response, the reflex, had a double meaning. On the one hand, there was the hypothetical physiological entity, the “reflex arc,” which was assumed to necessitate a given movement when a given receptor was stimulated. On the other hand, there was the fact that we stimulus object. Difficulties arise when we confuse the behavioral S-R with the assumed underlying physiological S-R.

Consider that when Pavlov first discovered his dogs salivating in the absence of any physiological event that could cause the secretion, he found it necessary to events were clear, but the underlying mode of operation was obscure, and Pavlov merely assumed that it was like a physiological reflex. Skinner tells us that a single basic observation gives rise to both the physiological concept of the reflex arc. The observation is that certain specific responses are very reliably correlated with certain specific stimuli. The empirical or behavioral reflex is, then, nothing more than the correlation of a response with a stimulus. The neurological of further empirical correlations that have been discovered by the physiologists. Skinner (1931), concluded that the basic datum for the student of behavior is simply an observed correlation of stimulus and response.

“When we say, for example, that Robert Whytt discovered the pupillary reflex, we do not mean that he discovered either the contraction of the iris or the impingement of light upon the retina, but rather that he first stated the necessary relationship between these two events. So far as behavior is concerned, the pupillary reflex is nothing more than this relationship. Once given a specific stimulus-response correlation, we may, of course, investigate the physiological facts of its mediation. The information there revealed will supplement our definition but it will not affect the status of the reflex as a correlation (Skinner, 1931)”.

The Concept of Reinforcement

Any environmental event that's programmed as a consequence of a response that can increase the rate of responding is called a reinforcer. This definition is strictly empirical; it makes no assumptions about the underlying process.

Skinner has stayed relatively free of the question of what is learned when learning occurs. For Skinner, Reinforcement is a procedure for controlling behavior, not a hypothetical device that produces S-R connections, habits, or expectancies. Reinforcers are simply events that increase the rate of responding.

We all know our own efforts to control the behavior of other organisms that kinds of events are rather consistent reinforcers, whereas others are not. For the hungry rat, dog, or pigeon, food is usually very effective. But, whereas reinforcers such as food have great generality across species, others are much more specific. Petting a dog can be reinforcing, whereas petting and adult human or a rat is usually not. In the case of the human subject, social approval, praise, or getting the right that it can tear up for nest material is reinforcing.

It should be noted that reinforcers do more than affect the preceding response; they also tend to elicit eating, petting may elicit tail wagging, and paper may elicit shredding. It is clear that such elicited behaviors compete with the execution of the reinforced response. Skinner provides a characteristically practical answer to this problem: Reinforcement is not given after each response in a continuous manner (so-called continuous reinforcement, or CRF); it is given intermittently, so that the animal is obliged to make a large number of response to obtain a small number of reinforcements. The cumulative record will then reflect primarily time spent pressing the bar rather than time spent eating.

Reinforcers can be classified into large categories: those whose presentation increases responding, as food does for the hungry rat, and those whose removal increases the rate of responding, as does electric shock. The latter are called negative reinforcers. If we set up such a contingency between behavior and shock and obtain increased responding, then we have an effective escape-training procedure. There is another procedure, punishment, in which the presentation of an event such as shock is made contingent upon a response. If the response is weakened, then we have an effective punishment procedure. The human tendency to judge all things as good or bad may bias us toward thinking of punishers and negative reinforcers as equivalent in some way (perhaps as being equally bad), but they are defined by different kinds of procedures. Ordinarily the same kinds of “bad” stimuli can be used either as negative reinforcers to strengthen behavior or as punishers to weaken it, but there are some interesting exceptions (Skinner, 1931).

2.9 Review Study

2.9.1 Research on Participatory Action Research

Chaiteeranuwatsiri M. (1998), "A participatory action research on students, families, school, and community development through environmental education process." The research found that the objective of the research is to develop knowledge, attitudes, and behavior toward the management of the natural resource and environment, including quality of life of the students and their families, school, and community surrounding Ban Pai Lom school through environmental education process. After a meeting between the researchers, teachers, community leaders, and non-government organization for children, three sub-projects were created as follow: 1) a green school project 2) an environmental quality school project and 3) a quality of life and community environmental project.

During six months (November 1997 to April 1998), the students and their families, teachers, community leaders, the non-government organization for children, and some people in the community participated the activities. The impact of the project were the increasing of the knowledge, attitudes and behavior of the target groups toward the management of the natural resource and environment and still continuing participate the activities in the school.

Koseyayothin M. (2002), "Participatory Action Research on Nature Framing for Agricultural Households in Thai-Cambodia Border Areas." The research found that results revealed that after undertaking participatory action research. The achievements of the samples learning in nature were increased significantly at the level of 0.01. The sampled agriculturists showed an improvement in social economic and environment factors. Agriculturists decreased the use of toxic substances, using the herbs instead to protect and get rid pests, using the residual for making natural fertilizers. The participatory action research process found that the practices of nature farming were still continuing long after the study. The target agriculturists were continually planting vegetables, expanding their agricultural areas to do nature farming and increasing the kind of vegetables. Military authorities have recognized the importance of nature farming by providing public land of 10 rai for planting vegetables.

This research concluded that participatory action research was an appropriate means for environmental education for the learning of nature farming, which would result in sustainable agricultural development. Therefore it is recommended that action should be employed in the process of environment education aimed at achieving learning and practical skills development, thus contributing to development of economic, social, and environmental conditions. Emphasis also should be on the underprivileged groups, small communities, as well as the needs for the communities to become self-sufficient.

2.9.2 Research on Environmental Education

Rawang W. (2001), “Community-Cultures Based Environmental Education: A Case Study for the World Cultural Heritage of Ayutthaya Historic City.” The research findings were the World Cultural Heritage of Ayutthaya Historic City covered 1,810 rai in Pratuchai and Thawasikri Sub-District, Ayutthaya Municipality. Its history was over 650 years (1350 A.D. - present). The community development can be classified into 4 periods; Ayutthaya Civilization (417 years; 1350 – 1767 A.D.), the Ruined City (140 years; 1768 – 1907 A.D.), the Ancient City Conservation and development (83 years; 1908 – 1991 A.D.), and the World Cultural Heritage of Ayutthaya Historic City (1991 A.D. – present). There were 7,335 households of 27,003 people. Women being heads of households (56.00%) having an average age of 44.65 years, with married (68.30%), single (21.10%) together with widowed and divorced (10.50%) lived in the World Cultural Heritage of Ayutthaya Historic City in 2000. Analysis of the 4 contexts of community-cultures showed their concept cultures were Buddhist-based with a partial environment. The organization culture; the primary group saw themselves as a rural society style while the secondary group identified with an urban society style. The usage cultures showed a modern style living with a low participation on public activity but the object cultures identified them as high technology facilitated with a low in handicrafts among the ancient ruins of the archeological sites. These were the reasons why a model of community – cultures based environmental education was designed as a frame of both individual and community activities. Especially, the individual activity consisted of group forming, environmental educating, leader electing and activity participating. While the community activities consisted of traditional activity, handicraft promotion, culture tourism together with local organization and community networks.

After the model had been actually implemented for efficiency evaluation through 40 villagers, it was found to be a highly effective model. This model was able to develop the participants level of knowledge, skill and participation with highly statistically significant difference at 0.01, together with the majority (94.08%) getting high satisfaction (three satisfaction ranked for 5 levels as very high, high, moderate, low and very low) of the environmental education process. However, there was no statistical difference of attitude level when compared with pre-post evaluation of environmental education process.

Midling M.J. (1996), "Environmental Education in China: The Case of Secondary Schools in Sichuan Province." The research found that environmental protection emerged as a subject of a global discourse in the early 1970s, coinciding with the beginning of China's gradual re-opening to the outside world. By the 1980s, global discussion of sustainable development had emerged, focusing on the need to integrate economic and environmental considerations in formulating environmental policy. During these decades, models of environmental education (EE) were developed and diffused by international organizations, and elements of these models were adopted in China in planning for environmental education. By the early 1990s, a decision had been made to 'infuse' environmentally related materials throughout the curricula in Chinese schools.

This research draws on classroom observations and teacher interviews in schools, which had been early pilot EE sites. Several themes in their teaching of environmental studies emerged at these pilot EE schools: (1) attempts were made to make environmental education relevant to the lives of students; (2) EE was tailored to the specific circumstances of the surrounding area which the school served; (3) student-directed 'action' research was encouraged; (4) a global view of environmental protection was promoted; and (5) attempts were made to bridge environmental materials across the curriculum.

Data from an environmental questionnaire collected in fifteen high schools in the Chengdu region of Sichuan province is analyzed. Students in six pilot EE schools had significantly higher total mean scores on an environmental knowledge scale than did students from the nine non-pilot EE schools in the sample. Differences in attitudes toward environmental protection, while statistically significant, were weaker than

were differences in environmental knowledge.

Li H. I. (1995), “ Sustainable Development: Toward an Understanding of the Ethical Foundations of Environmental Education.” The research found that recently, sustainable development has emerged as a popular agenda in developing environmental education. In this study, he analyzes the concepts of intergenerational equality, global economic justice, and the unity of humans and nature, which signify the convergence of rhetoric and ethics in the discourse of sustainable development.

Specifically, he examines the conception of moral reciprocity in the framework of social contract theory. He argues that the contract is a moral metaphor intended to stress the importance of moral impartiality as well as human sympathy. It follows that the idea of reciprocal advantages contained in social contract theory is not exclusively related to the pursuit of self-interest and the indeterminacy and contingency of remote future generations cannot justify present generations' moral indifference to the pursuit of intergenerational equality.

He point out that while a recognition of global interdependence is central in addressing today's ecological problems, it is essential to foster an awareness of cultural pluralism in examining the ideological roots of development which led to the continuous polarization between developed and developing nations. Accordingly, the pursuit of global economic justice lies within an effort to integrate development education, multicultural education, global education, and environmental education.

Furthermore, He examines the Confucian conception of the unity of humans and nature, which coincides with a strong this-worldly orientation and might induce the pursuit of economic growth over ecological balance. He argues that the Confucian emphasis on moral cultivation and societal perfectibility may sanction the transformation of the natural environment. Thus, an organic world-view should not be represented as a panacea for all of the world's ecological problems. An effort to explore the educational implications of the unity of human and nature must reckon with the ideological complexity of various religious traditions at the global level.

Finally, he concludes that environmental ethics cannot be separated from inter-human ethics. As school education has a significant impact on the cultivation of our moral character, it is important to recognize and respect students as moral agents in the context of environmental education.

Lawrence O. R. (1993), "Sustainable Development: An Emerging Paradigm for Secondary Curriculum (Environmental Education, Ecological, Economics, Multiculturalism, and Curriculum Development." The research found that this study was designed to ascertain the implications of the accelerating global ecocrisis for education. It focuses on the concept of sustainable development, which permeates the 1987 report of the UN World Commission on Environment, and Development. It presents a framework of fundamental concepts for the organization of secondary curricula in six areas: ecological, economic, social, political, cultural, and ethical.

To identify and define these concepts an analysis of core literature was made using Berelson's Categories of Content Analysis followed by an in-depth evaluation of global curricula in the United States, Canada, and Britain utilizing the Metfessel-Michael model, a variation of the Tylerian. Further analysis was carried out through a review of a survey of sustainable development in education conducted by Global Coalition for Tomorrow in 1990, applying the Jaeger Checklist for Survey Evaluation. A questionnaire submitted to select presenters at the regular UN briefings of Non-governmental Organizations and at conferences/seminars at various institutions through New York City over 1990-91 including Teachers College, Columbia University was also critiqued.

These concepts, directed to developers of curricula guidelines at the state/provincial level, call into question many of the tenets underlying Western Society, especially the economic system, national sovereignty and security, environmental norms, and treatment of developing countries. These concepts demand major shifts in curriculum orientation for secondary education.

The study suggests the need for a more holistic approach to curriculum development. In light of the interdisciplinary nature of the knowledge of the planetary ecological system now unfolding through sophisticated scientific research, fragmentation is no longer defensible. This is particularly true of science, where separation of the physical and life sciences still prevails. Neither can the division between these disciplines and the social sciences be perpetuated. The widely acknowledged connection between the ecology and the economy as pointed out in the study affirms the urgent need for promotion of ecological economics.

To effect these challenging changes, permanent liaison of educators with their

governmental colleagues, universities, the UN, and Non-governmental Organizations will be obligatory.

Woods A. L. (1993), “ Sustainable Development and Tropical Rainforest Loss: the Design and Validation of an Interdisciplinary Environmental Education Curriculum Unit.” The research found that the principal goals of this research were the development and validation of an interdisciplinary environmental education curriculum unit based on the tropical rainforest. The interdisciplinary curriculum unit also addressed the complexity of environmental problems by introducing the concept of sustainable development. Students investigated a simulated problem where a balance of alternatives was needed and sustainable development was offered as a viable option for tropical forest conservation. Students were therefore introduced to sustainable development by using the concept to propose solutions for a realistic problem.

Validation of the unit in science classrooms involved a quasi-experimental study supplemented by teachers' impressions of the unit as reported in lesson plan evaluations. A rainforest curriculum unit-training workshop was provided by this researcher for the nine teachers who participated in the study. Subsequent to this training, the teachers administered cognitive and affective pretests to their students who had been randomly assigned in intact classes to experimental (interdisciplinary rainforest curriculum unit) and control (conventional curriculum) groups. The curriculum unit was then implemented for 13 days in the experimental sections, while the control sections were exposed to an established curriculum taught in the conventional unidisciplinary manner. Cognitive and affective posttests were completed by both experimental and control groups at the end of the unit.

The inferential results of this study provided evidence that the interdisciplinary curriculum unit based on a relevant and popular topic (the tropical rainforest) influenced students' attitudes toward science. When compared to the control group ($n = 317$), the experimental group ($n = 318$) showed more positive attitudes toward science ($df\ 1,628$; $F = 5.01$; $p = .0255$). No gender or interaction effects were evident on students' attitudes toward science.

Similarly, no group or gender main effects, nor any interaction effects were found for students' self-efficacy toward science.

However, a significant treatment main effect ($df\ 2,583$; $F = 6.51$; $p = .0016$) implied that experimental students ($n = 305$) offered more supporting statements for

an environmental decision as compared to control students ($n = 286$), while a significant gender effect ($df 2,583$; $F = 4.39$; $p = .0128$) suggested that females ($n = 297$) used more alternative reasoning categories than their male counterparts ($n = 294$) when making an environmental decision. Also, positive evaluative responses from teachers indicated that the curriculum unit was useful, and therefore valid in the science classroom. In light of these positive qualitative and quantitative results, interdisciplinary curricula based on current and relevant themes is recommended for use by secondary science students.

Lindenmeier D. K. (1996), "An investigation of the Congruency of Outdoor Education Components: Environmental Education and Adventure Education." The research found that this research project was undertaken to determine to what degree environmental education and adventure education are interdependent components of outdoor education, and the implications of this finding. Hopefully the determinations made can give direction to the decision-makers of Texas who have the power and ability to propel environmental education, adventure education and outdoor education in the directions most desirable and useful to the participants and programs. In 1985, Simon Priest presented a model with environmental education and adventure education as two parts of a singular whole, outdoor education. Then in 1991, Senate Bill Number 1340 was passed giving directives to instill environmental education in all curriculum, where appropriate, thus pushing forward the movement for environmental education in Texas. With these developments, it has become increasingly important for decision-makers to determine the relationship between environmental education and adventure education, and the program implications of this determination. Use of the Delphi technique was chosen as the process of interaction between the researcher and the panel of experts. The panelists were chosen from outdoors education, environmental education, adventure education, education, recreation, and leisure professionals in Texas. Two rounds of data gathering instruments were used, collecting data consisting mainly of nominal variables. Statistical analysis included use of descriptive statistics and cross-tabulations with chi-square values to determine panel agreement, trends of agreement, and significant differences between groups. In general, consensus was noted on several variables categorizing environmental education and adventure education separately including associated themes, concepts, goals and philosophies, and necessary areas of staff training.

Also, the panelists were asked to categorize the relationship between environmental education and adventure education as interdependent, related, complementary, independent, or independent and not related. Overall, the panelists determined that environmental education and adventure education are sufficiently dissimilar in several key respects to warrant formulation of a different model showing the relationship of these two components to each other and to outdoor education.

Shuman D. K. (1995), "Factors that Influence Commitment to Teaching Environmental Education: Development and Test of a Causal Model." The research found that this research was guided by the central question: 'What has driven some teachers to be committed to teaching environmental education (EE), while others are not?' The research addressed the following objectives: identify factors that influence teachers' commitment to teaching EE, develop a theoretical model that represents the interrelationships of the factors as they relate to teaching EE, and test a model of teachers' commitment to teaching EE. To meet these objectives a theory-based Model of Environmental Education Commitment (MEEC) was developed and tested using the following methodologies: (1) focus groups with already committed environmental educators, (2) a national survey of elementary teachers and (3) structural equation modeling to examine relationships in MEEC.

The Theory of Planned Behavior, Lewin's Field Theory and Life Span Development Theory provided the theoretical basis for the development of a MEEC. In brief, this model assumes that different types of life experiences affect attitude toward teaching EE, subjective norm and perceived behavioral control. These variables, in turn, affect teachers' commitment to teaching EE. To determine more insight about life experiences, focus groups with already committed environmental educators were conducted. The results of the focus groups were then used to develop scales to measure life experiences. The other constructs in MEEC were then operationalized and survey data were collected from a random sample of 1500 elementary school teachers throughout the nation. A low response rate and missing values reduced the number of usable cases to 243 subjects. These were subsequently used to evaluate the model and modify the scales that were developed to measure life experiences. Structural Equation Modeling was then used to examine the interrelationships among the factors. Results from the statistical analysis provided a new perspective on potential factors that may

influence commitment to teaching EE and on the interrelationships of these factors. In addition, scales for measuring life experiences were developed and tested.

As a result of this research, a revised MEEC was developed in which a teacher's outdoor recreation experiences and perceived control about teaching EE are two key constructs that have a direct affect on commitment to teaching EE. Other constructs, such as other people's influence and environmental action and education experiences, provide an indirect influence on commitment to teaching EE.

The relationships described in the revised MEEC apply only to the sample data. Therefore, conclusions are based on the relationships that exist in the sample data and the scales used to measure the constructs of interest. Measurement error, sampling error and structural error must be taken into account when drawing conclusions from this research. However, the relationships described in the modified MEEC have led to some intriguing implications about teachers' commitment to teaching EE.

Emmons K. M. (1995), "Toward Positive Environmental Action: A Case Study in Belize (Central America)." The research found that this study tested a proposed model of environmental education to explore the interrelationships of five environmental education areas (grasp of concepts, sensitivity and attitudes, action skills and procedures, empowerment and ownership, and recreation) and their combined effect on Positive Environmental Action. It is often the case that people in developing countries have few opportunities to participate in environmental protection. Thus, a need was identified for programs to integrate participation with affective and cognitive learning. An approach to environmental education was sought that recognized students as thinking-feeling-acting human beings.

A non-formal, field environmental education program in Belize was developed, implemented and evaluated to test two forms of the model. One form of the model emphasized a 'tacit,' or less intense instruction, and the other form emphasized an 'explicit,' or more intense instruction. In each case, participant observation data were collected to determine students' opportunities for learning in each area. Data from questionnaires and interviews were collected before and immediately after the implementation to determine the outcomes and patterns of change.

The programs for both groups achieved positive results. They were more consistently positive with the 'explicit' program, apparently due to both the clear

learning objectives and instructional methods, and to a more thorough integration of affective and cognitive learning areas. Both programs benefited from a concentration on positive environmental action in the form of an action project, and from an emphasis on outdoor experiences. Both programs also effectively combined elements of recreation into the activities, which helped to make the experience a positive one for students.

The interpretation of the findings allowed the strengthening and revision of the researcher's proposed theoretical model. It illuminated how the different goal areas can interact within an environmental education program, and also showed how the model could be improved. A revised model included a circular relationship between the different areas of learning and environmental action, suggesting that continuous opportunities for students to learn and take action are needed. Students develop as they take action, and action goals adapt and change as new information, values, and skills are acquired.

Bogan M. B. (1992), "Determining the Environmental Literacy of Participating High School Seniors from the Hillsborough and Pinellas County School Districts in Florida: A Curriculum Study." The research found that the purpose of this study was to conduct an exploratory environmental education curriculum evaluation by determining the environmental literacy of participating 18-year old high school seniors in Hillsborough and Pinellas Counties, Florida. The Florida Environmental Literacy Survey (FELS), an instrument designed for this study was constructed to ascertain environmental literacy defined as (a) knowing the scientific principles of ecology, (b) being aware of the potential magnitude of human impact on the biosphere, (c) showing concern for all living species, (d) valuing responsible environmental behaviors, and (e) participating in political action strategies that lead to planetary well-being. In addition, participants' perceptions of regional environmental problems were determined.

Reliability estimates of the FELS ranged from .75 to .95. Correlational statistics were applied to the data. On average, 37% of the items on the ecological knowledge test were answered correctly; 19% of the students answered more than half of the items correctly.

Students demonstrated a positive ecological attitude but demonstrated limited facility with political action strategies (22% of the participants did not respond to the political action strategy item). Students valued necessary environmental behaviors but tended not to participate therein. The following zero-order correlations were seen: ecological attitude and valuing necessary environmental behaviors ($r = .60$, $p < .01$); knowledge and ecological

attitude ($r = .38, p < .01$); ecological attitude and knowledge of political action strategies ($r = .35, p < .01$).

Students: (a) demonstrated limited knowledge of the principles of ecology, (b) had a positive ecological attitude, (c) seemed unskilled at using political action strategies, (d) tended to value necessary environmental behaviors but (e) had little participation in those behaviors. An exploratory path analysis suggested the plausibility of the 'awareness to action' model for environmental education.

Norman K.I. (1992), "A Staff Development Model for Environmental Education: Implementation and Outcomes." The research found that the purpose of this study was to design and implement a staff development model that would assist experienced teachers in improving their knowledge and instructional abilities regarding environmental education. This model was built on participant involvement in setting goals and included strategies for both bringing about change and for evaluating the effects of these changes on teachers and elementary school students.

There were four components to the staff development model. These components included teacher needs assessments, participant involvement in planning, a two-week teacher education workshop, and post-workshop follow-up activities.

Twenty-five teachers from the states of Iowa, Kansas, Missouri and Nebraska participated in the study. The teachers met in Lawrence, Kansas, in April of 1991 and identified their concerns regarding the teaching of environmental education. The five primary concerns of the teachers included (a) identifying local environmental issues, (b) teaching problem solving and decision making, (c) integrating environmental education into the curriculum, (d) involving other educators and administrators in environmental education, and (e) establishing a network of environmental educators. The teachers designed sessions for an exemplary summer institute in environmental education that would address these concerns and assist them in improving their environmental education instruction.

The Summer Institute in Environmental Education was held in July of 1991, at The University of Kansas. During this Summer Institute, the teachers developed instructional modules in environmental education and formulated individual follow-up plans to the Institute.

Four months after completing their plans, the teachers answered a questionnaire

regarding the implementation of their plans. Most of the teachers had followed through with their original individual plans.

The teachers field-tested the modules in their own classrooms during the fall of 1991. Following the field-tests, they wrote critiques of the modules and reported student scores on pre and post-module tests. An analysis of the student scores indicated that the module instruction was very effective in producing gains in student achievement.

Samuel H. R. (1991), "Education for Sustainable Development: A Case Study of an Environmental Immersion School." The research found that a new environmental immersion school has opened in Canada. This case study examines early stages of the project's implementation in order to contribute to an understanding of how best to implement environmental education in schools.

Examination of the literature on educational change led to an analytical framework which included: (1) Characteristics of the innovation; (2) Strategies and tactics used; (3) Contextual characteristics; (4) Macro sociopolitical factors. This was used to categorize qualitative data collected through interviews, observation, a questionnaire and documents.

The study uncovered a number of obstacles to implementation in the school, principally: (1) Conceptual problems about environmental education; (2) Poorly defined school philosophy and goals; (3) Difficulties in coordinating the project between individual efforts and departments; (4) A hiatus between administration and teacher perceptions.

The case study provided insight on the process of curriculum implementation as well as specific issues relating to environmental education and the theme of sustainable development.

2.9.3 Research on Sustainable Tourism

Davidson K. G. (1992), "Sustainable Tourism Development: Scholarship and Practice." The research found that although the environment has been discussed in portions of mainstream political economic scholarship, its potential as a resource has not been fully appreciated. Of particular interest is the possibility of utilizing the environment in a process of sustainable development.

Sustainable development is what is meant by economic growth with environmental integrity. Even though the concept is used by both academia and decision-makers, its widespread application is limited by a variety of obstacles. One possible

method for achieving sustainable development through utilization of the environment is through tourism.

A sustainable tourism development plan, which is enacted and enforced, is necessary to preserve the integrity of the environment. The Cook Islands to date largely succeeded in transcending political, institutional, social, and technological barriers while striving for sustainable development through tourism. Although their tourism policy does minimize the negative environmental impacts while providing economic gain, it is too early to assume that the Cook Islands' experience is relevant for other situations.

Boonyobhas A. (1996), "Tourism Planning Concept for Ko Samui, Thailand: A Sustainable Environment Development Approach." The research found that natural resources are an essential component of tourism development. Therefore, the sustainable development approach is recommended for tourism planning. The sustainable development concept recognizes that economic, environmental and sociocultural issues are equally important and need to be integrated into the planning process in order to provide long-term utilization for tourism development. Environmental analysis plays an important role in planning for tourist destinations. In order to improve this complex tourism planning process, the GIS is recommended. An environmental analysis, which utilizes GIS, was developed based on the overlay method. This developed environmental analysis method was used for supporting the sustainable environment development approach.

This study demonstrates the simplest procedures in the sustainable environment development approach to tourism planning. Ko Samui, a small tourist island in the southern part of Thailand was selected as a study area. Two parts of the sustainable environment development approach impact identification and establishment of guidelines for development to minimize the identified impacts are defined. Four potential impacts are suggested in this study: the potential for erosion, runoff, ground water contamination, and re-vegetation. For identification of the potential for erosion, the Universal Soil Loss Equation (USLE) was used while the SCS TR-55 was used to identify the potential for runoff. The rating scale with overlay method was used to identify potential for re-vegetation and ground water contamination. A process diagram of each impact was constructed for analysis. Then guidelines for development in each impact zone were created.

The sustainable environment development approach was applied to Ko Samui. All the necessary data were collected and analyzed through the developed process diagrams. The guidelines for development to minimize environmental impacts on Ko Samui were developed, the sustainable tourism planning concept was concluded. Finally, it is recommended that further research focus on economic and sociocultural as well as implementation and monitoring techniques.

Li Y. (1996), "Sustainable Tourism and Cultural Attractions: A Comparative Study of Ethnic Interpretive Centers in China and Canada." The research found that more and more tourists are travelling in pursuit of cultural experiences including those associated with other ethnic groups. However, the sensitive nature of cultural resources represents a very real challenge if this type of tourism is to be sustainable over the long term. A promising approach to sustainable cultural tourism development has been the establishment of ethnic culture interpretive centres. This research is an exploration of this approach. A comparative case study analysis of two ethnic culture interpretive centres, Yunnan Folk Culture Village, China, and Wanuskewin Heritage Park, Canada is used to provide insights into this form of attraction. Particular attention is directed toward the development process, major social/cultural issues, and development strategies associated with ethnic tourism attractions. A modified version of Swain's (1989) conceptual model of indigenous tourism development is used to conduct the comparative case study analysis. Each attraction is reviewed in the context of: the nation-state in which it exists, the tourism industry within which it functions, and the ethnic groups upon which the attractions are based. Swain's (1989) model also serves as the basis for the three research subproblems of the study related to: (1) development process, (2) major social/cultural issues, and (3) the strategies for resolution of these issues. By following this framework, findings of positive achievements and unresolved challenges associated with the attractions are discussed, thereby addressing alternatives to the sustainable development of this type of ethnic tourism attractions. In conclusion, theoretical implications are identified for the future development of this kind of tourism attraction and directions for further research in this area are also presented.

Ioannides D. (1994), "The State, Transnational, and the Dynamics of Tourism Evolution Small Island Nations (CYPRUS)." The research found that this dissertation examines the principal forces guiding the pattern of international tourism evolution in less developed countries (LDCs). It focuses on supply side determinants stressing that

at any destination, tourism's evolution does not follow an actor-less development path. Rather, tourism growth is contingent on the behavior of national institutions and their response to the conflicting agendas of local and international tourist industry agents.

The study argues that tourist destinations follow a predictable cycle through identifiable stages. It presents hypotheses concerning the sequential behavior of various agents throughout the evolution of LDC tourist sectors. It postulates, for example, that in most LDCs national governments adopt an early entrepreneurial role as tourism promoters. Later, impending market failures arising from capacity constraints on the destination's environmental and human resources leave governments with two options: to continue lowering business costs by further leveraging the private sector, or to upgrade and diversify the destination's tourism product. The dissertation also acknowledges the effect of historical contingencies on destinations' evolutionary trajectories, contending that secular forces make the overall global environment different for destinations currently proceeding through any particular stage from those destinations, which went through the same stage a few decades ago.

A longitudinal data analysis of tourism development in small island nations followed by a detailed case study of Cyprus confirms the veracity of the hypotheses. Most of these islands' tourist industries have become increasingly standardized, targeting sun-seeking mass travelers. Minimal product diversity between competing islands gives foreign tour operators and airlines a pivotal position as controllers of international tourist flows. These agents can easily substitute destinations since they have few sunk costs in any one tourist location. Thus, islands facing mounting environmental problems and waning quality risk premature decline in their evolutionary cycles.

Environmental problems arising from the largely uncontrolled development of Cypriot tourism necessitate the enactment of strict land use policies. These apply to islands at comparable stages of tourism development. These countries' main objective involves moving towards environmentally sustainable tourism. To do so, however, requires broad institutional reorganization enabling tourism to become a legitimate sector within any country's planning framework.

Meadows D. R. (1993), "The Environment/Development Interface in Latin America: Ecotourism and Costa Rica's Search for Sustainable Development." The research

found that viewing local participation as central to sustainable development, this research explores the relationship between local participation and Costa Rica's pursuit of ecotourism as a sustainable tourism strategy. Using a theoretical framework developed from human systems ecology, the research employs qualitative methods to gather data in communities near the Carara Biological Reserve in the Pacific Central region of Costa Rica. Local involvement in the case study area is viewed as 'insider-generated' and 'outsider-demanded' participation. Through examination of the local participation component, the research identifies the dilemmas being confronted in ecotourism development, reveals critical variables for analysis, and proposes recommendations that may help guide ecotourism policies, planning and projects toward sustainability not only in Costa Rica but other Latin American and Caribbean countries.

2.9.4 Journal and Research on Ecotourism

2.9.4.1 Journal of Ecotourism

Norris R. (1994), "Ecotourism in the national parks of Latin America." This journal found that ecotourism is on the rise in the national parks of Latin America. One of the most-visited protected areas in Central America, Costa Rica's 1,700 acre Manuel Antonio National Park receives nearly 1,000 visitors a day during peak season. In fact, tourism surpasses bananas as Costa Rica's number 1 industry. Another Latin America jewel, the Galapagos Island, provides an excellent example of how to manage increased visitation while preserving a park's natural resources. The Galapagos management plans have established a system designation zone for tourism according to their accessibility, presence of wildlife, coastal scenery, and hiking opportunities. The prospects of maintaining a balance between tourism and conservation are discussed.

Reiger G. (1993), "Eco-tourism." This journal found that eco-tourism is best experienced in small groups that benefit both tourists and the environment. When a large party treks through a rainforest, the first person on the trail is the only one to glimpse anything extraordinary. Furthermore, it is difficult to absorb new sensations if a crowd of countrymen who are perfectly happy to insulate themselves from everything exotic surrounds people. Conditions in Costa Rica, which was once the place to visit for a first-rate eco-tour but is now being overwhelmed by its own short-sighted governmental policies, are described.

Silver I. (1993), "Alternative doesn't always mean responsible: good ecotourism supports indigenous cultures." This journal found that an article excerpted from the spring 1992 issue of *Cultural Survival Quarterly*. So-called ecotours are often labeled and marketed in ways that are misleading and ultimately destructive. These tours, which are also called peaceful travel, ethical travel, and responsible travel, have emerged from a new sensitivity to the damage that mass tourism can cause to the people and places that host foreign visitors. Unfortunately, "alternative" is not always the same thing as "responsible," because many factors determine how a particular type of tour influences a host culture. Three examples of travel marketed as ecotours are discussed: trekking tours to northern Thailand that are structured so that tourists see only a veneer of indigenous life; Amazonia Expeditions' Peruvian Amazon trips, which aim to benefit 2 groups of native people in the region; and the indigenous-operated tours offered by the community of Capirona in Ecuador.

Hendrix S. (1997), "Bolivia's outpost of hope, Quechua Indians establish ecotourist camp, Chalalan, within Madidi National Park." This journal found that Chalalan is an embryonic Amazon tourist camp founded by the Quechua-Tecana Indians of San Jose de Uchupiamonas in Bolivia's Madidi National Park. Faced with shrinking economic opportunities, the 500 citizens of isolated San Jose want to open some of their vast wilderness to tourism in order to create local jobs. They are also relying on ecotourism to protect their land by creating an economic incentive to preserve the forest intact. Increased tourist traffic carries obvious risks into remote cultures and habitats, however, and San Jose illustrates the delicate balance demanded of indigenous communities around the world in the face of encroachment by the outside world.

Broydo L. (1996), "Going native." This journal found that ecotourism is the fastest-growing section of the travel industry. According to the Vermont-based Ecotourism Society, almost 8 million U.S. travelers have taken at least one ecotourism trip and 35 million more are likely to take one within the next three years. Both the ecotourism industry and conservation groups believe that tourists can have a positive effect on the environment and people, especially in Third World countries. The key is to ensure that the tourism money is going to the right places.

Deming A.H. (1996), "The edges of the civilized world: tourism and the hunger for wild places." This journal found that part of a special section on travel.

Minimizing tourism's impact on the planet depends on setting limits. According to the World Tourism Organization, tourism will become the world's biggest industry by the year 2000, and one of the fastest growing branches of the industry is ecotourism. Ecotourism aims to increase the tourist's appreciation of the natural world local cultures, while making economic success dependent on the preservation of that biological and cultural diversity. No matter what the intention, however, mass tourism may hasten environmental degradation by adding further stress to natural resources, wildlife, and cultural integrity. The Ecotourism Society (TES) defines ecotourism as "responsible travel to natural areas that conserves that environment and sustains the well-being of local people." If travelers and tour operators adhere to TES guidelines, ecotourism might indeed integrate conservation with development.

Padgett T. & Begley S. (1996), "Beware of the humans." This journal found that ecotourism, saving endangered animals by making them tourist attractions, has not quite worked out as planned. Locally controlled and environmentally sensitive, ecotourism promised to be a way to vacation amid unspoiled beauty, to meet rare animals up close, and to do it all under the banner of environmentalism. Ecotourism is now beset by troubles, however. Too many vacationers want to pet giant tortoises in Galapagos Island and gray whales off Baja, for example, and ecotourism has fallen short of its economic goals. Nevertheless, the animals are currently better off than when they were destined for jewelry shops and blubber factories. Therefore, instead of pronouncing ecotourism a failure, governments and guides are attempting to reform it.

Freeman A.J. (1995), "Ecotopia." This journal found that ecotourism is the fastest growing sector in the tourism industry. It is loosely described as tourism that has a "low impact" on the environment and that contributes to the local economy. Third World governments are actively promoting ecotourism as a source of foreign exchange, and Costa Rica has become the undisputed leader of the field. There are some problems with ecotourism, however. It combines superficial sensitivity with a profound contempt toward the local population and is counterproductive because it encourages economic development in areas where the most damage can be caused.

Tenenbaum D. (1995), "The greening of Costa Rica." This journal found that Costa Rica is the first country to base its entire economic policy on the concept of sustainable development. President Jose Maria Figueres has vowed to raise Costa

Rica's standard of living without depleting its natural resources. In his first year in office, Figueres has imposed new taxes on electricity and carbon fuel use, replaced development plants with more environmentally sound alternatives, and committed his government to increasing the amount of land protected in national parks and wildlife reserves. In addition to preserving the environment, these initiatives are expected to increase tourism and to promote sustainable harvesting of forest resources with valuable pharmaceutical, chemical, or genetic properties. The writer discusses the factors that make Costa Rica an ideal test laboratory for sustainable development.

Arlen C. (1995), "Ecotour, hold the eco." This journal found that ecotours appear to be anything but environmentally friendly. A four-month investigation of the ecotour trade, which included trips to popular ecotourist sites in the Peruvian Amazon and Costa Rica, indicates that few ecotour operators give environmental concerns a high priority. Most travel experts view ecotourism as the fastest-growing segment of the travel industry, which grosses over 335 Billion dollars a year worldwide. Over 200 outfitters in the U.S. alone offer ecotours abroad, but the term is hollow. There are no travel or environmental watchdogs to blow the whistle on operators that violate guidelines through such practices as capturing or luring animals for pictures, destroying forestation, and adding to existing pollution problems. A sidebar lists eight questions that prospective ecotourists should ask tour outfitters, as well as some ecotour operators who have solid reputations among environmentalists.

Frank P. J. & Bowermaster J. (1994), "Can ecotourism save the planet?." This journal found that the ecotourism business appears to be booming. A recent survey reveals that more than 8 million Americans have already undertaken an ecologically beneficial tour and that another 35 million plan to take one in the next three years. Unfortunately, ecotourism is often little more than a buzzword used to market the same old trips under a veneer of green. Ecotourism is beneficial only when it encourages enough jobs or raises enough money to establish a disincentive for destroying the environment. The article discusses the growth of ecotourism in Costa Rica, and sidebar report in the growth of Antarctica as a tourist attraction, the negative effect of tourism on Belize, and the effect of ecotourism on the Himba tribespeople of Namibia. A chart specifies 18 outfitters that are carrying out ecologically beneficial tours.

Marcus F. F. (1994), “The greening of the Caribbean.” This journal found that as the ecotourism trend continues to grow, governments and tourism officials in the Caribbean are working to showcase and, in some cases, save the natural wonders beyond the islands’ beaches-rain forests, reefs, volcanoes, and rich bird populations, among others. Ecotourism opportunities in Anguilla, Antigua, Aruba, the Bahamas, Barbados, Bonaire, the Cayman Islands, Curacao, Dominica, the Dominican Republic, Grenada, Guadeloupe, Jamaica, Martinique, Montserrat, Puerto Rico, Saba St. Barthelemy, St. Croix, St. Eustatius, St. Thomas, St. Vincent, Tortola, Trinidad and Tobago, Turks and Caicos, and Virgin Gorda are discussed.

Dunn J. C. (1994), “Gentle journeys.” This journal found that part of a special issue on the environment. Large number of tourists visiting national parks can harm the places they come to admire. Awareness of the negative effects of visiting natural sites has created a new way to travel called ecotourism. This kind of travel is meant to be easy on the animals, land, and people of the area being visited.

2.9.4.2 Research on Ecotourism

Jaruvatthanaphong T. (2002), “The Community Participant in Ecotourism Management Phromlok Waterfall, Tambon Phromlok, Amphoe Phromkhiri, Nakhonsithammarat Province.” The research found that the results of the study found that: 1) Phromlok Waterfall’s tourism situation was developed due to the flash flood in the area that made the people aware of the importance of the forest. Also, there was a story about how some village had found a very beautiful waterfall. The Khao Luang Ban Play-Uan Nature Reservation Group was then founded. There were arrangement made to bring the people in the area to that waterfall. After that, students started taking field trips there. Nowadays there are few tourists. 2) Due to community participation of the Phromphiman waterfall Group promoting natural and environmental preservation viewpoints there were some meeting in the community. People got together to form a group. Reservation activities such as forest renewal, Children Day’s activities, tourism management, etc. were arranged. People in the community donated money, and some helped with labor. Government organizations gave support budgets and helped with travelling. 3) The community agreed that tourism management will increase income for the community and wanted the government to give support with budgets and public relations. The affiliated agencies thought that the tourism management in the community was a good thing because there would be increased income in the community but for this there had to be good management. Also, to succeed they had to

understand how to manage. 4) The problems and obstacles in tourism management are the lack of funds, no public relations, conflict interests, lack of coordination between groups, and lack serious support from the government. The study concluded that tourism management was not efficient enough.

Chuamuangphan N. (1999), "Guidelines for Tourism Site Management in Accordance with Principles of Ecotourism: A Case Study of Phu Chee Fah Forest Park in Chiangrai Province." The research found that: i) according to the first principle of ecotourism which is based on nature, community, and culture, Phu Chee Fah is a natural tourism site outstanding in terms of landform, greenery, *especially Bauhinia variegata Linn.*, and Mhong hilltribe ; ii) the second principle which is based on sustainable management, the area still lacks management due to its new set-up; iii) the third principle which is based on knowledge provision and communication for tourists and local people, to was found that training on ecotourism, exhibitions on way of life of local people, signs, media, and information center are not available; iv) the fourth principle which is based on participation of local people, indicated that local people earn some benefit from tourism whereas decision making, implementation and assessment participation do not exist; and v) the fifth principle which is based on tourism satisfaction showed that tourists are satisfied with the natural condition and scenery of the area.

The conclusions of the study resulted in formulation in formulation of guidelines for tourism site management of Phu Chee Fah forest park. In terms of policy, management should be decentralized so that local communities have participation in accordance with principles of ecotourism. The guidelines for each specific group suggested that; i) tourism should have the opportunity to gain ecotourism knowledge before entering the forest park and in the forest park; ii) local people, the emphasis should be trained in service provision and ecotourism knowledge, and should participate in tourism site management. Local people should benefit from tourism while relevant authorities should take roles as helpers and advisors. In terms of tourism entrepreneurs, ecotourism-minded service be emphasized. Furthermore, tourist guides should be knowledgeable and be examples to tourists concerning ecotourism. For implementation, all groups should coordinate to implement guidelines and achieve the integration of ecotourism site management with a view to attaining the goal of sustainable development.

Miller A. (1995), "Attitudes toward Ecotourism, Economy, and Wildlife in a Canadian Boreal Region: Implication for Northern Development (Alberta)." The research found that interviews with 60 northern Alberta residents and 30 visiting tourists focused on assessing attitudes toward the viability of economic diversification through ecotourism development. Results indicate that attitudes of most residents (excluding aboriginal natives), and tourists (excluding ecotourists) were somewhat favorable towards ecotourism. Ideally, strategies to encourage more favorable attitudes toward ecotourism should be encouraged to achieve maximum citizen support prior to this development innovation. Policy recommendations were developed based on the feasibility of achieving maximum favorable attitudes toward ecotourism prior to development. In addition to policy recommendations, the practical application of this study is the potential transferability of attitude measurement methods to other regions. The respondent groups included representatives from the forest products sector (timber); agriculturists (agriculture), representatives from the tourism promotion sector (tourism), aboriginal natives (native), general sightseeing tourists (general tourist); and ecotourists (ecotourist).

Given the economic potential of ecotourism most non-native (non-aboriginal) study area residents displayed a relatively low level of appreciation (defined as parochialism in this thesis) for ecotourism and boreal natural environments. Non-native residents also had poor knowledge of wildlife. The majority of non-native residents did not consider ecotourism as a lucrative form of economic diversification and displayed modest interest in making personal contributions to encourage the development of this industry.

Citizen attitudes toward ecotourism development should be a primary consideration for tourism development proposals. Consideration of attitudes may result in development, which more accurately reflects and incorporates local citizen issues and concerns into planning and development processes. Many rural development researchers speculate that the long-term success of development in rural areas may increase if citizens' attitudes are considered and incorporated into development planning.

Moan S. A. (1993), "Ecotourism on the Yucatan Peninsula: Ecotourism Potentials in the Rio Lagartos Wildlife Preserve (Mexico)." The research found that this case study explores the effects growing pressure for natural resource utilization in developing countries has on one form of recreation, ecotourism, and the potential this

form of recreation has to ameliorate the problems stemming from increased resource needs. It is proposed that ecotourism provides opportunities to protect natural resources and aboriginal cultures from the full impact of development pressure. This thesis is explored through the development of ecotourism potentials for the Rio Lagartos Wildlife Preserve. The results of this study indicate that in order for an ecotourism program to be successful in the Rio Lagartos Preserve: (1) There is a need for much site data to be collected. (2) The site's natural resources must be protected and managed wisely, as these are the resources, which attract the ecotourists. (3) Ecotourism must provide sources of funding which will; (a) act as an incentive to motivate locals to protect natural resources, (b) fund management, environmentally sensitive development, and education programs. (4) Ecotourism development must meet the needs of all the user groups affected by the project.

Nzioka B. (1994), "Ecotourism in Amboseli National Park, Kenya: Visitor Activities, Attitudes and Preferences." The research found those visitor activities, attitudes and preferences for different park attractions were studied in Amboseli National Park (ANP), by means of surveys and field observations from May-September, 1992. The results of the visitor survey indicated an overall satisfactory ecotourism experience in ANP despite lower population levels than anticipated of wildlife species such as predators (lion, cheetah and leopard) and rhino and observable damage to natural habitat. Principal component analysis revealed that distance of wildlife from the viewing road was an important wildlife-viewing variable determining the length of time devoted to various attractions by respondents. Field observations revealed that the visitor use intensity was greatest in Longinye, Ol-Tukai and Kitirua zones, while other zones received minimal use. Ecotourism activity on group ranches adjacent to ANP was confirmed by a survey of the Maasai community. It is recommended that an ecosystem-based approach be adopted for the management of ANP to maintain visitor numbers within the capacity of the ecosystem; that habitat rehabilitation measures be implemented; that visitor use be dispersed spatially in ANP; that activity be diversified in order to improve the quality of ecotourism; that visitor education/interpretation centres be established with improved facilities. In addition, further research of ecotourism impacts; of monitoring and understanding of the ANP ecosystem; and of local participation in planning and management of the park will be necessary to ensure sustainable development.

2.9.5 Researches on Participation and Conservation

Thanasansomboon P. (1999), "The Local People Participation in Conservation

of Cultural Environment: A Case Study of Koh Sichang, Chonburi Province.” The research found that the results of the quantitative study showed that the majority of the local people’s participation in conservation of cultural-environment was low. It was found that age, place of origin, value appreciation on cultural-environment and knowledge of cultural-environment conservation were statistically significant factors affecting the local people’s participation in cultural-environment conservation. Local people whose age more than 52 years old, who originated in Koh Sichang, who had high value appreciation on cultural environment and high knowledge of cultural-environment had higher level of participation in cultural-environment conservation than other groups. The results of the qualitative study showed that the local people’s participation started from the individual awareness and co-consciousness in cultural-environment conservation and then developed into the conservation groups which continuous activities and projects in cultural-environment conservation. The problems and obstacles of cultural-environment were identified as the unclear government conservation policy in Koh Sichang, The lack of support to the local people to participate in cultural-environment conservation and the conflicts among the local people groups.

Recommendations arising from the research are the ways and means must be found to encourage the local people to co-operate and participate more in cultural-environment conservation. The government should have a clear policy to support local people’s participation including knowledge provision on cultural- environment conservation. Awareness raising, self-consciousness along with continuous conservation activities should be encouraged. The participation in management of Koh Sichang cultural-environment sites by the local people and local administration should be supported. Law enforcement must be strengthened through the announcement of Koh Sichang as a conservation zone for sustainable cultural-environment development in Koh sichang.

Daosuwat W. (1990), “Local People’s Participation on the Conservation of Environment at Bung-Khunthalae.” The research found that the results of this study revealed that local people still have low level of participation on the conservation of environment at Bung-Khunthalae. Moreover, they also have low level of knowledge regarding environment conservation.

The different of participation level statistically at the 0.001 level among sample that had different place of residence, sex, occupation, economic status, social status, source of information and communication to the government officer.

The different of participation level was statistically significantly at the 0.01 level among sample who had different educational level, duration staying in the area and utility from Bbung-Khunthalae.

Furthermore, the samples who live in Mu 2 Tambol Khunthalae, The group who have prathomsudsa 4 and less than prathomsudsa 4 educational level, the group who have 5-8 family members, the group who were vegetable farmers, and the group who have Baht 2,001-4,000 of income per month, get 1 benefit from Bung-Khunthalae, get information 1 source, the group who have social status, communicated to government officer 2 times and more per month and the group who have low acknowledge level have the more participation on the conservation of environment at Bung-Khunthalae than other group in the same aspects.

Alfred S. (1997), "The Local Residents' Behaviors toward the Conservation of Tourism Resources: A Case Study of Koh larn, Pattaya City." The research found that the result survey could be summarized as follow:

- 1) The local residents' of Koh larn, Pattaya City behavior toward the conservation of tourism resources was in medium level.
- 2) The behaviors of local residents toward the conservation of tourism resources were varied based on sex, age, mass communication, educational background and attitude toward tourism resources.

On the basis of the above findings, it is recommended that a series of environmental campaigns in conservation of tourism resources should be continually carried out in Koh Larn with the emphasis female participation.

CHAPTER III

MATERIALS AND METHODS

This research is an environmental education in the community by participatory action research (PAR) methodology, which focuses on the participation among the administrators, tourists, the local people, relevant government agencies and the researcher in order to develop tourism resources conservation related knowledge (K), attitudes (A), practices (P) and participation (P) through environmental education process and develop tourism in the Park as an ecotourism as a guideline to sustainable tourism.

3.1 Population and Sample Groups

3.1.1 Population

Population for this research is administrators, tourists and the local people in the Sirindhorn International Environmental Park, Cha-Am sub-district, Cha-Am district, Phetchaburi province. There are over 200,000 tourists per year; administrators and the local people were consisted of 185 border patrol police officers.

3.1.2 Sample Groups.

3.1.2.1 The administrators: such as the commanders with preferred behaviors are used as model so that the people may acknowledge and do the same in model behaviors forming of environmental ethics. Purposive sampling is used.

3.1.2.2 Tourists: a sample group of 30 tourists are used for this research. Accidental sampling is used.

3.1.2.3 The local people are consisted of the people in the community such as 30 border patrol police officers of the Rama VI camp and 30 the people out of the community. Purposive sampling is used.

3.1.2.4 Relevant agencies such as the Tourism Authority of Thailand, Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee and the Border Patrol Police Bureau.

3.2 Research Instruments and Procedures

3.2.1 Research Instruments

This research is used instruments, which are included as follows:

3.2.1.1 The questionnaires for tourists and the local people about the tourism resources conservation, ecotourism and value of tourism resources conservation.

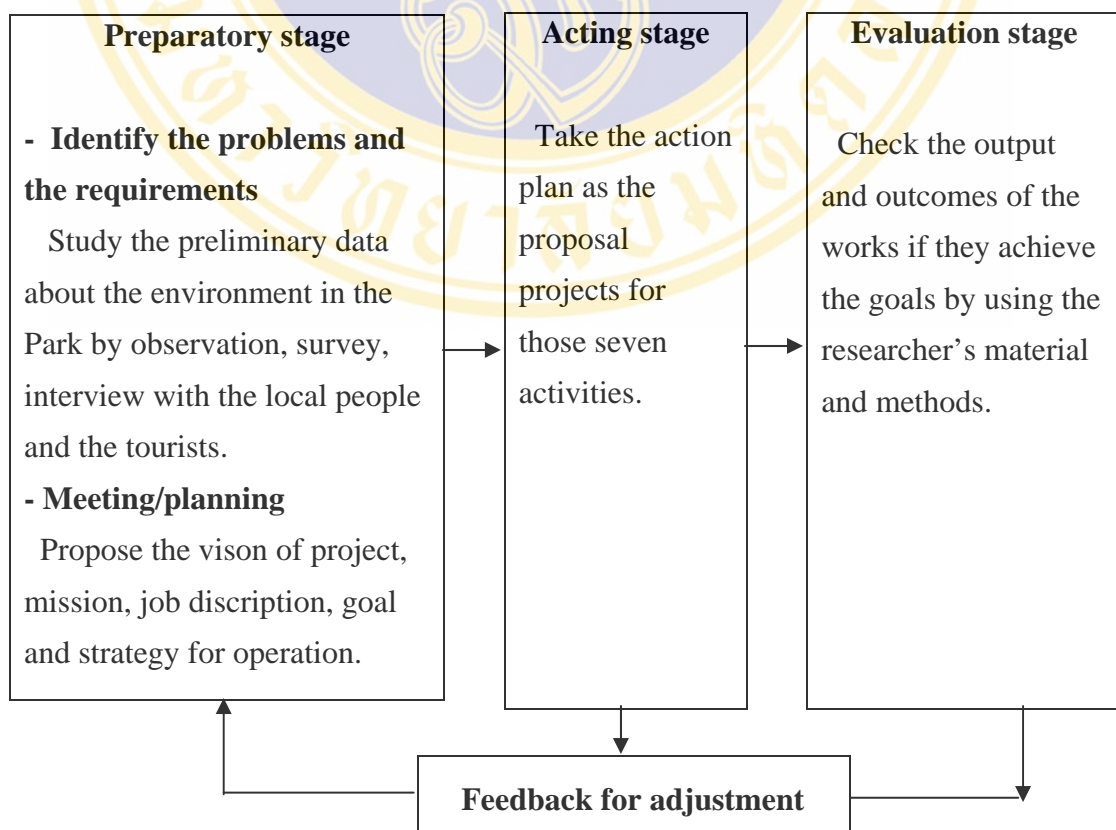
3.2.1.2 Form of testing knowledge, attitudes and practices before and after the project (pre-test and post-test).

3.2.1.3 Observation form of participation activities of tourism resources learning and conservative project and educational project on the ecotourism.

3.2.1.4 Form of evaluating projects form for the local people, tourists and administrators.

3.2.2 Research Procedures

This research is involved seven months of procedures. The stages of PAR procedures emphasize on the cooperation of the local people, the tourists and the administrators. The stages of operation for the sustainable tourism development are as follows:



1) **Preparatory stage:** Researcher used observation and meeting for suggesting administrator, tourists, and the local people in order to set vision, mission, job description, goal, and strategy. Method of PAR, and the procedure of working together are as follows:

1.1 Identify the problems and the requirements

Identify the problems and the requirements by studying the preliminary data from the observation of the environment in the Park. Conduct a survey of the community, take photographs and interview the local people.

After surveyed on the basic information, the researcher has collected the data for proposing the objectives and the next step.

1.2 Planning/meeting

Arrange a meeting with the administrators, the tourists and the local people, the researcher in order to set up the objectives for the succeed in operation by focusing on each activity of all administrators, the local people and the tourists themselves not because of the researcher. Therefore, it emphasized on stimulating and brainstorming such as what to do to accomplish the goals, what steps should be taken, what materials should be prepared, what is the obstructions in the community and what part and how do the tourists play a role in maintaining and managing. In planning for the activities, the researcher took the method of discussion by collecting the basic data from the study in the environment and the advanced survey, which are the trends of introduction for an idea in arranging the related activities. And pre-test before PAR.

2) **Acting stage:** Researcher used carry out the three projects and seven activities with joint effort from administrators, tourists, the local people and the researcher. Method of PAR, and the procedure of working together are as follows:

2.1 **Tourism resources learning and conservative project.** The two activities are as follows:

2.1.1 Educational activity on tourism resources conservation.

2.1.2 Plantation activity within the area of the park.

All of activities emphasize on the cooperation of the local people, the tourists and the administrators. The details of taking an action as the study project and the conservation of the tourism resources have been made by PAR, which have the steps in operation as follows:

(1) Teaching knowledge

The researcher has consulted with the administrators by teaching the knowledge both in the classroom and real location. How to conserve the tourism resources to the tourists and the local people and able to present the training program entitled on the conservation on the mangrove plantation natural resources and how to plant and maintain the mangrove plantation. And researcher is knowledgeable and able to present the training program entitled on the ecology, the principles of conservation and environmental education & tourism resources conservation.

(2) Taking an action

2.1 Preliminary arrangement

The researcher has coordinated with the Park and related agencies and asked for the cooperation in planting the tree around the Park.

2.2 Implementation

After teaching knowledge to the tourists and the local people, there are activities for operation.

2.3 Maintenance

To maintain mangrove trees, which the tourists and the local people cooperated plantation by ourselves.

2.2 Educational project on the ecotourism. The two activities are as follows:

2.2.1 Educational activity on ecotourism.

2.2.2 Natural interpretation conveyance activity.

All of activities emphasize on the cooperation of the local people, the tourists and the administrators. The details of taking an action as the study project on the ecotourism have been made by PAR, which have the steps in operation as follows:

(1) Teaching knowledge

The researcher has consulted with the administrators who are responsible for that Park by teaching knowledge both in the classroom and real location. How to ecotourism to the tourists and the local people and able to present the training program entitled on the tourism of the Park. And researcher is knowledgeable and able to present the training program entitled on the ecology, sustainable tourism management, ecotourism, and providing natural interpretation conveyance in the Park.

(2) Taking an action

2.1 Preliminary arrangement

The researcher has coordinated with the Park are as follows:

(1) To arrange related equipments such as stationeries and papers for sample groups.

(2) To demonstrate to provide natural interpretation conveyance by administrator, researcher, and related agencies.

2.2 Implementation

After teaching knowledge to the tourists and the local people, there are activities for operation are as follows:

(1) This step is divided the sample groups each group, which it is consisted of ten persons per group to nine groups are approximately. Next to paint pictures freely of the most favourite the tourism place in the Park. Additionally, with route and describe it.

(2) Each group displays the painting picture of the most favourite the tourism place in the Park.

(3) Providing natural interpretation conveyance of the Park.

2.3 Environmental ethics project. The three activities are as follows:

2.3.1 Faith inspiring activity.

2.3.2 Model behaviors forming activity.

2.3.3 Behavioral practice activity.

All of activities emphasize on the cooperation of the local people, the tourists and the administrators. The details of taking an action as the study project on environmental ethics have been made by PAR, which have the steps in operation are as follows:

(1) Faith inspiring

It is consisted of four steps to inspire faith or create the willingness to accept in the mind are as follows:

1.1 To make understanding

This step is divided the sample groups each group, which it is consisted of ten persons per group to nine groups are approximately. Next to draw

freely the opinion of the title “the problems of tourism resources, prevention and solution about the problems on tourism resources”.

1.2 Display relation

Each group displays the opinion of the title “the problems of tourism resources, prevention and solution about the problems on tourism resources”.

1.3 Schedule value

The examination was seen values as based on three processes. It was done according to the following guidelines.

1.3.1 Choosing

1) In doing something, one has decided to do it himself in a way related to the incident. Yes or no?

2) One has many alternatives in choosing a course of action against the incident. Yes or no?

3) Prior to making a decision to do something, one has very well considered the positive and negative effects resulting from the different actions against the incident. Yes or no?

1.3.2 Prizing

1) Once one has decided to do it, one is pleased, satisfied and accepts the thing one does. Yes or no?

2) If anyone learns of such action, one is pleased and willing to let others know when one has the opportunity to do so again. One insists to continue doing the same. Yes or no?

1.3.3 Acting

1) One has committed the action, which one decided to do. Yes or no?

2) One has done so frequently as a habit or a daily routine or a personal characteristic. Yes or no?

1.4 Expression

Testing the characteristic of value of the tourism resources conservation.

(2) Model behaviors forming

It is opinions concerning the model behaviors forming. Testing the fixed behaviors of tourism resources conservation towards the model behaviors. Next to the commanders with preferred behaviors are used as model so that the people may acknowledge and do the same in model behaviors forming of environmental ethics.

(3) Behavioral practice

The researcher has cooperated with the administrators of the Park and follows up behavioral practice of tourism resources conservation by form of behavioral observation.

3) **Evaluation stage:** Researcher used questionnaires post-test after PAR, behavioral observation and participation results analysis for data collection. Method of PAR, and the procedure of working together are done prior to the action in order to study the actual condition, during the procedures to monitor the progress of the activities and at the conclusion of the project to summarize.

Summary table by PAR procedures, activities and duration using the program evaluation and review technique (PERT) as in Table 1 and details of activities and durations for this research using PERT technique in Figure 21.

Table 1: PAR Procedures, Activities and Duration Using the Program Evaluation and Review Technique (PERT).

PAR Procedures	Activities	Duration
1. Preparatory stage		46 days
1.1 Identify the problems and the requirements.	1.1 Study preliminary data <ul style="list-style-type: none"> • Observe the environment in the Park • Survey the community. • Take photographs. • Interview the local people. 	(3-5-7 days) (3-5-7 days) (3-5-7 days) (5-7-10 days)
1.2 Meetings.	1.2 Hold meetings with the administrators of the Park.	(2-4-6 days)
1.3 Collect data.	1.3 Study the documents.	(3-5-7 days)
1.4 Analyze and interpret.	1.4 Details <ul style="list-style-type: none"> • Hold data analysis meetings. • Prepare research tools. • Layout the activities. 	(10-15-20 days) (7-10-15 days) (10-15-20 days)
1.5 Pre-test before PAR.	1.5 Pre-test knowledge and attitudes before PAR	(1-2-3 days)

Table 1 (Cont.)

PAR Procedures	Activities	Duration
2. Action stage	2.1 Tourism resources learning and conservative project. 2.1.1 Provide education on tourism resources conservation. 2.1.2 Plantation in the area of the Park. 2.2 Educational project on the ecotourism. 2.2.1 Provide education on cotourism. 2.2.2 Natural interpretation conveyance. 2.3 Environmental ethics project. 2.3.1 Faith inspiring. 2.3.2 Model behaviors forming. 2.3.3 Behavioral practice.	131 days (1-2-3 days) (20-30-40 days) (2-3-5 days) (20-30-40 days) (2-3-5 days) (1-2-3 days) (45-60-75 days)
3. Evaluation stage. 3.1 Prepare evaluate 3.2 Process evaluate 3.3 Post-test after PAR 3.4 Summary evaluate	Summarize and evaluate the project <ul style="list-style-type: none"> • Interviews • Questionnaires • Recording operational results • Observe the participation • Hold a meeting, present the results, write the reports. 	15 days (1-2-3 days) (10-15-20 days)

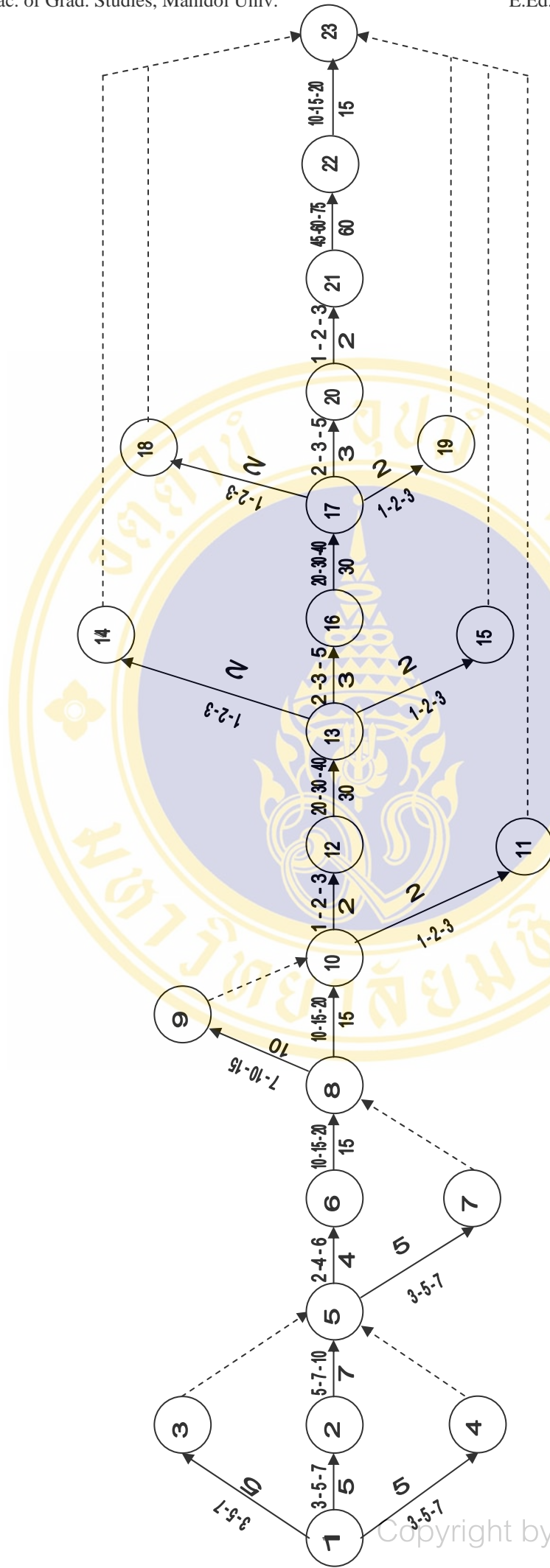


Figure 21: Details of activities and durations for the participatory action research for sustainable tourism development through environmental education process by PERT technique.

Legends of Activities Under the Project

- **Event 1-2** Survey of the community in the Park
(Duration $t_o = 3$ days, $t_m = 5$ days, $t_p = 7$ days and $t_e = 5$ days)
- **Event 1-3** Take photographs in the Park
(Duration $t_o = 3$ days, $t_m = 5$ days, $t_p = 7$ days and $t_e = 5$ days)
- **Event 1-4** Observe the environment in the Park
(Duration $t_o = 3$ days, $t_m = 5$ days, $t_p = 7$ days and $t_e = 5$ days)
- **Event 2-5** Interview the local people
(Duration $t_o = 5$ days, $t_m = 7$ days, $t_p = 10$ days and $t_e = 7$ days)
- **Event 5-6** Meetings with the administrators of the Park
(Duration $t_o = 2$ days, $t_m = 4$ days, $t_p = 6$ days and $t_e = 4$ days)
- **Event 5-7** Study the documents
(Duration $t_o = 3$ days, $t_m = 5$ days, $t_p = 7$ days and $t_e = 5$ days)
- **Event 6-8** Data analysis meeting
(Duration $t_o = 10$ days, $t_m = 15$ days, $t_p = 20$ days and $t_e = 15$ days)
- **Event 8-9** Prepare the research tools
(Duration $t_o = 7$ days, $t_m = 10$ days, $t_p = 15$ days and $t_e = 10$ days)
- **Event 8-10** Layout the activities
(Duration $t_o = 10$ days, $t_m = 15$ days, $t_p = 20$ days and $t_e = 15$ days)
- **Event 10-11** Pre-test knowledge and attitude of tourism resources
conservation before PAR
(Duration $t_o = 1$ day, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 10-12** Providing education on tourism resources conservation
(Duration $t_o = 1$ days, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 12-13** Plantation within the area of the Park
(Duration $t_o = 20$ days, $t_m = 30$ days, $t_p = 40$ days and $t_e = 30$ days)
- **Event 13-14** Post-test knowledge and attitude of tourism resources
conservation after PAR
(Duration $t_o = 1$ days, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 13-15** Pre-test knowledge and attitude of ecotourism before PAR
(Duration $t_o = 1$ day, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 13-16** Providing education on ecotourism
(Duration $t_o = 2$ days, $t_m = 3$ days, $t_p = 5$ days and $t_e = 3$ days)

- **Event 16-17** Providing natural interpretation conveyance
(Duration $t_o = 10$ days, $t_m = 15$ days, $t_p = 20$ days and $t_e = 15$ days)
- **Event 17-18** Post-test knowledge and attitude of ecotourism after PAR
(Duration $t_o = 1$ days, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 17-19** Pre-test characteristic of value before PAR
(Duration $t_o = 1$ day, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 17-20** Faith inspiring
(Duration $t_o = 10$ days, $t_m = 15$ days, $t_p = 20$ days and $t_e = 15$ days)
- **Event 20-21** Model behaviors forming
(Duration $t_o = 1$ days, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 21-22** Behavioral practice
(Duration $t_o = 45$ days, $t_m = 60$ days, $t_p = 75$ days and $t_e = 60$ days)
- **Event 22-23** Evaluation
(Duration $t_o = 10$ days, $t_m = 15$ days, $t_p = 20$ days and $t_e = 15$ days)

3.3 Questionnaire Development

The seven questionnaires were developed with the following steps:

3.3.1 Construct seven kinds of questionnaires: tourists and the local people by studying the documents and literatures related to the natural resources and environmental conservation, ecotourism, and environmental education and surveying data about tourism resources conservation from the national park as the construction framework.

3.3.2 Draft the seven questionnaires.

3.3.3 Propose the drafted questionnaires to the desertation committee and research specialists for validity and improving.

3.3.4 Pre-test the improved questionnaires with forty tourists and campy the local people such as the border patrol police officers who are sample groups to test reliability.

3.3.5 Find the difficulty from the others knowledge test and also find the discrimination power by applying the technique 25%. Choose the difficulty between 0.2-0.8 and with the discrimination power from 0.2 up. Then, find the reliability of the items by Kuder Richardson'20 as follows:

3.3.5.1 Tourism resources conservation knowledge test. Choose 24 (from 30) question items. It was found that the items showed the reliability exceeded 0.86 ($r_{KR 20} = 0.86$).

3.3.5.2 Ecotourism knowledge test. Choose 20 (from 25) question items. It was found that the items showed the reliability exceeded 0.86 ($r_{KR\ 20} = 0.83$).

3.3.6 Find the discrimination power from the attitude measurement test of tourism resources conservation. Choose 24 (from 30) questions items by the assigned criterion. The reliability of the items is 0.82 ($r_{\alpha} = 0.84$).

3.3.7 Find the discrimination power from the attitude measurement test of ecotourism. Choose 20 (from 25) questions items by the assigned criterion. The reliability of the items is 0.82 ($r_{\alpha} = 0.82$).

3.3.8 Find the discrimination power from the value of tourism resources conservation. Choose 18 (from 20) questions items by the assigned criterion. The reliability of the items is 0.79 ($r_{\alpha} = 0.79$).

3.3.9 Find the discrimination power from the characteristic of valuing in tourism resources conservation test. Choose 18 (from 20) questions items by the assigned criterion. The reliability of the items is 0.76 ($r_{\alpha} = 0.76$).

3.3.10 Find the discrimination power from the fixed behavior of tourism resources conservation test. Choose 18 (from 20) questions items by the assigned criterion. The reliability of the items is 0.80 ($r_{\alpha} = 0.80$).

3.3.11 Apply all modified questionnaires to actual sample groups.

3.4 Data Analysis

3.4.1 Data of general information is done by analyzing the information form through frequency distribution, percentages, mean, standard deviation, and variance.

3.4.2 Data is analyzed to compare the results of the knowledge, attitudes and practices test before to study (pre-test) and after study (post-test). Two groups are comparatively analyzed using statistic values, T-tests, and relationship analyzed using statistic values, Pearson product moment correlation coefficient, percentages, mean and standard deviation.

3.4.3 The activity participation analysis is done by analyzing the points of the sample groups and classify three levels of interest and cooperation in activities: low, medium and high.

3.4.4 The analysis of activities in the project is done by analyzing the evaluation form through frequency distribution and percentages.

3.4.5 Suggestions, comments and comparison of photographs before and after the activities are descriptively analyzed.

CHAPTER IV

RESULTS

These results will be divided into 3 phases, i.e. pre-research phase, research phase and post-research phase.

4.1 Pre-Research Phase

4.1.1 Identify the Problems and the Requirements

The Sirindhorn International Environmental Park was situated Rama VI camp and Narasuan camp, Cha-Am subdistrict Cha-Am district, and Phetchaburi province. It had approximately areas on 2,400 rai, cover four villages as follows: Ban Bangsai Noi, Ban Bokia, Ban Hnayshai Tai, and Ban Huayjig. The people in the Park were consisted of 185 border partol police officers. Of this amount, 33 were commissioned officers and 152 were non-commissioned officers. The Park was previously the station of the 1st Sub-division, Tactical Training Division (Rama VI camp) and Airborne Reinforcement Sub-division, Supporting Division, Border Patrol Bureau (Narasuan camp). It was once a perfect mangrove forest with pleasant natural beauty as well as natural and cultural tourism resources. One particular example is the Mrigadayavan Palace built by the King Rama VI as a summer palace, which attracts as many as 200,000 tourists per year (Source: Mrigadayavan Palace Foundation, 2001-2003). This is considered a mass tourism where a large group of tourists come in the morning and leave in the evening. The facts those tourists generally leave problems behind and that the maintenance is below standard have led to the severe deterioration of natural, environmental or tourism resources. This is most obvious in the fast failing and reducing the mangrove forest area, which harmonizes a research of tourist attractions of the country are in a poor state with critical problems.

Her Royal Highness Princess Maha Chakry Sirindhorn has presided over the site on 17th August 1994 in order to plant different mangrove forests in the areas of the Park in Klong Bangkra Yai and Klong Bangkra Noi and witness the condition of the ground and deserted area with salty flakes on the surface. She has suggested that a solution should be found in order to restore them to the green and lush natural beauty for recreational and ecosystem study related purposes. She visited the Rama VI camp on August 14, 1994 and gave an idea that “to make an appropriate land in order to try out and get back the condition of mangrove plantation for returning the habitat science into the nature”. After that she planted several kinds of trees in the mangrove plantation in Pak Klong Bangkra Noi and Klong Bangkra Yai on August 17, 1994 and gave an additional idea how to maintain and survive all that trees and continued to plant some more trees. The Border Patrol Police Bureau by Police Lieutenant General Kumron Leeyawanit Commissioner, Border Patrol Police Bureau, Police Major General Deerak Pongpamon Commander, Tactical Training Division, Police Major General Nipon Siriwong Commander, Supporting Division, Border Patrol Bureau and Dr.Charlies Cha-cha who is consultant of the Border Patrol Police Bureau had joined with Huay Sai Development and Education Center under the Royal Patronage of His Majesty’s King and Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee had together established the Sirindhorn International Environmental Park to dedicate for her on the occasion of the 48th birthday anniversary in the year 2003. Inside the Park had components are as follows:

1) Cultural Environmental Park

• The Mrigadayavan Palace

His Majesty King Vajiravudh, Rama VI, had this summer palace built in 1923. Mr.Ercole Manfredy, an Italian architect to the public works department of royal Thai government, drew up the plans in accordance with the King’s sketches. The concrete pillars holding up the golden teak palace all have niches around the pillars that were filled with water to keep ants from climbing up to the residence.

The Mrigadayavan Palace built of golden teak on 1,080 concrete pillars that have niches around each pillar that were filled with water to help ants from climbing up into the residence.

There are three grouping of buildings: the residence chambers and staff officers, a royal dining hall and the royal residence with a seaside pavilion; and the inner chamber and the ladies' seaside pavilion. These buildings were connected by covered walkways, as follows:

(1) The Phisan Sakorn group of residences

The Phisan Sakorn group of buildings was the residence of His Majesty King Vajiravudh, Rama VI. There is an open hall, which was used as a dining hall in the western style.

There is a covered corridor linking the residence to the changing room at the beach bathing partition.

(2) The Samoson Sevakamat group of residences

The Samoson Sevakamat was constructed as a pavilion and used as an audience chamber as well as a place for staging play as a royal means of teaching the general staff about duty, love for nation, manner of behavior and other matters. The second floor across from the stage was reserved for the queen and ladies of the court.

(3) The Samut Phiman group of residences

The Samut Phiman group of residences was constructed in 1923 for Her Majesty Queen Indrasakdisachee, high ranking court ladies and their entourages. This was also a bathing pavilion for the ladies who were consider the "inner court" and therefore were separated from the king and his entourage.

• Chaophraya Ramrakop Residence

This teak and cement block house on cement pillars is the only house remaining that was built for the entourage of the King Rama VI. It is typical of the seaside house of the 1990's with open verandahs and a lilted hip-roof. It was the residence of Chaophraya Ramrakop, who was the general Aide-de-camp to the King and also a royal page from the verandah, the general could see the signal lights from the

palace: yellow to signify His Majesty was getting dressed for dinner so that general could proceed to the palace before the signal lamp changed to green, which meant that the King was already at the dinner table.

2) Natural Environmental Park

• The Sirindhorn Mangrove Plantation

The Sirindhorn International Environmental Park was once a perfect mangrove forests. Later people lived in its and attack to cut mangrove forests for agriculture. Not into 40 years ago mangrove forests were destroyed absolutely. Result rain did not to fall real reason and had decreased volumes. Land was without the rain, soil lacked maintenance to occur not balance in nature, soil erosion almost highly. Condition of forest ecosystem was destroyed, result water volumes flowed to Klong Bangkra Yai and Klong Bangkra Noi had decreased water volumes.

In 1991 the mangrove forests were most obvious in the fast failing and reducing the mangrove forest area. A survey of the Klong Bangkra Noi revealed that the areas of total mangrove forests were about 22.08 rai or 1.29% of the total areas, and Klong Bangkra Yai revealed that the areas of total mangrove forests were about 11.88 rai or 0.69% of the total areas. Her Royal Highness Princess Maha Chakry Sirindhorn has presided over the site on 17th August 1994 in order to plant different estuary forests in the areas of the Park in Klong Bangkra Yai and Klong Bangkra Noi and witness the condition of the ground and deserted area with salty flakes on the surface. Her Highness has suggested that a solution should be found in order to restore them to the green and lush natural beauty for recreational and ecosystem study related purposes.

Since August 14, 1991; Her Royal Highness Princess Maha Chakry Sirindhorn had concept to provide appropriate areas for mangrove forests rehabilitation come back. And August 17, 1994; she planted mangrove forests as following: *Avicennia marina*, *Avicennia alba*, *Avicennia officinal*, *Rhizophora apiculata*, *Rhizophora mucronata*, *Bruguiera gymnorhiza*, *Bruguiera cylindrica*, *Ceriops tagal*, and *Sonneratia caseolaris*. Mangrove forests in the Sirindhorn International Environmental Park as known “The Sirindhorn mangrove plantation”, its had two areas: 1) North and Northeastern of the Park and 2) Southeastern of the Park, which had components

mangrove forests approximate total areas on 120 rai. Mangrove forests in the Park was increased about 86.04 rai or 215.74%.

The Sirindhorn mangrove plantation is the land where planted by H.R.H. Princess Sirindhorn and later the border patrol police officers have together planted the additional some more trees. From checking the quality of soil and water in the Park, it was found that:

1) The general condition and quality of soil are sedimentary surface with fully fertility. The quantity of fertility has the medium up to the high level that is proper for the growth of each type of trees. The soil in deep level has quite low fertility especially the main food such as Nitrogen (N), Phosphorus (P) and Calcium (Ca). The important thing was found that a high quantity of sulfide that will make the condition of acid (ph is between 6.00-8.00) has the effect to the development of root system of each tree and its growth. In addition, some metal those are from wasted water pollution of the community.

2) The quality of water has little lye equivalence with the general condition of the sea (ph is between 7.5-8.5). In general, the mean of oxygen in water has more than 3 ppm. that is enough for the living of water animals, the salty is between 2.1-5.8 ppt. Water has quite low salty because of the influence of rain as well as the land around Pak Klong Bangkra Yai is connected with the sea. It piled up lots of sand and closed the sea water removal. This makes the sea from outside with more salty level not be able to flow in and mix with water in the canal. The quantity of water level in the canal has more increasingly in the rainy season. It makes the salty of water in canal has salty level lower than the normal salty in general mangrove plantation. However, there is no rain in the summer or less water. The level of water in canal decreased that made more salty level in the water than it was. This affected to the growth of some trees in this mangrove plantation. There are enough quantity of the major food in water such as Sodium (Na), Potassium (P), Magnesium (Ma), Platinum (Fe) and Manganese (Mn) except Nitrogen (N), Phosphorus (P) that are the main factors for the growth of plants have quite low quantity of food.

There are 9 kinds of aquatic animals such as Mullet two kinds (*Mugil dussumieri* (C. & V.) and *Mugil subviridis* (C. & V.)), White seabass or Giant seaperch (*Lates calcarifer* (Bloch)), Grunter or Croaker (*Therapon jarboa* (Forskall)), Milkfish

(*Chanos chanos* (Forsk.)), Scat (*Scatophagus argus* (Linn.)), Silver biddy (*Gerres abbreviatus* Bleeker), Mud skipper (*Periophthalmodon* sp.), and Tilapia (*Tilapia mossambica* (Peters) or *Oreochromis mossambica*). There are 3 kinds of shrimp such as Jumbo tiger prawn or Giant tiger prawn or Blue tiger prawn or Panda prawn (*Penaeus monodon* Fabricius), Banana prawn or White banana prawn (*Penaeus merguensis* de Man, 1888) and Ginger prawn or sand shrimp or speckled prawn (*Metapenaeus monoceros* (Fabricius)), shellfishes, crabs and birds. In addition, there are 112 kinds of bird in the Park.

- **Seabeach**

The Sirindhorn International Environmental Park had seabeach from the 1st Sub-division, Tactical Training Division (Rama VI camp) revealed that the distances of total seabeach were about 12 kilometers to Airborne Reinforcement Sub-division, Supporting Division, Border Patrol Bureau (Narasuan camp) revealed that the distances of total seabeach were about 10 kilometers. It had approximately total distances of seabeach 22 kilometers and had white and clean sand beach because of the Park did not permit to sale anything around sand beach.

The problems and the lost of general condition of the Sirindhorn International Environmental Park are as follows:

- 1) Garbage Problem**

In general, there are many garbage both in the Mrigadayavan Palace area, the Sirindhorn mangrove plantation and its surroundings that made by the tourists who visited and the local people do not throw the garbage into the garbage bins. The Park has solved this problem by preparing the garbage bins and making the signs such as “Do not throw the garbage” and “Please keep clean” all over the park. On the other hand, this is not solution the problem from the cause of all the troubles such as making the tourists and the local people awareness their own good inculcation and always keeps clean in the tourist attraction.

- 2) Environmental Problem**

Due to the water in Pak Klong Bangkra Yai was obstructed by the blown sand and inconvenient seawater movement that caused the shallow canal and affected to the salty level in the canal. In the rainy season, as the water level in canal increased, it affected to the decreasing salty in the water. However, the insufficient quantity of

rain in the summer and the level of water in canal was little that made more increasing of the salty level. This happen had the effect to the growth of some plants in the mangrove plantation. Immediately the Park solved this problem by digging the sand out of that area for the convenience of water movement. It is long term to solve this problem because it occurred by the nature and will happen again from time to time.

3) The Attack by Fishermen in the Seashore

Due to the water in Pak Klong Bangkra Yai was obstructed by the blown sand and inconvenient seawater movement that caused the shallow canal and affected to the salty level in the canal, they would run away from the waves by mooring their boats to that area and transferred all their aquatic animals to the truck. That area is not a good place to moor the boats for transferring the aquatic animals because of the very strong waves. The large numbers of mooring boats made trouble to the living of aquatic animals and their laying eggs in the water of the mangrove plantation. Besides, the fishermen caught the aquatic animals in that area that caused the lower quantity of aquatic animals. The Park solved that problem by putting the wood pillar to block the boats of fishermen not to enter into that canal and letting them moor their boats in the beginning area of canal. However, this is not a good way to solve this problem, the important thing is to make those fishermen awareness how important in conserving the aquatic animals resources in the Park.

4) Tourism Management Problem

The tourism management in the Park is not well done and without the awareness of the knowledge to the tourists and the local people in the Park before and after their visit. The Park has already solved this problem by preparing the interpretations which concern with the nature in the tourist attraction but it still needed to give the ecotourism knowledge for the tourists and the local people as well as the natural study manual booklet for them to study about the nature of the tourist attraction before, during and after their visit.

5) Environmental Ethics Problem

The local people and tourists in the Park still misunderstood and did not know the value of tourism resources and environmental conservation in the tourist attraction. Annually the Park has trained the local people who are the border patrol police officers about how to conserve the natural resources and environment.

However, only giving them the knowledge without originating them to practice as regularly for example to develop the environmental ethics to the tourists and the local people and make them understand and be knowledgeable about the natural resources and environmental conservation as regularly.

6) Training Courses Program Problem

The Park always organizes the training course program for the local people who are the border patrol police officers every year. The contents of the training program are as follows:

(1) The crisis of environment in Thailand

It is about the environmental problems in atmosphere that is air pollution such as acid rain, greenhouse effect, ozone depletion, forest which is deforestation such as carbon sink loss, biodiversity loss, degrades coastal ecology and habitat loss, water which is water pollution such as chemical/biological contamination, social environment such as unawareness the good sense of community and local culture/wisdom.

(2) The concept and theory on environment

It is about the concept on the nature and environment of the Western, which can be divided into 5 groups as follows:

- (2.1) Techno centrism group
- (2.2) Ecocentrism or deep ecology group
- (2.3) Marxism group
- (2.4) Ecofeminism group
- (2.5) Social construction group

The concept on nature and environment of the east is very clear in the Buddhism philosophy, which believes in unity of different life without being the opposition, dissimilarity, loss or win or influence to each other. This is related to the environment and development such as system theory, chaos theory and future theory.

(3) Environmental sociology

It is about the meaning and the component of community group, which are divided into 2 ideas: the trend of group type and the trend of social and influence of environment to the community that considered by the three major basics; the geographic, socio and cultural environments. In addition, the related factor in

consideration the community is type of habit that has the effect to the behavior, belief, and attitude of members in the society or the national character.

(4) Participation of people in environmental management

It is about the principle idea and participation of people, the situation in participation of people on the environment. It started from the development in cooperation of people leading to the participation in the present time by requesting and checking the government section, the self-participation in term of inter-group of people cooperation as well as discommunity and disregard.

(5) The organization and network encouragement on the environment

To develop the NGOs by joining of the members who have the same attitude and agree that the outcome of development is from the villagers or village and will expand into the network sections that is the changing period to the policy level and the cooperation for negotiating with the state power so as to solve the problems with the certain points or the centralization period as called a community team. The social networks can be divided into 3 kinds; community network, eco-network and assembly network.

(6) The communications for participation

The objectives of communications are for making the influence or changing to others persons, which concern with types of qualified news, the factors to make the interesting news, the methods of communications such as speaking, listening as well as the personality.

(7) The strategy to reduce the conflict

The problems of conflict and incorporation caused the damage. There are 2 kinds of conflict; symmetric conflicts and asymmetric conflicts. The reason of conflict is because of the relations of complicated variances, the psychological variances, geography variances, economic and culture variances, etc. There are 3 ways to reduce the conflicts, which are management, control and disintegration.

(8) The environmental conservation and development by self-reliance of His Majesty the King

It is about self-reliance of His Majesty the King regarding the environmental conservation and development. He used the fact of the nature that needed to maintain for the balance, self-reliance and the basic idea in Buddhism about how to

live and help each other in the society. In addition, the theories of development for self-reliance of agriculturists under the self-reliance theory, which help the ruralist, develop self-reliance according to the new theory. It emphasized on the administrative management on land and water for agriculture in small land as the most beneficial. It is the theory on the development of water resource in the atmosphere “artificial rain” and from the diesel to palm oil.

(9) The appreciation on environment and human development

It is about the learning theory, which composes of receiving, responding, valuing, organization and value complex steps or characterized by value.

(10) To be nice officials similarity as His Majesty the King’s practice

The good officials should follow all the competences of His Majesty’s the King such as development, management and also to be a good model, idea, leadership and artist.

(11) Environmental law and law enforcement

There are 3 principles of the environmental law, which are the basis of conservation; the principle of conservation to the environment, the principle of long-standing development and the principle of normal and maintaining living in the safety environment. The types of international and local environmental law such as a statute of the national law 1992, the criterion of quality of environment, the announcement of promotion the quality of environment, the law on national resources and the law on environmental management.

(12) The policy and principle on the environmental management in Thailand and the master plan of environmental management of the Border Patrol Police Bureau

It is about the National Economic and Social Development Planning, the 9th edition (2002-2006). It aimed at solving the poverty and brought up the quality standard of living of the majority people of the country for long standing development and better welfare of Thai people. According to His Majesty’s philosophy on moderately economic, the strength of social form and a balance by following principle of the stability and the right and the master plan of the Border Patrol Police Bureau on prevention and national resources and environmental conservation, the 5th edition (2002-2006) that are made up of 5 fields, 23 plans and 77 projects. Two projects

among them are related to the national and environmental projects, which are the projects concerning the prevention and protection in destroying the plantation and wild animals resources, and the project on national resources and environmental conservation.

(13) Geographic information and the environmental management in the border areas.

It is about taking the advantage of the data from the two satellites, Landsat TM and Spot, for surveying the narcotics plantation in the border of the Northern areas that is useful to prevent and protect the drugs as well as to be able to estimate any related situations. In addition, the study of seashore changing in Laem Pakbiey area in Petchaburi province by using the pictures taken by the said satellites which was found that the land on seashore has changed all the time especially on the Len Beach and the increasing numbers of plantations that are good for the ecological system.

(14) Stimulation to the publics

It is about the meaning and method to stimulate the publics by making them need to maintain and develop their community by themselves. The continuously incentive information is a must, the method of stimulation by using a wide range of media channels, the unlimited rules of the trend to stimulate the public, or the best method to stimulate the public that depends on particular situation of each community.

(15) The plans and projects on the environment

It is about the meaning of the plans, which are made up of the strategy, the operational plan: for example, the operational plan for management of the quality of environment in the provincial level.

This course refers to the general principles of the natural resources and environmental conservation but do not emphasize on the tourism resources conservation specially the mangrove forest resources, which is a very important tourism resource in this Park.

According to the meeting and analysis, it can be concluded of the problems and requirements in the Park are as follows:

1. Environmental Problem in the Park

- Throwing the garbage in the tourism places.

- The Park is facing of the blockade of sand by the water blowing through Pak Klong Bangkra Yai.

- The soil has the acid condition and the seawater has the modified level of the salty.

2. Environmental Education Management Problem

- There is no particular program about the ecotourism and the mangrove forest conservation.

- The border patrol police officers are not able to work as their training because of the limited restrictions of official system.

- Without the good knowledge, the strategy and media channels for environmental education.

3. Human Resources Development Problem

- The local people and the tourists have no moral development on the environmental ethics.

4. Community Problem

- The attack by fishermen to the seashore and no cooperation with the Park.

Consequently, the way to solve those problems is to organize the participatory action research, which divided into 3 projects (details in appendix). Each project has many activities for the efficiency to the environmental education management in the Park. This will affect to the behavior on the environment both the local people and the tourists. All the projects are as follows:

1) Tourism resources learning and conservative project.

Before the identify the problems and the requirements. Researcher was expect this project had two activities such as educational activity on tourism resources conservation and plantation activity within the area of the park. After its was found that should and four activities are as follows:

1.1 Educational activity on tourism resources conservation.

1.2 Mangrove forest plantation activity within the area of the park.

1.3 Environmental adjustment activity in Pak Klong Bangkra Yai.

1.4 Keeping clean activity within the area of the Park.

2) Educational project on the ecotourism.

Before the identify the problems and the requirements. Researcher was expect this project had two activities such as educational activity on ecotourism and natural interpretation conveyance activity. After its was found that the Park had natural interpretation around tourism place of the Park but it had not natural study manual booklet for tourists to study about the nature of the tourist attraction before, during and after their visit. Then, this project should be changable activity are as follows:

2.1 Educational activity on ecotourism.

2.2 Natural study manual booklet conveyance activity.

3) Environmental ethics project. The three activities are as follows:

3.1 Faith inspiring activity.

3.2 Model behaviors forming activity.

3.3 Behavioral practice activity.

4.1.2 General Data of Studied Personnels (Table 2)

4.1.2.1 Social Data

1) Population: 33.33% of the personnel are tourists, 33.33% are the people in the community (the border patrol police officers), and 33.33% are the people out of the community (fishermen).

2) Gender: most of personnel are male (74.44%), and 25.56% are female.

3) Age: most of personnel are of age between 26 to 35 years old (35.56%), 31.11% are of age between 36 to 45 years old, 18.89% are of age 46 years old and over, and 14.44% are of age 25 years old and below. The average age of the personnel is 35.22 years old.

4) Education: most of personnel have education level lower than bachelor degree (58.89%), 35.56% have education level bachelor degree, and 5.56% have education level higher than bachelor degree.

5) Occupation: most of personnel are hold a post in the government (38.89%), 33.33% are fisherman, 13.33% are employed, 8.89% are commence, 5.56% are others.

6) Total working period: most of personnel have total working period between 6 to 15 years (56.67%), 23.33% have total working period 5 years and below and 21.11% have total working period 16 years and over.

7) Domicile: most of personnel have domicile of Central region (40.0%), 33.33% have domicile of Southern region, 20.0% have domicile of Northeastern region, and 6.67% have domicile of North region.

4.1.2.2 Economic Data

1) Income: most of personnel have income between 5,001 to 10,000 baht/month (36.67%), 26.67% have income lower than 5,000 baht/month, 20.0% have income between 10,001 to 15,000 baht/month, and 16.67% have income higher than 15,000 baht/month.

2) Cost travel of tourism per trip: most of personnel have cost travel between 1,001 to 2,000 baht/trip (37.78%), 26.67% have cost travel lower 1,000 baht/trip, 25.56% have cost travel between 2,001 to 3,000 baht/trip, and 10.0% have cost travel higher than 3,000 baht/trip.

3) Receiving extra income from the Park: most of personnel have not received extra income (76.67%), and 23.33% have received extra income, who have received extra income an average of 128.57 baht/person/week.

4.1.2.3 Environmental Data

1) Receiving information of tourism resources conservation: most of personnel have not received information (65.65%), 34.44% have received information, which sources of information are 'Journal' 15.04%, 'Television' 14.29%, 'Brochure or Leaflet' 14.29%, 'Newspaper' 12.03%, 'Radio' 9.02%, 'Tourism Authority' 7.52%, and 'Others' 12.78%.

2) Receiving information of ecotourism: most of personnel have not received information (86.67%), 13.33% have received information, which sources of information are 'Journal' 19.64%, 'Television' 16.07%, 'Newspaper' 16.07%, 'Brochure or Leaflet' 14.29%, 'Radio' 10.71%, 'Tourism Authority' 10.71%, and 'Others' 12.52%.

3) Sources of information of tourism in the Park: most of sources of information are 'Journal' (22.06%), 21.57% are 'Brochure or Leaflet', 17.65% are 'Television', 9.80% are 'Tourism Authority', 7.84% are 'Radio', 7.35% are 'Newspaper', and 13.73% are 'Others'.

4) The most favourite tourism palace in the Park: most of the most favourite tourism palace are 'The Mrigadayavan Palace' (21.43%), 15.71% 'The Sirindhorn mangrove plantation', 15.0% 'The King Rama VI monument', 10.24% 'Sport recreation center', 6.19% 'Camp service center', 5.95% 'Demonstrate area of the self-reliance theory', 5.24% 'Opened zoo', 4.52% 'Herbaceous forest', and 3.33% 'Others'.

5) The most favourite tourism activities in the Park: most of the most favourite tourism activities are 'See beautiful and ancient place' (19.49%), 15.31% 'Natural study', 14.39% 'Learning in tourism place', 10.9% 'Bicycle riding', 9.28% 'Swimming', 10.21% 'Photo', 9.05% 'Bird watching', 8.35% 'Camping', and 3.02% 'Others'.

Table 2 Numbers and Percentages of the Personnel as Classified by General Characteristics.

General characteristics	Numbers	Percentages	Remark:
1. Population			
- Tourists	30	33.33	
- The people in the community (the border patrol police officers)	30	33.33	
- The people out of the community (fishermen)	30	33.33	
2. Gender			
- Male	67	74.44	
- Female	23	25.56	
3. Age			
- 25 years and below	13	14.44	\bar{X} = 35.22 years
- 26 to 35 years	32	35.56	S.D.=1.67 years
- 36 to 45 years	28	31.11	Min.= 18 years
- 46 years and over	17	18.89	Max.= 55 years
4. Education			
- Lower than Bachelor Degree	53	58.89	
- Bachelor Degree	32	35.56	
- Higher than Bachelor Degree	5	5.56	

Table 2 (Cont.)

General characteristics	Numbers	Percentages	Remark:
5. Occupation			
- To be employed	12	13.33	
- Commence	8	8.89	
- To hold a post in the government	35	38.89	
- Fisherman	30	33.33	
- Others	5	5.56	
6. Total working period			X= 9.06 years.
- 5 years and below	21	23.33	S.D.=0.75 years.
- 6 to 15 years	50	55.56	Min.= 1 year.
- 16 years and over	19	21.11	Max.=20 years.
7. Domicile			
- North region	6	6.67	
- Central region	36	40.0	
- Northeastern region	18	20.0	
- Southern region	30	33.33	
8. Income			
- Lower than 5,000 baht/month	24	26.67	
- 5,001 – 10,000 baht/month	33	36.67	
- 10,001 – 15,000 baht/month	18	20.0	
- Higher than 15,000 baht/month	15	16.67	
9. Cost travel of tourism per trip.			
- Lower 1,000 baht/trip	24	26.67	
- 1,001-2,000 baht/trip	34	37.78	
- 2,001-3,000 baht/trip	23	25.56	
- Higher than 3,000 baht/trip	9	10.0	
10. Receiving extra income from the Park.			X= 128.57 baht
- Yes	7	76.67	S.D.= 11.25 baht
- No	23	23.33	Min.= 100 baht
			Max.= 150 baht

Table 2 (Cont.)

General characteristics	Numbers	Percentages	Remark:
11. Receiving information of tourism resources conservation. - Yes ▪ Sources of information of tourism resources conservation 1) Television 2) Newspaper 3) Radio 4) Journal 5) Tourism Authority 6) Brochure or Leaflet 7) Others - No	31 59	34.44 65.56	
12. Receiving information of ecotourism. - Yes ▪ Sources of information of ecotourism. 1) Television 2) Newspaper 3) Radio 4) Journal 5) Tourism Authority 6) Brochure or Leaflet 7) Others - No	12 78	13.33 86.67	

Table 2 (Cont.)

General characteristics	Numbers	Percentages	Remark:
13. Sources of information of tourism in the Park			
- Television	36	17.65	
- Newspaper	15	7.35	
- Radio	16	7.84	
- Journal	45	22.06	
- Tourism Authority	20	9.80	
- Brochure or Leaflet	44	21.57	
- Others	28	13.73	
14. The most favourite tourism palace in the Park.			
- Herbaceous forest	19	4.52	
- The Sirindhorn mangrove plantation	66	15.71	
- Opened zoo	22	5.24	
- Demonstrate area of the self-reliance theory	25	5.95	
- Camp service center	26	6.19	
- Sport recreation center	43	10.24	
- The Mrigadayavan Palace	90	21.43	
- The King Rama VI monument	63	15.00	
- Chaophraya Ramrakop residence	52	12.38	
- Others	14	3.33	
15. The most favourite tourism activities in the Park.			
- Natural study	66	15.31	
- Bird watching	39	9.05	
- Bicycle riding	47	10.90	
- See beautiful and ancient place	84	19.49	
- Swimming	40	9.28	
- Photo	44	10.21	
- Camping	36	8.35	
- Learning in tourism place	62	14.39	
- Others	13	3.02	
Total	90	100.0	

4.1.3 Pre-Test Before PAR

4.1.3.1 Testing the Knowledge of Tourism Resources Conservation Before PAR.

From table 7, it was found that in a before PAR, most of personnel had knowledge of tourism resources conservation were average 14.44 points at the medium level. The range of knowledge score was 6 to 21 from the full score of 24. Consideration each personnel found that the border patrol police officers had the most knowledge of tourism resources conservation were average 17.77 points, the tourists were average 16.47 points, and the fishermen leader were average 9.10 points respectively.

4.1.3.2 Testing the Attitude Towards Tourism Resources Conservation Before PAR.

From table 9, it was found that in a before PAR, most of personnel had attitude towards the tourism resources conservation were average 3.51 points at the medium level. Consideration each personnel found that the border patrol police officers had the most attitude towards the tourism resources conservation were average 3.67 points, the tourists were average 3.57 points, and the fishermen leader were average 3.27 points respectively.

4.1.3.3 Testing the Knowledge of Ecotourism Before PAR.

From table 11, it was found that in a before PAR, most of personnel had knowledge of ecotourism were average 13.87 points at the medium level. The range of knowledge score was 7 to 19 from the full score of 24. Consideration each personnel found that the border patrol police officers had the most knowledge of ecotourism were average 15.96 points, the tourists were average 15.13 points, and the fishermen leader were average 10.53 points respectively.

4.1.3.4 Testing the Attitude Towards Ecotourism Before PAR.

From table 13, it was found that in a before PAR, most of personnel had attitude towards the ecotourism were average 2.70 points at the medium level. Consideration each personnel found that the border patrol police officers had the most attitude towards the ecotourism were average 2.96 points, the tourists were average 2.80 points, and the fishermen leader were average 2.31 points respectively.

4.1.3.5 Testing the Value of Tourism Resources Conservation Before PAR.

From table 3, it was found that in a before PAR, it was found that most of personnel had value of tourism resources conservation were average 2.01 points at the medium level. Consideration each personnel found that the border patrol police officers had

the most value of tourism resources conservation were average 2.4 points, the tourists were average 2.27 points, and the fishermen leaders were average 1.37 points respectively.

Table 3 Percentages of the Value of Tourism Resources Conservation Before PAR.

Subjects	Operational Level					\bar{X}	S.D.	σ^2
	Always	Often	Some times	Once a time	Never			
1. You cooperate well with the activities on tourism resources conservation.	8.89	20.0	35.56	22.22	13.33	1.89	1.14	1.29
2. When you visit to the tourist places, you always buy the souvenirs that made from the natural resources in those tourist attractions.*	2.22	5.56	25.56	33.33	33.33	2.9	0.89	0.79
3. When you want to rest, you always travel to the national park such as waterfall, sea, cave and mountain.	11.11	25.56	30.0	28.89	4.44	2.1	1.08	1.15
4. To choose the tourist places, you always visit to only the popular places without caring about the crowd.*	8.89	22.22	33.33	28.89	6.67	2.02	1.06	1.13
5. You travel to the natural places because of your amusing.*	6.67	22.22	40.0	24.44	6.67	2.02	1.0	1.0

Table 3 (Cont.)

Subjects	Operational Level					\bar{X}	S.D.	σ^2
	Always	Often	Some times	Once a time	Never			
6. You don't need any unnecessary facilities and over need for traveling in each time.	3.33	24.44	26.67	34.44	11.11	1.74	1.05	1.1
7. You told to the tourists and other people to keep clean in the tourist attractions by not throwing the garbage in that place.	2.22	20.0	30.0	34.44	13.33	1.63	1.02	1.03
8. You are interested in studying the nature/living standard/local culture of the place where you visited.	17.78	27.78	31.11	21.11	2.22	2.38	1.07	1.14
9. You always don't pay attention and never practice the rules of those tourist attractions.*	2.22	20.0	37.78	27.78	12.22	2.28	0.99	0.97
10. You always bring the garbage such as food containing, plastic bag into the tourist attractions.*	18.89	28.89	33.33	14.44	4.44	1.57	1.03	1.17
11. You throw the garbage into only the garbage bins that are prepared.	24.44	33.33	28.89	11.11	2.22	2.67	1.04	1.07

Table 3 (Cont.)

Subjects	Operational Level					\bar{X}	S.D.	σ^2
	Always	Often	Some times	Once a time	Never			
12. You always help and protect the behavior of the person who destroy the natural resources and report to the officer.	13.33	15.56	26.67	31.11	13.33	1.84	1.23	1.5
13. You always do not pay the service/ entrance fee to that tourist places if you can be avoid.*	2.22	11.11	26.67	28.89	31.11	2.76	1.08	1.16
14. You always pay attention and follow to the environmental news from the medias such as radio, television, newspaper, brochure etc.	2.22	6.67	31.11	33.33	26.67	1.24	0.99	0.98
15. You study the knowledge about the tourism resources conservation from many medias.	2.22	8.89	17.79	37.78	33.33	1.09	1.03	1.05
16. You listen to any other opinions about the planning to conserve the tourism resources.*	6.67	20.0	33.33	20.0	20.0	1.73	1.18	1.39
17. You promote the beauty in natural park to the tourists.	13.33	28.89	33.33	20.0	4.44	2.27	1.06	1.12

Table 3 (Cont.)

Subjects	Operational Level					\bar{X}	S.D.	σ^2
	Always	Often	Some times	Once a time	Never			
18. You are a good person who has conserved the tourism resources before and after one's eyes.	11.11	26.67	35.56	24.44	2.22	2.2	1.0	1.0

* Negative questions

Mean (\bar{X})	=	2.01
Standard Deviation (S.D.)	=	0.47
Variance (σ^2)	=	0.22
Minimum	=	0
Maximum	=	4
Skewness	=	0.05
Kurtosis	=	-0.40

4.2 Research Phase

4.2.1 Tourism Resources Learning and Conservative Project.

4.2.1.1 Teaching Knowledge

Researcher has consulted with the administrators and asked for the cooperation from Police Lieutenant Colonel Peerapong Changsuwan, Deputy Superintendent of the 1st Sub-division, Tactical Training Division (Rama VI camp), the Border Patrol Police Bureau/Chief of the Sirindhorn International Environmental Park project who are responsible for that Park by teaching knowledge both in the classroom and real location. It was used time 2 days. How to conserve the tourism resources to the tourists and the local people, also invited him as a guest speaker who is knowledgeable and able to present the training program entitled on the conservation on the mangrove plantation natural resources and how to plant and maintain the mangrove plantation. And researcher is teaching knowledgeable and able to present

the training program entitled on the ecology, the principles of conservation and environmental education & tourism resources conservation.

4.2.1.2 Taking Action

1) Preliminary arrangement

The researcher has coordinated with the Park and related agencies and asked for the cooperation in planting the mangrove forest in the Sirindhorn Mangrove Plantation and adjusting the environment in Pak Klong Bangkra Yai as well as keeping clean within the Park are as follows:

(1) To plant the mangrove trees in the Sirindhorn Mangrove Plantation by requesting for the cooperation with Police Lieutenant Colonel Changsuwan P., Chief of the Park project to be as a guest speaker for teaching the knowledge of planting the mangrove trees with mangrove types such as *Rhizophora mucronata*. numbers of 90 trees and also prepared the land for planting.

(2) To adjust the environment in Pak Klong Bangkra Yai by requesting for the cooperation with him to be as a guest speaker and teaching the knowledge and reason to adjust that environment area and the effect of deterioration. The administrators prepared a macro car for digging the sand in the above-mentioned canal.

(3) To clean up that area by requesting for the cooperation with him to be as a guest speaker and teaching the knowledge and to explain why do they have to keep clean in the Park and the effects of uncleanness on that place. The administrators and the researcher prepared for the garbage bins all over the Park.

2) Implementation

After teaching knowledge to the tourists and the local people, there are activities for operation are as follows (pictures in the appendix):

(1) Planting mangrove trees in the land of the Sirindhorn Mangrove Plantation, which were prepared one mangrove tree such as *Rhizophora mucronata*., which was one of mangrove type for each the tourist and local people. Next to start planting mangrove trees.

(2) Adjusting the environment in Pak Klong Bangkra Yai, which was prepared a macro car for digging the sand in the above-mentioned canal by the tourists and the local people, participated in the environmental adjustment.

(3) To clean up that area around the Park by the tourists and the local people, participated in keeping clean within the Park and throw in the garbage bins.

3) Maintenance

(1) To maintain mangrove trees, that the tourists and the local people cooperated plantation by ourselves. By maintenance one day/week to maintain everyweek.

(2) The fishermen do not entrance into the canal in order to do not make trouble to the living of aquatic animals and their laying eggs in the water of the mangrove plantation.

(3) Everybody do not throw the garbages within the Park but throw its into the garbage bins, which its are prepared by the Park.

4.2.2 Educational Project on the Ecotourism.

4.2.2.1 Teaching Knowledge

Researcher has consulted with the administrators and asked for the cooperation from Police Lieutenant Colonel Changsuwan P., Deputy Superintendent of the 1st Sub-division, Tactical Training Division (Rama VI camp), the Border Patrol Police Bureau/Chief of the Sirindhorn International Environmental Park project who are responsible for that Park by teaching knowledge knowledge both in the classroom and real location. It was used time 3 days. How to ecotourism to the tourists, the local people and also invited him as a guest speaker who is knowledgeable and able to present the training program entitled on the tourism of the Park. And researcher is teaching knowledgeable and able to present the training program entitled on the ecology, sustainable tourism management, ecotourism, and providing natural study manual booklet conveyance in the Park.

4.2.2.2 Taking Action

1) Preliminary arrangement

Researcher has coordinated with the Park and Police Lieutenant Colonel Changsuwan P. are as follows:

1.1) To arrange related equipments such as stationeries and papers for personnel.

1.2) To demonstrate providing natural study manual booklet conveyance by researcher, Police Lieutenant Colonel Changsuwan P. and related agencies.

2) Implementation

After teaching knowledge to the tourists and the local people, there are activities for operation are as follows:

2.1) This step is divided the personnel each group, which it is consisted of ten persons per group to nine groups are approximately. Next to paint pictures freely of the most favourite the tourism place in the Sirindhorn International Environmental Park. Additionally, with route and describe it.

2.2) Each group displays the painting picture of the most favourite the tourism place in the Park. The results of the most favourite the tourism place in the Park are as follows:

2.2.1 The Mrigadayavan Palace.

The Mrigadayavan Palace was situated Eastern of the Park, which far from Phetkasem Road around 1 kilometer. His Majesty King Vajiravudh, Rama VI, had this summer palace built in 1923. There are three grouping of buildings: the residence chambers and staff officers, a royal dining hall and the royal residence with a seasite pavilion; and the inner chamber and the ladies' seasite pavilion. These buildings were connected by covered walkways are as follows:

(1) The Phisan Sakorn group of residences

The Phisan Sakorn group of buildings was the residence of His Majesty King Vajiravudh, Rama VI. There is an open hall, which was used as a dining hall in the western style. There is a covered corridor linking the residence to the changing room at the beach bathing partition.

(2) The Samoson Sevakamat group of residences

The Samoson Sevakamat was constructed as a pavilion and used as an audience chamber as well as a place for staging play as a royal means of teaching the general staff about duty, love for nation, manner of behavior and other matters. The second floor across from the stage was reserved for the queen and ladies of the court.

(3) The Samut Phiman group of residences

The Samut Phiman group of residences was constructed in 1923 for Her Majesty Queen Indrasakdisachee, high ranking court ladies and their entourages. This was also a bathing pavilion for the ladies who were consider the “inner court” and therefore was separated from the king and his entourage.

2.2.2 The Sirindhorn Mangrove Plantation.

The Sirindhorn Mangrove Plantation was situated North and Northeastern, and Southeastern of the Park, which far from Phetkasem road around 1.5 kilometers. Her Royal Highness Princess Maha Chakry Sirindhorn planted mangrove forests as following: *Avicennia marina*, *Avicennia alba*, *Avicennia officinal*, *Rhizophora apiculata*, *Rhizophora mucronata*, *Bruguiera gymnorhizs*, *Bruguera cylindrica*, *Ceriops tagal*, and *Sonneratia caseolaris* in the areas of the Park in Klong Bangkra Yai and Klong Bangkra Noi. In the present day had components mangrove forests approximately total areas on more than 120 rai.

2.2.3 The King Rama VI monument.

The King Rama VI monument was situated Eastern of the Park above The Mrigadayavan Palace go ahead around 2-300 meters, which far from Phetkasem road around 1.3 kilometers. The Border Patrol Police Bureau has joined with Huay Sai Development and Education Center under the Royal Patronage of His Majesty’s King and Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee have together built it in order to display royalty of His Majesty King Vajiravudh, Rama VI.

2.2.4 Chaophraya Ramrakop residence.

Chaophraya Ramrakop residence was situated Northeastern of the Park above The King Rama VI monument go ahead around 2-300 meters, which far from Phetkasem Road around 1.6 kilometers. It was built for the entourage of the King Rama VI. It was the residence of Chaophraya Ramrakop, who was the general Aide-de-camp to the King and also a royal page from the verandah.

2.3) Providing natural study manual booklet conveyance of the Park. Researcher took pictures of the most favourite the tourism place in the Park such as the Mrigadayavan Palace, the Sirindhorn mangrove plantation, the King Rama VI monument and Chaophraya Ramrakop residence potted in papers in order to provide natural study manual booklet of the Sirindhorn International Environmental Park. See in the Pictures.



(FRONT)



MAP OF THE SIRINDHORN INTERNATIONAL ENVIRONMENTAL PARK

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THE MARIGAYAYAN PALACE WAS THE ROYAL
RESIDENCE OF HIS MAJESTY KING VAJIRAVUDH RAMA
VI. THE VISITORS SHOULD BE PRACTICES ARE AS
FOLLOWS:

- TAKING PHOTOS AND MULTI MEDIAS FOR
ADVERTISING OR SPREADING OUT MUST TO PERMIT
FROM AUTHORITIES.
- PLEASE DRESSING NEAT SUITS.
- DO NOT WEAR A HAT AND SHOES UPSTAIRS THE
PALACE.
- USING POLITE WORDS AND DO NOT ACCLAIM LOUDLY
DISTURBANCE THE OTHER PERSONS.
- CONTROLLING MANNERS AND DO NOT RUN AND PLAY
UPSTAIRS THE PALACE.
- DO NOT BRING FOODS AND DRINKS UPSTAIRS THE
PALACE.
- DO NOT ENTRANCE THE TABOO PLACES, WHICH
HAVE INTERCEPTED BY THE FLOWER CHAINS.
- DO NOT BRING LIQUORS AND DRUNKEN GOODS IN
BOUNDARY OF THE PALACE.
- DO NOT PLAY GAMBLES IN BOUNDARY OF THE
PALACE.
- DO NOT PERFORM ANYTHINGS, WHICH ARE BORN
DEMAGES WITH ANY PLACES IN BOUNDARY OF THE
PALACE.
- THROWING THE GARBAGES IN THE GARBAGE BINS
AND PLEASE KEEP CLEAN.

THE SIRINDHORN INTERNATIONAL ENVIRONMENTAL PARK

The Sirindhorn International Environmental Park was situated Rama VI camp and Narasuan camp, Cha-Am subdistrict Cha-Am district, and Phetchaburi province. It had approximately areas on 2,400 rai, cover four villages as follows: Ban Bangsai Noi, Ban Bokia, Ban Hmaysthai Tai, and Ban Huayying. The Park was previously the station of the 1st Sub-division, Tactical Training Division (Rama VI camp) and Airborne Reinforcement Sub-division, Supporting Division, Border Patrol Bureau (Narasuan camp).

It was once a perfect mangrove forest with pleasant natural beauty as well as natural and cultural tourism resources. One particular example is the Marigadayan Palace built by the King Rama VI as a summer palace, which attracts as many as 200,000 tourists per year. This is considered a mass tourism where a large group of tourists come in the morning and leave in the evening. The facts those tourists generally leave problems behind and that the human impacts severely degradation of natural, environmental or tourism resources. This is most obvious in the fast falling and reducing the mangrove forest area, which harmonizes a research of tourist attractions of the country are in a poor state with critical problems.

Her Royal Highness Princess Maha Chakry Sirindhorn Princess presided over the site on 17th August 1994 in order to plant different mangrove forests in the areas of the Park in Klong Bangkra Yai and Klong Bangkra Noi and witness the condition of the ground and deserted area with salty flakes on the surface.

She has suggested that a solution should be found in order to restore them to the green and lush natural beauty for recreational and ecosystem study related purposes. She visited the Rama VI camp on August 14, 1994 and gave an idea that "to make an appropriate land in order to try out and get back the condition of mangrove plantation for returning the habitat science into the nature".

After that she planted several kinds of trees in the mangrove plantation in Pak Klong Bangkra Noi and Klong Bangkra Yai on August 17, 1994 and gave an additional idea how to maintain and survive all that trees and continued to plant some more trees.

The Border Patrol Police Bureau by Police Lieutenant General Kumron Leeyawant Commissioner, Border Patrol Police Bureau, Police Major General Deera Pongpamon Commander, Tactical Training Division, Police Major General Nipon Siriwong Commander, Supporting Division, Border Patrol Bureau and Dr. Charulies Cha-cha who is consultant of the Border Patrol Police Bureau had joined with Huay Sai Development and Education Center under the Royal Patronage of His Majesty's King and Marigadayan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petchcharat Ratchasuda Sopapanwadee have together established the Sirindhorn International Environmental Park to dedicate for her on the occasion of the 48th birthday anniversary in the year 2003.

(BACK)



1

THE SAMORIN SEVAKAMAT GROUP OF RESIDENCES

THE PHISAN SAKORN GROUP OF RESIDENCES

THE MRIGAYAVAN PALACE

The Marigadayan Palace was situated Eastern of the Park, which far from Phetkasem road around 1 kilometer. His Majesty King Vajiravudh, Rama VI, had this summer palace built in 1923. There are three grouping of buildings: the residence chambers and staff officers, a royal dining hall and the royal residence with a seaside pavilion; and the inner chamber and the ladies' seaside pavilion. These buildings were connected by covered walkways as follows:

- 1) **The Phisan Sakorn group of residences**
There was the residence of His Majesty King Vajiravudh, Rama VI. There is an open hall, which was used as a dining hall in the western style. There is a covered corridor linking the residence to the changing room at the beach bathing partition.
- 2) **The Samoson Sevakamat group of residences**
There was constructed as a pavilion and used as an audience chamber as well as a place for staging play as a royal means of teaching the general staff about duty, love for nation, manner of behavior and other matters. The second floor across from the stage was reserved for the queen and ladies of the court.
- 3) **The Samut Phiman group of residences**
There was constructed in 1923 for Her Majesty Queen Indrasakdisachee, high ranking court ladies and their entourages. This was also a bathing pavilion for the ladies who were consider the "inner court" and therefore were separated from the king and his entourage.

2



THE SIRINDHORN MANGROVE PLANTATION

The Sirindhorn Mangrove Plantation was situated North and Northeastern, and Southeastern of the Park, which far from Phetkasem road around 1.5 kilometers.

Her Royal Highness Princess Maha Chakry Sirindhorn planted mangrove forests as following: *Avicennia marina*, *Avicennia alba*, *Avicennia officinalis*, *Rhizophora apiculata*, *Rhizophora mucronata*, *Bruguiera gymnorhiza*, *Bruguiera cylindrica*, *Ceriops tagal*, and *Sonneratia caseolaris* in the areas of the Park in Klong Bangkra Yai and Klong Bangkra Noi, Cha-Am sub-district, Cha-Am district, Phetchaburi province. In the present day had components mangrove forests approximate total areas on more than 120 rai. There are 9 kinds of water animals such as Mullet two kinds (*Mugil dussumieri* (C. & V.) and *Mugil saburridis* (C. & V.)), White seabass or Giant seaperch (*Lates calcarifer* (Bloch)), Grunter or Croaker (*Therapon jarbova* (Forsk.)), Milkfish (*Chanos chanos* (Forsk.)), Seat (*Scatoplagus argus* (Linn.)), Silver biddy (*Gerris abbreviatus* Bleeker), Mud skipper (*Pertopthalmodon* sp.), and Tilapia (*Tilapia mossambica* (Peters) or *Oreochromis mossambica*).



3

CHAOPHRAYA RAMRAKOP RESIDENCE

Chaophraya Ramrakop residence was situated Eastern of the Park above the Marigadayan Palace go ahead around 3-400 meters, which far from Phetkasem road around 1.3 kilometers

This teak and cement block house on cement pillars is the only house remaining that was built for the entourage of the King Rama VI. It is typical of the seaside houses of the 1990's with open verandahs and a tiled hip-roof. It was the residence of Chaophraya Ramrakop, who was the general Aide-de-camp to the King and also a royal page from the verandah the general could see the signal lights from the palace; yellow to signify His Majesty was getting dressed for dinner so that general could proceed to the palace before the signal lamp changed to green, which meant that the King was already at the dinner table.

4



THE KING RAMA VI MONUMENT

The King Rama VI monument was situated Eastern of the Park above the Marigadayan Palace go ahead around 2-300 meters, which far from Phetkasem road around 1.3 kilometers. The Border Patrol Police Bureau has joined with Huay Sai Development and Education Center under the Royal patronage of His Majesty's King and Marigadayan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petchcharat Ratchasuda Sopapanwadee have together built it in order to display royalty of His Majesty King Vajiravudh, Rama VI.

4.2.3 Environmental Ethics Project

4.2.3.1 Faith Inspiring Activity

This activity is consisted of four steps to inspire faith or create the willingness to accept in the mind. It was used time 3 days as follows:

1) To make understanding

This step is divided the personnel each group, which it is consisted of ten persons per group to nine groups are approximate. Next to draw freely the opinion of the title “the problems of tourism resources, prevention and solution about the problems on tourism resources”.

2) Display relation

Each group displays the opinion. The results of opinions are as follows:

2.1) Most of the problems of tourism resources can be classified are as follows:

2.1.1) Devaluation on tourism resources such as throwing garbage in tourist attractions and leave the dirty garbage into the water which causes foul water.

2.1.2) Breaking the rule and the restrictions of the tourist attraction.

2.1.3) A large number of facilities in the tourist attraction destroyed the condition of the environment and eco-system in that tourist attraction.

2.1.4) Traveling without moral, behavior on attention on conservation of tourism resources such as collecting flowers, breaking tree branches, writing and drawing, as well as destroying corals for their souvenirs in that tourist attraction.

2.1.5) Irritation to the living place of water animals. This decreased the less numbers of them such as catching the water animals or irritation them during the period of their laying down eggs or reproduction.

2.1.6) Attack into the public place for the benefit of tourism such as attack into the restricted area of reserved forest, island or mangrove land for the benefit of tourism of theirs such as to build up the hotel accommodation and restaurant.

2.1.7) The damage on the environment in the tourist attraction such as cutting the forestry and destroying the antiques etc.

2.2) Mostly the prevention and protection principles on the tourism resources can be specified are as follows:

2.2.1) Social measurements: for example the religion ceremony for against the destroy on the forestry by arranging the being ordained ceremony ect. Besides, to make the feeling of gratitude, beloved and protect to the national resources and environment of the community by themselves or to always keep watching and protecting any effects that will occur. Moreover, there will be an expression of admiration or prepare a prize for a person who plays a major role in conservation the environment and national resources in the community.

2.2.2) Political measurements: for example the certain policy of government for prevention and protection the national resources and environment as well as a plan for appropriately arranges for tourism development.

2.2.3) Economical measurements: for example the management on the income for maintaining and developing the national resources and environment of tourism.

2.2.4) Management of measurements: for example the system of administrative management in using the national resources and environment in tourism in order to be able to control the use of national resources in tourism for appropriated conditions and not lose the balance of nature such as planning to use the national resources, splitting the use of land, arranging the manual booklet to study about the nature, prohibiting cars in some areas and park the cars that obstruct the traffic and the beautiful scenery of the tourist attraction.

2.2.5) Natural measurements: for example not allow the tourists or people enter or disturb in the area where the animals laying down their eggs or their reproduction and the tourist attraction where is getting back to the previous nature.

2.2.6) Limitation of the tourist numbers: due to the tourist attraction is carrying capacity the numbers of tourists without destroying that place or making unbalance to the nature.

3) Schedule value

The examination was seen values as based on three processees. It had seven criterion of charateristics of valuing in tourism resources conservation are as follows:

3.1) Choosing

3.1.1 Choosing freely.

3.1.2 Choosing from alternatives.

3.1.3 Choosing after thoughtful consideration of the consequences of each alternative.

3.2) Prizing

3.2.1 Cherishing being happy with the choice.

3.2.2 Willing to affirm the choice publicly.

3.3) Acting

3.3.1 Doing something with the choice.

3.3.2 Repeatedly. In some pattern of life.

4) Expression

From table 4, it was found that most of personnel had value of tourism resources conservation were average 4.77 points at the prizing level. Consideration each personnel found that the border patrol police officers had the most value of tourism resources conservation were average 5.38 points at the acting level ,the tourists were average 5.03 points at the acting level, and the fishermen leader were average 3.90 points at the prizing level respectively.

Table 4 Percentages of Characteristic of Valuing in Tourism Resources Conservation.

Subjects	Criterion of characteristic of valuing in tourism resources conservation														Remark:
	Choosing freely (Level 1)		Choosing from alternatives (Level 2)		Choosing after thoughtful consideration of the consequences of each alternative (Level 3)		Cherishing, being happy with the choice (Level 4)		Willing to affirm the choice publicly (Level 5)		Doing something with the choice (Level 6)		Repeatedly, in some pattern of life (Level 7)		
	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	
1. Cooperation well in any activities on tourism resources conservation. - Yes. - No.	61	66.78	61	66.78	61	66.78	61	66.78	61	66.78	57	63.33	57	63.33	$\bar{X} = 0.67$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	29	32.22	29	32.22	29	32.22	29	32.22	29	32.22	33	36.67	33	36.67	
2. Always buy the souvenirs that made from the natural resources of that tourist place.* - Yes. - No.	13	14.44	13	14.44	13	14.44	14	15.56	16	17.78	23	25.56	23	25.56	$\bar{X} = 0.82$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	77	85.56	77	85.56	77	85.56	76	44.44	74	82.22	67	74.44	67	74.44	
3. Always travel to the natural parks such as waterfall, beach, sea, cave and mountain. - Yes. - No.	74	82.22	74	82.22	74	82.22	74	82.22	72	80.0	66	73.33	66	73.33	$\bar{X} = 0.79$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	16	17.78	16	17.78	16	17.78	16	17.78	18	20.0	24	26.67	24	26.67	
4. Choose the natural tourist places where are popular without caring about the crowd.* - Yes. - No.	32	35.56	32	35.56	32	35.56	32	35.56	34	37.78	40	44.44	40	44.44	$\bar{X} = 0.62$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	58	64.44	58	64.44	58	64.44	58	64.44	56	62.22	50	56.56	50	56.56	

Table 4 (Cont.)

Subjects	Criterion of characteristic of valuing in tourism resources conservation														Remark:
	Choosing freely (Level 1)		Choosing from alternatives (Level 2)		Choosing after thoughtful consideration of the consequences of each alternative (Level 3)		Cherishing, being happy with the choice (Level 4)		Willing to affirm the choice publicly (Level 5)		Doing something with the choice (Level 6)		Repeatedly, in some pattern of life (Level 7)		
	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	
5. Travel in the natural place for amusement.* - Yes. - No.	27	30.0	27	30.0	27	30.0	28	31.11	32	35.56	38	42.22	38	42.22	$\bar{X} = 0.66$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	63	70.0	63	70.0	63	70.0	62	68.89	58	64.44	52	57.78	52	57.78	
6. No need any unnecessary facilities and over need in traveling each time. - Yes. - No.	66	73.3	66	73.3	66	73.3	66	73.3	64	71.11	60	66.67	60	66.67	$\bar{X} = 0.71$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	24	26.67	24	26.67	24	26.67	24	26.67	26	28.89	30	33.33	30	33.33	
7. Tell the tourists and other persons to keep clean by not throwing the garbage away in the tourist attractions. - Yes. - No.	62	68.89	62	68.89	62	68.89	62	68.89	55	66.67	55	61.11	55	61.11	$\bar{X} = 0.66$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	28	31.11	28	31.11	28	31.11	28	31.11	35	33.33	35	38.89	35	38.89	

Table 4 (Cont.)

Subjects	Criterion of characteristic of valuing in tourism resources conservation														Remark:
	Choosing freely (Level 1)		Choosing from alternatives (Level 2)		Choosing after thoughtful consideration of the consequences of each alternative (Level 3)		Cherishing, being happy with the choice (Level 4)		Willing to affirm the choice publicly (Level 5)		Doing something with the choice (Level 6)		Repeatedly, in some pattern of life (Level 7)		
	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	
8. Need to study the nature/living standard/local culture of the tourist places where you have visited.	68	75.56	68	75.56	68	75.56	68	75.56	64	71.11	62	69.89	62	69.89	$\bar{X} = 0.73$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	22	24.44	22	24.44	22	24.44	22	24.44	26	28.89	28	31.11	28	31.11	
9. Not pay attention and against the regulations of those tourist attractions.*	22	24.44	22	24.44	22	24.44	24	26.67	24	26.67	29	32.22	29	32.22	$\bar{X} = 0.73$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	68	75.56	68	75.56	68	75.56	66	73.33	66	73.33	61	67.78	61	67.78	
10. Take the garbage such as food containing plastic bags into the natural tourist attractions.*	38	42.22	38	42.22	38	42.22	38	42.22	38	42.22	45	50.0	45	50.0	$\bar{X} = 0.56$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	52	57.78	52	57.78	52	57.78	52	57.78	52	57.78	45	50.0	45	50.0	

Table 4 (Cont.)

Subjects	Criterion of characteristic of valuing in tourism resources conservation														Remark:
	Choosing freely (Level 1)		Choosing from alternatives (Level 2)		Choosing after thoughtful consideration of the consequences of each alternative (Level 3)		Cherishing, being happy with the choice (Level 4)		Willing to affirm the choice publicly (Level 5)		Doing something with the choice (Level 6)		Repeatedly, in some pattern of life (Level 7)		
	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	
11. Throw the garbage into the garbage bins that are provided only. - Yes. - No.	78	86.67	78	86.67	78	86.67	78	86.67	70	77.78	64	71.11	64	71.11	$\bar{X} = 0.81$ $S.D. = 0.02$ $\sigma^2 = 0.004$
	12	13.33	12	13.33	12	13.33	12	13.33	20	22.22	26	28.89	26	28.89	
12. Follow the bad behaviors in destroy the places and natural resources and report to the officer when you see it. - Yes. - No.	67	74.22	67	74.22	67	74.22	67	74.22	60	66.67	59	65.56	59	65.56	$\bar{X} = 0.71$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	23	25.56	23	25.56	23	25.56	23	25.56	30	33.33	31	34.44	31	34.44	
13. To be avoid the payment on service/entrance fee to that tourist places.* - Yes. - No.	22	24.44	22	24.44	22	24.44	24	26.67	30	33.33	36	40.0	36	40.0	$\bar{X} = 0.70$ $S.D. = 0.02$ $\sigma^2 = 0.004$
	68	75.56	68	75.56	68	75.56	66	73.33	60	66.67	54	60.0	54	60.0	

Table 4 (Cont.)

Subjects	Criterion of characteristic of valuing in tourism resources conservation														Remark:		
	Choosing freely (Level 1)		Choosing from alternatives (Level 2)		Choosing after thoughtful consideration of the consequences of each alternative (Level 3)		Cherishing, being happy with the choice (Level 4)		Willing to affirm the choice publicly (Level 5)		Doing something with the choice (Level 6)		Repeatedly, in some pattern of life (Level 7)				
	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages			
14. Always give the importance and interested in the environmental news from the medias such as radio, television, newspaper, brochure etc. - Yes. - No.	78	86.67	78	86.67	78	86.67	70	78.78	64	71.11	64	71.11	64	71.11	64	71.11	$\bar{X} = 0.57$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	12	13.33	12	13.33	12	13.33	20	22.22	26	28.89	26	28.89	26	28.89	26	28.89	
15. To study about tourism resources conservation from the medias. - Yes. - No.	53	58.89	53	58.89	53	58.89	52	57.78	48	48.89	44	66.67	44	66.67	44	66.67	$\bar{X} = 0.56$ $S.D. = 0.01$ $\sigma^2 = 0.001$
	37	41.11	37	41.11	37	41.11	38	42.22	42	51.11	46	33.33	46	33.33	46	33.33	
16. Accept the opinions from the others persons regarding tourism resources conservation. - Yes. - No.	60	66.67	60	66.67	60	66.67	56	62.22	58	64.44	48	53.37	48	53.37	48	53.37	$\bar{X} = 0.62$ $S.D. = 0.02$ $\sigma^2 = 0.004$
	30	33.33	30	33.33	30	33.33	34	37.78	32	35.56	42	46.67	42	46.67	42	46.67	

Table 4 (Cont.)

Subjects	Criterion of characteristic of valuing in tourism resources conservation														Remark:
	Choosing freely (Level 1)		Choosing from alternatives (Level 2)		Choosing after thoughtful consideration of the consequences of each alternative (Level 3)		Cherishing, being happy with the choice (Level 4)		Willing to affirm the choice publicly (Level 5)		Doing something with the choice (Level 6)		Repeatedly, in some pattern of life (Level 7)		
	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	Numbers	Percentages	
17. Promote the tourists to visit the beauty of the Parks. - Yes. - No.	66	73.33	66	73.33	62	68.89	60	66.67	58	64.44	55	61.11	55	61.11	$\bar{X} = 0.67$ S.D.=0.01 $\sigma^2 = 0.001$
	24	26.67	24	26.67	28	31.11	30	33.33	32	35.56	35	38.89	35	38.89	
18. To be a good sample in tourism resources conservation before and after one's eyes. - Yes. - No.	66	73.33	66	73.33	66	73.33	66	73.33	62	68.89	56	68.89	56	68.89	$\bar{X} = 0.70$ S.D.=0.01 $\sigma^2 = 0.001$
	24	26.67	24	26.67	24	26.67	24	26.67	28	31.11	34	31.11	34	31.11	
Total	90	100.0	90	100.0	90	100.0	90	100.0	90	100.0	90	100.0	90	100.0	

* Negative questions

\bar{X} = 0.68
 Standard Deviation (S.D.) = 0.08
 Variance (σ^2) = 0.006
 Minimum = 0
 Maximum = 1

4.2.3.2 Model Behaviors Forming Activity.

This activity is opinion concerning the model behaviors forming. From table 5, it was found that in a before PAR, it was used time 2 days. It was found that most of personnel had fixed model behaviors forming of tourism resources conservation were average 4.37 points at the good level. Consideration each personnel found that the border patrol police officers had the most opinion concerning the model behaviors forming of tourism resources conservation were average 4.58 points at the good level, the tourists were average 4.46 points at the good level, and the fishermen leader were average 4.06 points at the good level respectively. Next to the commanders with preferred behaviors are used as this model behaviors so that the people may acknowledge and do the same in model behaviors by behavioral practice activity.

Table 5 Percentages of Opinion Concerning the Model Behaviors Forming.

Subjects	Fixed Model Behaviors Level					\bar{X}	S.D.	σ^2
	Excellent	Good	Un certain	Not good	Not very good			
1. Cooperation well in any activities on tourism resources conservation.	50.0	36.67	11.11	2.22	0.0	4.34	0.76	0.58
2. Always buy the souvenirs that made from the natural resources of that tourist place.*	0.0	3.33	11.11	33.33	53.33	4.40	0.81	0.65
3. Always travel to the natural parks such as waterfall, beach, sea, cave and mountain.	57.78	30.0	10.0	2.22	0.0	4.43	0.76	0.57
4. Choose the natural tourist places where are popular without caring about the crowd.*	0.0	8.89	8.89	44.44	37.78	4.11	0.90	0.80
5. Travel in the natural place for amusement.*	0.0	7.78	8.89	41.11	42.22	4.18	0.89	0.79

Table 5 (Cont.)

Subjects	Fixed Model Behaviors Level					\bar{X}	S.D.	σ^2
	Excellent	Good	Un certain	Not good	Not very good			
6. No need any unnecessary facilities and over need in traveling each time.	47.78	35.56	10.0	6.67	0.0	4.24	0.89	0.78
7. Tell the tourists and other persons to keep clean by not throwing the garbage away in the tourist places.	58.89	32.22	7.78	1.11	0.0	4.49	0.69	0.42
8. Need to study the nature/living standard/local culture of the tourist places where you have visited.	58.89	26.68	12.22	2.22	0.0	4.42	0.79	0.62
9. Not pay attention and against the regulations of that tourist place.*	0.0	0.0	6.67	28.89	64.44	4.58	0.61	0.37
10. Take the garbage such as food containing, plastic bags into the natural tourist attractions.*	2.22	5.56	8.89	24.44	58.89	4.32	1.0	0.99
11. Throw the garbage into the garbage bins that are provided only.	68.89	24.44	6.67	0.0	0.0	4.62	0.61	0.36

Table 5 (Cont.)

Subjects	Fixed Model Behaviors Level					\bar{X}	S.D.	σ^2
	Excellent	Good	Un certain	Not good	Not very good			
12. Follow the bad behaviors in destroy the places and natural resources and report to the officer when you see it.	55.56	34.44	10.0	0.0	0.0	4.46	0.67	0.44
13. To be avoid the payment on service/entrance fee to that tourist places.*	0.0	0.0	15.56	20.0	64.44	4.49	0.75	0.56
14. Always give the importance and interested in the environmental news from the medias such as radio, television, newspaper, brochure etc.	53.33	28.89	15.56	2.22	0.0	4.33	0.82	0.66
15. To study about tourism resources conservation from the medias.	46.67	35.56	13.33	2.22	0.0	4.20	0.78	0.61
16. Accept the opinions from the others persons regarding the tourism resources conservation.	45.56	35.56	16.67	2.22	0.0	4.24	0.81	0.65

Table 5 (Cont.)

Subjects	Fixed Model Behaviors Level					\bar{X}	S.D.	σ^2
	Excellent	Good	Un certain	Not good	Not very good			
17. Promote the tourists to visit the beauty of the Parks.	53.33	32.22	12.22	2.22	0.0	4.37	0.78	0.61
18. To be a good sample in tourism resources conservation before and after one's eyes.	57.78	31.11	8.89	2.22	0.0	4.44	0.75	0.55

* Negative questions

Mean (\bar{X})	=	4.37
Standard Deviation (S.D.)	=	0.13
Variance (σ^2)	=	0.01
Minimum	=	1
Maximum	=	5
Skewness	=	-0.11
Kurtosis	=	-0.35

4.2.3.3 Behavioral Practice Activity.

Researcher has cooperated with the administrators of the Park and Police Lieutenant Colonel Changsuwan P., Chief of the Sirindhorn International Environmental Park project are followed up behavioral practice of tourism resources conservation by observing behavior. It was used time 60 days.

From table 6, it was found that in an after PAR, most of personnel had behavioral practice of tourism resources conservation were average 3.15 points at the good level. Consideration each personnel found that the administrators had the most behavioral practice of tourism resources conservation were average 3.77 points at the good level, border patrol police officers were average 3.43 points at the good level, the tourists were average 2.69 points at the good level, and the fishermen leaders were average 2.69 points at the good level respectively.

Table 6 Means of the Behavioral Practice of Tourism Resources Conservation

Statement	Behavioral practice of tourism resources conservation											
	Administrators			Tourists			People in the community (The border patrol police officers)			People out of the community (Fishermen leader)		
	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2
1. Cooperation well in any activities on tourism resources conservation	3.60	0.83	0.68	2.53	0.19	0.03	3.53	0.34	0.11	2.47	0.08	0.006
2. Always buy the souvenirs that made from the natural resources of that tourist place.*	3.93	0.88	0.77	3.47	0.04	0.001	3.80	0.01	0.000	3.07	0.00	0.000
3. Always travel to the natural parks such as waterfall, beach, sea, cave and mountain.	3.60	0.66	0.43	2.40	0.14	0.02	3.53	0.34	0.11	2.93	0.09	0.008
4. Choose the natural tourist places where are popular without caring about the crowd.*	3.73	0.83	0.68	2.73	0.10	0.009	3.40	0.06	0.003	2.67	0.01	0.001
5. Travel in the natural place for amusement.*	3.73	0.80	0.63	3.00	0.07	0.005	3.07	0.08	0.006	3.07	0.01	0.000
6. No need any unnecessary facilities and over need in traveling each time.	3.80	0.78	0.61	3.00	0.21	0.04	3.47	0.25	0.06	3.00	0.07	0.004

Table 6 (Cont.)

Statement	Behavioral practice of tourism resources conservation											
	Administrators			Tourists			People in the community (The border patrol police officers)			People out of the community (Fishermen leader)		
	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2
7. Tell the tourists and other persons to keep clean by not throwing the garbage away in the tourist attractions.	3.83	0.94	0.89	2.60	0.22	0.05	3.60	0.39	0.15	1.93	0.07	0.004
8. Need to study the nature/living standard/local culture of the tourist places where you have visited.	3.87	0.95	0.89	2.40	0.21	0.04	3.2	0.32	0.10	2.53	0.08	0.005
9. Not pay attention and against the regulations of those tourist attractions.*	3.90	0.98	0.96	2.73	0.11	0.01	3.60	0.04	0.001	2.47	0.01	0.000
10. Take the garbage such as food containing, plastic bags into the natural tourist attractions.	3.93	0.97	0.94	3.07	0.09	0.008	3.73	0.02	0.000	2.60	0.00	0.000
11. Throw the garbage into the garbage bins that are provided only.	3.97	0.97	0.94	2.87	0.26	0.06	3.73	0.37	0.13	2.60	0.09	0.007

Table 6 (Cont.)

Statement	Behavioral practice of tourism resources conservation											
	Administrators			Tourists			People in the community (The border patrol police officers)			People out of the community (Fishermen leader)		
	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2
12. Follow the bad behaviors in destroy the places and natural resources and report to the officer when you see it.	3.93	1.04	1.09	2.40	0.23	0.05	3.53	0.34	0.11	2.33	0.77	0.005
13. To be avoid the payment on service/entrance fee to that tourist places.*	4.00	0.45	0.20	3.53	0.02	0.000	3.87	0.01	0.000	3.73	0.00	0.000
14. Always give the importance and interested in the environmental news from the medias such as radio, television, newspaper, brochure etc.	3.60	0.87	0.75	2.27	0.18	0.03	3.07	0.30	0.09	2.40	0.07	0.004
15. To study about tourism resources conservation from the medias.	3.83	0.98	0.96	1.40	0.13	0.015	2.60	0.29	0.08	2.27	0.06	0.003
16. Accept the opinions from the others persons regarding tourism resources conservation.	3.07	0.90	0.80	3.53	0.29	0.08	3.53	0.45	0.20	3.63	0.15	0.02
17. Promote the tourists to visit the beauty of the Parks.	3.80	0.97	0.93	2.27	0.20	0.04	3.00	0.31	0.09	2.40	0.07	0.004

Table 6 (Cont.)

Statement	Behavioral practice of tourism resources conservation											
	Administrators			Tourists			People in the community (The border patrol police officers)			People out of the community (Fishermen leader)		
	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2
18. To be a good sample in tourism resources conservation before and after one's eyes.	3.93	1.04	1.08	2.27	0.22	0.04	3.60	0.37	0.13	2.40	0.08	0.006

* Negative questions

\bar{X} = 3.15
 Standard Deviation (S.D.) = 0.28
 Variance (σ^2) = 0.07
 Minimum = 0
 Maximum = 4
 Skewness = 0.06
 Kurtosis = 0.58

4.3 Post-Research Phase

4.3.1 Post-Test After PAR

4.3.1.1 Testing, Comparative and Correlation among the Knowledge of Tourism Resources Conservation between Before PAR and After PAR.

From table 7, it was found that in an after PAR, most of personnel had more knowledge of tourism resources conservation were average 21.43 points at the high level. The range of knowledge score was 15 to 24 from the full score of 24. From table 8, when T-test was used for analysis, it was found that knowledge of tourism resources conservation before and after PAR were statistically different at the 0.05 level. And Pearson's correlation coefficient was used for correlation, it was found that the tourism resources conservation related knowledge before and after the PAR were statistical significance at the 0.001 level ($r = 0.6940$; $p < 0.001$), which had positive correlation at a nearly high level (69.40%).

Table 7 Percentages of Knowledge of Tourism Resources Conservation Before and After PAR.

Subjects	Before PAR		After PAR	
	Numbers	Percentage	Numbers	Percentage
1. Tourism is infinite resource because it is non-wasteful resource.* - Yes. - No.	48 42	53.33 46.67	10 80	11.11 88.89
2. Tourism resource means the natural tourism resource only.* - Yes. - No.	47 43	52.22 47.78	9 81	10.0 90.0
3. The natural tourism resource in naturally means mountain, mangrove forest, waterfall, etc. - Yes. - No.	65 25	72.22 27.78	85 5	94.44 5.56
4. Place or human made including the living, culture and tradition are one type of the tourism resources. - Yes. - No.	53 37	58.89 41.11	77 13	85.56 14.44

Table 7 (Cont.)

Subjects	Before PAR		After PAR	
	Numbers	Percentage	Numbers	Percentage
5. Tourism resource is as though capital of industrial production of tourism. If it is destroyed, tourism must be concerned. - Yes. - No.	61 29	67.78 32.22	80 10	89.89 11.11
6. To facilitate and service in order to support the numbers of tourist in the tourist attractions by not affecting to the tourism resources.* - Yes. - No.	56 34	62.22 37.78	11 79	12.22 87.78
7. Natural resource and environmental conservation in the tourist attractions is to keep the resources the best by not using it.* - Yes. - No.	51 39	56.67 43.33	14 76	15.56 84.44
8. The principle of tourism resource conservation is to utilize them and in long duration. - Yes. - No.	64 26	71.11 28.89	83 7	92.22 7.78
9. Tourism resources conservation is a duty of officer or concern persons.* - Yes. - No.	20 70	22.22 77.78	2 88	2.22 97.78
10. There are many tourism resources to be used and no need to be recycled.* - Yes. - No.	48 42	53.23 46.67	9 81	10.0 90.0

Table 7 (Cont.)

Subjects	Before PAR		After PAR	
	Numbers	Percentage	Numbers	Percentage
11. It is necessary to follow all the regulations of each tourist attraction.				
- Yes.	75	83.33	75	83.33
- No.	15	16.67	15	16.67
12. To keep the tourism resource is one way to conserve tourism resources.				
- Yes.	61	67.78	82	91.11
- No.	29	32.22	8	8.89
13. The number of tourist and population who visit the place is a factor that has changed the natural environment in the tourist attractions.				
- Yes.	46	51.11	75	83.33
- No.	44	48.89	15	16.67
14. Garbage in the tourist attractions will decrease the beauty of tourist place.				
- Yes.	78	66.67	88	97.78
- No.	12	33.33	2	2.22
15. The natural resource of mangrove forest is the very important to the residential system because it is the living place, laying an egg and reproducing of aquatic animals.				
- Yes.	48	53.33	76	84.44
- No.	42	48.67	14	15.56
16. To destroy a few mangrove forests for utilization does not damage to the residential system.*				
- Yes.	39	43.33	9	10.0
- No.	51	56.67	81	90.0

Table 7 (Cont.)

Subjects	Before PAR		After PAR	
	Numbers	Percentage	Numbers	Percentage
17. Another way to conserve the mangrove forest is to plant and rehabilitate the bad mangrove forest back to original condition. - Yes. - No.	73 17	81.11 18.89	85 5	94.44 5.56
18. To leave a few garbage in the mangrove forest area doesn't affect to the residential system of mangrove forest.* - Yes. - No.	28 62	31.11 68.89	7 83	7.78 92.22
19. Another way to revive natural resources is not to disturb and catch the aquatic animals in the mangrove forest areas. - Yes. - No.	66 24	73.33 26.67	84 6	93.33 6.67
20. The environmental change such as the increasing and decreasing of the sea and level of salt-water in the mangrove forest has affected to the growth of some plants in that area. - Yes. - No.	39 51	43.33 56.67	79 11	87.78 12.22
21. The good land for planting mangroves must be in the muddy land with full of water. - Yes. - No.	47 43	52.22 47.78	79 11	87.78 12.22
22. The old aged of seed in pod of mangrove, which is reddish on its pole, is the selected type for planting in mangrove land. - Yes. - No.	43 47	47.78 52.22	76 14	84.44 15.56

Table 7 (Cont.)

Subjects	Before PAR		After PAR	
	Numbers	Percentage	Numbers	Percentage
23. The suitable space between one plant to the other one should be 0.5 X 0.5 meter.* - Yes. - No.	61 29	67.78 32.22	18 72	20.0 80.0
24. The enemies of mangrove forest are pest insect such as Lappet moths, Bag-worm moths, Fire flies, Leaf-eating and caterpillar and foe plants such as <i>Acrostichum aureum</i> , <i>Acanthus spp.</i> , <i>Derris trifoliata</i> and many creepers etc. - Yes. - No.	69 21	76.67 23.33	84 6	93.33 6.67
Total	90	100.0	90	100.0

* Negative questions

	<u>Before PAR</u>		<u>After PAR</u>
Mean (\bar{X})	= 14.80	Mean (\bar{X})	= 21.43
Standard Deviation (S.D.)	= 1.50	Standard Deviation (S.D.)	= 1.81
Variance (σ^2)	= 2.24	Variance (σ^2)	= 3.29
Minimum	= 6	Minimum	= 15
Maximum	= 21	Maximum	= 24

Table 8 Comparative and Correlation among the Knowledge of Tourism Resources Conservation between Before PAR and After PAR.

The knowledge of tourism resource conservation	Numbers	Mean	Standard Deviation (S.D.)	T-test	Correlation (r)
Pre-test	90	14.80	1.50	26.59*	0.6940**
Post-test	90	21.43	1.81		
N = number of sampling df = 89 *Significance 0.05 **Significance 0.001					

4.3.1.2 Testing, Comparative and Correlation among the Attitude Towards Tourism Resources Conservation between Before PAR and After PAR.

From table 9, it was found that in an after PAR, most of personnel had more attitude towards the tourism resources conservation were average 4.23 points at the high level. From table 10, when T-test was used for analysis, it was found that attitude towards the tourism resources conservation before and after PAR were statistically different at the 0.05 level. And Pearson's correlation coefficient was used for correlation, it was found that the tourism resources conservation related attitude before and after PAR were statistical significance at the 0.001 level ($r = 0.5339$; $p < 0.001$), which had positive correlation at a medium level (53.39%).

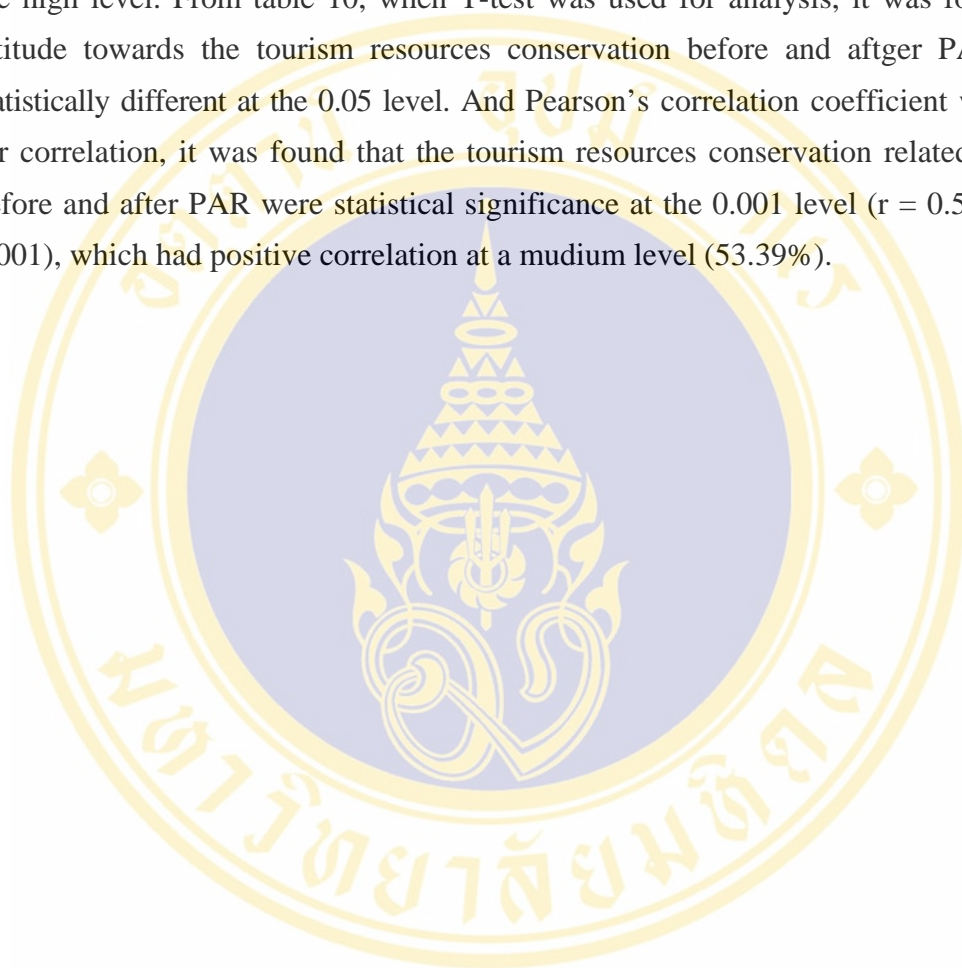


Table 9 Percentages of Attitude Towards Tourism Resources Conservation Before and After PAR.

Subjects	Before PAR						After PAR									
	Attitude Level						Attitude Level									
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	\bar{X}	S.D.	σ^2	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	\bar{X}	S.D.	σ^2
1. It is not necessary to conserve the tourism resource because it is infinite resources.*	8.89	35.56	17.78	27.78	10.0	2.94	1.18	1.36	2.22	8.89	12.22	38.89	37.78	4.02	1.03	1.05
2. To bring undestroyed garbage into the tourist attractions can reduce the work of the officer and has no effects on the environment.*	6.67	14.4	11.11	43.43	24.44	3.64	1.19	1.41	2.22	3.33	6.67	46.67	41.11	4.21	0.88	0.77
3. People have their right to get the benefits from the tourism resources without caution on the bad affection.*	14.44	43.33	22.22	14.11	5.56	2.53	1.08	1.16	2.22	11.11	11.11	46.67	28.89	3.89	1.02	1.03
4. Buildings, which are located in the tourism resources, must concern with the natural condition and not locate in the line of sight of the beautiful nature.	16.67	35.56	22.22	18.89	6.67	3.37	1.16	1.34	41.11	41.11	8.89	6.67	2.22	4.12	0.98	0.96
5. Disregard of environment such as uncleanness, stuffy room reduces the beauty of tourist attractions.	14.44	45.56	8.89	14.44	6.67	3.65	1.18	1.4	40.0	51.11	4.44	3.33	1.11	4.26	0.78	0.61

Table 9 (Cont.)

Subjects	Before PAR						After PAR									
	Attitude Level						Attitude Level									
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	— X	S.D.	σ^2	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	— X	S.D.	σ^2
11. The natural manual booklet about what to do or prohibit as well as the recommendations for each tourist attraction are needed.	20.0	26.67	31.11	17.78	4.44	3.40	1.12	1.26	35.56	50.0	8.89	5.56	0.0	4.16	0.80	0.64
12. Others more facilities such as food center, the shelter of rest should be provided for the tourists.	36.67	30.0	20.0	8.89	4.44	3.86	1.14	1.30	53.33	37.78	5.56	3.33	0.0	4.41	0.74	0.55
13. The tourists should throw the garbage in the garbage bin only.	40.0	28.89	16.68	12.22	2.22	3.92	1.12	1.24	53.33	42.22	4.44	2.22	0.0	4.53	0.69	0.48
14. The recommendations and operation to conserve the tourism resources by people or tourists will make them care about that tourist sight.	22.22	33.33	20.0	8.89	5.56	3.78	1.22	1.48	48.89	42.22	6.67	2.22	0.0	4.38	0.71	0.50
15. If the tourists see the garbage in that area, they will not have good impression and want to return to that place again.	31.11	40.0	13.33	11.11	4.44	3.82	1.12	1.25	42.22	46.67	7.78	2.22	1.11	4.27	0.79	0.61

Table 9 (Cont.)

Subjects	Before PAR					After PAR										
	Attitude Level					Attitude Level										
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree						
16. To increase the numbers of mangrove forests will affect to the increasing numbers of aquatic animals and birds etc. in mangrove areas.	28.89	33.33	22.22	11.11	4.44	3.71	1.13	1.27	44.44	45.56	6.67	3.33	0.0	4.31	0.74	0.54
17. To keep and conserve the mangrove forest should be the duty of the officer only.*	2.22	11.11	18.89	30.0	37.78	3.90	1.10	1.20	0.0	1.11	6.67	41.11	51.11	4.42	0.67	0.44
18. The environment should be adjusted when the sea blows sand over Pak Klong Bangkra Yai.	28.89	31.11	26.67	8.89	4.44	3.71	1.11	1.22	47.78	40.0	11.11	1.11	0.0	4.34	0.72	0.51
19. The embankment should be built for solving the problem of sea sand blowing over Pak Klong Bangkra Yai.	13.33	31.11	34.44	13.33	7.78	3.29	1.10	1.20	36.67	45.56	13.33	4.44	0.0	4.14	0.81	0.65

Table 9 (Cont.)

Subjects	Before PAR					After PAR										
	Attitude Level					— X	S.D.	σ ²	Attitude Level			— X	S.D.	σ ²		
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree				Strongly Agree	Agree	Un certain				Dis agree	Strongly Disagree
20. To enter into the mangrove forest will annoy the aquatic animals that are living, laying an egg or cultivation in the mangrove forest.	37.78	33.33	17.78	6.67	2.22	3.91	1.01	1.03	48.89	44.44	4.44	2.22	0.0	4.40	0.68	0.46
21. To select the land for planting each mangrove must think about each land for that particular plant.	15.56	38.89	26.67	12.22	6.67	3.44	1.10	1.20	33.33	47.78	14.44	4.44	0.0	4.10	0.80	0.64
22. The old aged of seed in pod of mangrove is good to be selected for planting or using the growing of young plant in the natural forest.	24.44	33.33	16.67	11.11	4.44	3.62	1.10	1.21	44.44	44.44	7.78	3.33	0.0	4.30	0.75	0.56

Table 9 (Cont.)

Subjects	Before PAR					After PAR										
	Attitude Level					S.D.	σ^2	Attitude Level								
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree			Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree				
23. It is necessary to plant the mangrove next to each other and not thinking about the length between each one in order to increase the numbers of mangrove trees.*	15.56	28.89	20.0	24.44	11.11	2.87	1.26	1.58	3.33	5.56	13.33	44.44	33.33	3.99	0.99	0.96
24. No need to conserve an insect and foe plants because they have no enemy.*	6.67	22.22	14.44	30.0	16.67	3.28	1.17	1.37	1.11	4.44	12.22	42.22	40.0	4.16	0.86	0.73

* Negative questions

<u>Before PAR</u>						<u>After PAR</u>										
Mean (\bar{X})	=	3.51				Mean (\bar{X})	=	4.23								
Standard Deviation (S.D.)	=	0.37				Standard Deviation (S.D.)	=	0.16								
Variance (σ^2)	=	0.13				Variance (σ^2)	=	0.026								
Minimum	=	1				Minimum	=	1								
Maximum	=	5				Maximum	=	5								
Skewness	=	-1.10				Skewness	=	-0.27								
Kurtosis	=	0.32				Kurtosis	=	-0.55								

Table 10 Comparative and Correlation among the Attitude Towards Tourism Resources Conservation between Before PAR and After PAR.

The attitude towards tourism resource conservation	Numbers	Mean	Standard Deviation (S.D.)	T-test	Correlation (r)
Pre-test	90	3.51	0.37	20.78*	0.5339**
Post-test	90	4.23	0.16		

N = number of sampling df = 89 *Significance 0.05 **Significance 0.001

4.3.1.3 Testing, Comparative and Correlation among the Knowledge of Ecotourism between Before PAR and After PAR.

From table 11, it was found that in an after PAR, most of personnel had more knowledge of ecotourism were average 21.8 points at the high level. The range of knowledge score was 12 to 23 from the full score of 24. From table 12, when T-test was used for analysis, it was found that knowledge of ecotourism before and after PAR were statistically different at the 0.05 level. And Pearson's correlation coefficient was used for correlation, it was found that the ecotourism related knowledge before and after PAR were statistical significance at the 0.001 level ($r = 0.8657$; $p < 0.001$), which had positive correlation at a high level (86.57%).

Table 11 Percentages of Knowledge of Ecotourism Before and After PAR.

Subjects	Before PAR		After PAR	
	Numbers	Percentage	Numbers	Percentage
1. Tourism is the industry that does not affect to the natural resources and environment.*				
- Yes.	29	32.22	2	2.22
- No.	61	67.78	88	97.78
2. The reason that causes the depreciation in value is a result of the rapid expansion of tourism industry.				
- Yes.	58	64.44	83	92.22
- No.	32	35.56	7	7.78

Table 11 (Cont.)

Subjects	Before PAR		After PAR	
	Numbers	Percentage	Numbers	Percentage
3. The development of tourism does not affect and change the residential system because of the improvement in its system.* - Yes. - No.	56 34	62.22 37.78	7 83	7.78 92.22
4. To limit the number of tourists is a suitable way to support the tourists in each place. - Yes. - No.	49 41	54.44 45.56	82 8	91.11 8.89
5. The good principle of tourism is not to leave anything except their footprint and not to take anything from except the memory of that place. - Yes. - No.	61 29	67.78 32.22	88 2	97.78 2.22
6. The irresponsibility of tourists and people are damaged to the tourist attraction. - Yes. - No.	71 19	78.89 21.11	87 3	97.67 3.33
7. To keep the tourist attraction clean is the duty of the officer or the person who is responsible in that place only.* - Yes. - No.	20 70	22.22 77.78	4 86	4.44 95.56
8. Buying the souvenir, which is made of the natural resources, is a way to support the income to that tourist attraction.* - Yes. - No.	38 52	42.22 57.78	8 82	8.89 91.11

Table 11 (Cont.)

Subjects	Before PAR		After PAR	
	Numbers	Percentage	Numbers	Percentage
9. To take many tourists into the tourist attraction in the same time is good for that tourist attraction.* - Yes. - No.	64 26	71.11 28.89	10 80	11.11 88.89
10. To give the knowledge on environment to the tourists is unnecessary because the tourists want to enjoy only.* - Yes. - No.	30 60	3.33 66.67	7 83	7.78 92.22
11. The ecotourism is one measure to conserve the natural tourism resources. - Yes. - No.	53 37	58.89 4.11	82 8	91.11 8.89
12. Ecotourism is natural and cultural tourism with educational and recreational purposes through the nature and environments of such ecosystem. The local people are to participate and gain the most from tourism activities in order to establish awareness for of sustainable ecosystem conservation. - Yes. - No.	55 35	61.11 38.89	82 8	91.11 8/89
13. Planning ecotourism management in tourism place should be duty of only official manager in order to same standard.* - Yes. - No.	70 20	77.78 22.22	9 81	10.0 90.0

Table 11 (Cont.)

Subjects	Before PAR		After PAR	
	Numbers	Percentage	Numbers	Percentage
14. Facilities in the tourist attractions are very important thing in the ecotourism.*				
- Yes.	54	60.0	8	8.89
- No.	36	40.0	82	91.11
15. The ecotourism can help tourism resources conservation together with the economic development of the country.				
- Yes.	58	64.44	84	93.33
- No.	32	35.56	6	6.67
16. The ecotourism has less effecting to the environment than another tourism.				
- Yes.	53	58.89	77	85.56
- No.	37	41.11	13	14.44
17. The ecotourism will maintain the good quality of the tourist attraction and the good quality of the local people.				
- Yes.	56	62.22	81	90.0
- No.	34	37.78	9	10.0
18. The tourists will get the knowledge from the ecotourism and be satisfied from the experiences in traveling.				
- Yes.	59	65.56	82	91.11
- No.	31	34.44	8	8.89
19. The ecotourism will decrease the effect of the industrial development in tourism.				
- Yes.	58	64.44	80	88.89
- No.	32	35.56	10	11.11

Table 11 (Cont.)

Subjects	Before PAR		After PAR	
	Numbers	Percentage	Numbers	Percentage
20. The necessity of protection the natural tourism resources is to give the knowledge, understanding and making only one tourist group appreciate to conserve the tourism.*				
- Yes.	36	40.0	7	7.78
- No.	54	60.0	83	92.22
21. The good effect to the local people and the tourist attractions in ecotourism is the large numbers of tourists.*				
- Yes.	48	53.33	8	8.89
- No.	42	46.67	82	91.11
22. To promote, public relations and give the knowledge are the most important factor of the ecotourism.				
- Yes.	53	58.89	87	96.67
- No.	37	41.11	3	3.33
23. Training the local people as tour guide in the tourist attraction is a way to bring the benefit of the tourist attraction to the local people.				
- Yes.	56	62.22	85	94.44
- No.	34	37.78	5	5.56
24. The expenses to maintain the environment of that tourist place are from the income of ecotourism.				
- Yes.	54	60.0	83	92.22
- No.	36	40.0	7	7.78
Total	90	100.0	90	100.0

* Negative questions

<u>Before PAR</u>		<u>After PAR</u>	
Mean (\bar{X})	= 13.87	Mean (\bar{X})	= 22.14
Standard Deviation (S.D.)	= 1.56	Standard Deviation (S.D.)	= 0.36
Variance (σ^2)	= 2.44	Variance (σ^2)	= 0.14
Minimum	= 7	Minimum	= 17
Maximum	= 19	Maximum	= 24

Table 12 Comparative and Correlation among the Knowledge of Ecotourism between Before PAR and After PAR.

The knowledge of ecotourism	Numbers	Mean	Standard Deviation (S.D.)	T-test	Correlation (r)
Pre-test	90	13.87	1.56	51.39*	0.8657**
Post-test	90	22.14	0.36		
N = number of sampling df = 89 *Significance 0.05 **Significance 0.001					

4.3.1.4 Testing, Comparative and Correlation among the Attitude Towards Ecotourism between Before PAR and After PAR.

From table 13, it was found that in an after PAR, most of personnel had more attitude towards ecotourism were average 4.33 points at the high level. From table 14, when T-test was used for analysis, it was found that attitude towards ecotourism before and after PAR were statistically different at the 0.05 level. And Pearson's correlation coefficient was used for correlation, it was found that the ecotourism related attitude towards ecotourism before and after PAR were statistical significance at the 0.001 level ($r = 0.9128$; $p < 0.001$). Attitude towards ecotourism had positive correlation at a high level (91.28%).

Table 13 Percentages of Attitude Towards Ecotourism Before and After PAR.

Subjects	Before PAR						After PAR									
	Attitude Level					\bar{X}	S.D.	σ^2	Attitude Level					\bar{X}	S.D.	σ^2
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree				Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree			
1. In general, the environment in the Park is still very beautiful nature.	20.0	44.44	22.22	11.11	2.22	3.69	0.96	0.97	40.0	43.33	11.11	5.56	0.0	4.18	0.84	0.7
2. The management of ecotourism in the tourist place must not affect to the natural resources and environment in the tourist attraction.	13.33	33.33	32.22	13.33	7.78	3.31	1.1	1.21	41.11	27.78	15.56	3.33	2.22	4.12	0.94	0.88
3. The local people must corporate with the management of ecotourism and get the benefit from the activities of those tourist attractions.	13.33	20.0	35.56	24.44	6.67	3.09	1.11	1.23	40.0	32.22	16.67	8.89	2.22	3.99	1.06	1.12

Table 13 (Cont.)

Subjects	Before PAR						After PAR									
	Attitude Level					\bar{X}	S.D.	σ^2	Attitude Level					\bar{X}	S.D.	σ^2
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree				Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree			
4. The format of ecotourism should be facilitate to be the stable in economy, social and environment by affecting at least to the environment.	13.33	35.56	22.78	15.56	7.78	3.31	1.12	1.25	38.89	43.33	10.0	5.56	2.22	4.11	0.96	0.89
5. The travel management must be responsible in morality to the environment.	13.33	31.11	31.11	13.33	11.11	2.22	1.17	1.37	42.22	42.22	8.89	4.44	2.22	4.18	0.93	0.85
6. Others facilities such as food center, accommodation, ect. are needed to the increasing numbers of tourists.	26.67	31.11	15.56	20.0	6.67	2.49	1.26	1.58	5.56	8.89	15.56	35.56	34.44	3.84	1.15	1.33
7. You are satisfied to see many tourists visit in the tourist attractions.	25.56	27.78	17.78	12.22	6.67	2.27	1.25	1.56	3.33	6.67	13.33	33.33	43.33	4.07	1.15	1.33

Table 13 (Cont.)

Subjects	Before PAR						After PAR									
	Attitude Level						Attitude Level									
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	— X	S.D.	σ^2	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	— X	S.D.	σ^2
8. The numbers of tourists should be limited according to the appropriate of the tourist attractions in order to be able to greetings the numbers of tourists and to maintain the beauty of the nature.	6.67	12.22	16.67	30.0	44.44	2.47	1.31	1.72	41.11	36.67	14.44	5.56	2.22	4.09	0.96	0.97
9. The development of facilities should be related to the nature and environment in the tourist attraction.	13.33	24.44	33.33	20.0	8.89	3.13	1.15	1.31	45.56	32.22	13.33	7.78	2.72	4.14	1.04	1.09
10. The comfortable shelters of rest should be prepared and service for the tourists.	37.78	27.78	17.78	12.22	4.44	2.18	1.19	1.41	2.22	6.67	11.11	38.89	41.11	4.1	0.99	0.97
11. You want to study more about the natural tourism in the tourist attractions.	17.78	26.67	40.0	11.11	4.44	3.42	1.04	1.08	42.22	38.89	13.33	4.44	1.11	4.17	0.9	0.8
12. You want to study more about the cultural tourism in the tourist attractions.	17.78	14.44	37.78	13.33	6.67	3.33	1.12	1.24	38.89	36.67	16.67	6.67	1.11	4.05	0.96	0.91

Table 13 (Cont.)

Subjects	Before PAR						After PAR									
	Attitude Level						Attitude Level									
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	\bar{X}	S.D.	σ^2	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	\bar{X}	S.D.	σ^2
13. Others activities concerning the tourism such as bird watching, rowing canoe, bicycle riding, etc. should be more prepared.	34.44	25.56	26.67	11.11	2.22	3.79	1.1	1.21	44.44	38.89	13.33	2.22	1.11	4.23	0.84	0.71
14. Training for the local people to be knowledgeable and able to guide the travelers to visit in the tourist attractions.	20.0	35.56	31.11	8.89	4.44	3.58	1.04	1.08	43.33	40.0	13.33	3.33	1.11	4.24	0.87	0.76
15. The sign for communicating on the nature in the tourist places should be prepared for the knowledge of tourists on those tourism resources.	26.67	31.11	26.67	13.33	2.22	3.67	1.07	1.15	41.11	40.0	13.33	4.44	1.11	4.15	0.89	0.79
16. There should be the recommendation or preliminary discussions about the right regulations to the tourists before they visit in the Park.	26.67	31.11	28.89	11.11	2.22	3.69	1.05	1.1	44.44	38.89	13.33	2.22	1.11	4.23	0.84	0.71

Table 13 (Cont.)

Subjects	Before PAR						After PAR									
	Attitude Level					\bar{X}	S.D.	σ^2	Attitude Level					\bar{X}	S.D.	σ^2
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree				Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree			
17. The natural study manual booklet for the tourists should be prepared for studying the tourist place before and after visiting.	22.22	26.67	33.33	13.33	4.44	3.43	1.11	1.22	46.67	37.78	11.11	3.33	1.11	4.25	0.86	0.74
18. The natural interpretation should be prepared in the tourist place in order to facilitate and make them study the nature of the tourist places.	24.44	31.11	28.89	13.33	2.22	3.62	1.06	1.12	42.22	42.22	12.22	2.22	1.11	4.22	0.83	0.68
19. The income from the ecotourism should be spread more to the local people.	22.22	28.89	28.89	13.33	6.67	3.47	1.17	1.36	30.0	31.11	11.11	5.56	2.22	4.21	0.99	0.96

Table 13 (Cont.)

Subjects	Before PAR						After PAR									
	Attitude Level						Attitude Level									
	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	\bar{X}	S.D.	σ^2	Strongly Agree	Agree	Un certain	Dis agree	Strongly Disagree	\bar{X}	S.D.	σ^2
20. A part of income by collecting from entrance fee should be paid for the maintenance the tourist place.	33.33	26.67	26.67	8.89	4.44	3.76	1.14	1.29	57.78	31.11	8.89	2.22	0	4.44	0.72	0.51

* Negative questions

Before PAR

Mean (\bar{X})

=

2.70

=

4.33

Standard Deviation (S.D.)

=

0.74

=

0.12

Variance (σ^2)

=

0.54

=

0.13

Minimum

=

1

=

1

Maximum

=

5

=

5

Skewness

=

1.06

=

-0.15

Kurtosis

=

-1.59

=

1.19

After PAR

Table 14 Comparative and Correlation among the Attitude Towards Ecotourism between Before PAR and After PAR.

The attitude towards ecotourism	Numbers	Mean	Standard Deviation (S.D.)	T-test	Correlation (r)
Pre-test	90	2.70	0.74	22.01*	0.9128**
Post-test	90	4.33	0.12		
N = number of sampling df = 89 *Significance 0.05 **Significance 0.001					

4.3.2 Participation

Researcher observed and took a note about the activities on personnel's participation of the implementation others project are as follows:

4.3.2.1 Tourism Resource Learning and Conservative Project (Table 15).

1) Consultation: administrators had participated on a high level ($\bar{X}= 2.90$), the border patrol police officers had participated on a medium level ($\bar{X}= 2.40$), fishermen leader had participated on a low level ($\bar{X}= 1.60$), and tourists had participated on a low level ($\bar{X}= 1.40$) respectively.

2) Planning: administrators had participated on a high level ($\bar{X}= 2.60$), the border patrol police officers had participated on a medium level ($\bar{X}= 2.27$), fishermen leader had participated on a low level ($\bar{X}= 1.53$), and tourists had participated on a low level ($\bar{X}= 1.27$) respectively.

3) Decision making: administrators had participated on a high level ($\bar{X}= 2.83$), the border patrol police officers had participated on a low level ($\bar{X}= 1.53$), fishermen leader had participated on a low level ($\bar{X}= 1.27$), and tourists had participated on a low level ($\bar{X}= 1.27$) respectively.

4) Learning: fishermen leader had participated on a high level ($\bar{X}= 2.80$), the border patrol police officers had participated on a high level ($\bar{X}= 2.60$), tourists had participated on a medium level ($\bar{X}= 2.20$), and administrators had participated on a medium level ($\bar{X}= 2.00$) respectively.

5) To prepare areas and equipments: the border patrol police officers had participated on a high level ($\bar{X}= 2.70$), administrators had participated on

a high level ($\bar{X}= 2.60$), fishermen leader had participated on a low level ($\bar{X}= 1.60$), and tourists had participated on a low level ($\bar{X}= 1.40$) respectively.

6) Mangrove forest plantation implementation: the border patrol police officers had participated on a high level ($\bar{X}= 2.53$), fishermen leader had participated on a high level ($\bar{X}= 2.47$), administrators had participated on a medium level ($\bar{X}= 2.27$), and tourists had participated on a medium level ($\bar{X}= 1.73$) respectively.

7) Maintenance: the border patrol police officers had participated on a high level ($\bar{X}= 2.67$), administrators had participated on a medium level ($\bar{X}= 2.20$), fishermen leader had participated on a medium level ($\bar{X}= 1.70$), and tourists had participated on a low level ($\bar{X}= 1.50$) respectively.

8) Environmental adjustment in Pak Klong Bangkra Yai implementation: the border patrol police officers had participated on a high level ($\bar{X}= 2.67$), fishermen leader had participated on a high level ($\bar{X}= 2.67$), administrators had participated on a medium level ($\bar{X}= 2.20$), and tourists had participated on a low level ($\bar{X}= 1.47$) respectively.

9) Keeping clean implementation: the border patrol police officers had participated on a high level ($\bar{X}= 2.67$), administrators had participated on a medium level ($\bar{X}= 2.20$), fishermen leader had participated on a medium level ($\bar{X}= 1.80$), and tourists had participated on a low level ($\bar{X}= 1.40$) respectively.

10) Evaluation: the border patrol police officers had participated on a high level ($\bar{X}= 2.67$), fishermen leader had participated on a high level ($\bar{X}= 2.67$), administrators had participated on a medium level ($\bar{X}= 2.33$), and tourists had participated on a medium level ($\bar{X}= 2.00$) respectively.

Table 15 Means of the Participation in Tourism Resources Conservation of Implementation Project.

Statement	Participation Level											
	Administrators			Tourists			People in the community (The border patrol police officers)			People out of the community (Fishermen leader)		
	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2
1. Consultation	2.90	0.32	0.10	1.40	0.70	0.49	2.40	0.52	0.27	1.60	0.70	0.49
2. Planning	2.60	0.51	0.26	1.27	0.46	0.21	2.27	0.46	0.21	1.53	0.52	0.27
3. Decision making	2.83	0.35	0.12	1.27	0.46	0.21	1.53	0.52	0.27	1.27	0.46	0.21
4. Learning	2.00	0.56	0.31	2.20	0.57	0.32	2.60	0.58	0.34	2.80	0.56	0.31
5. To prepare areas and equipments	2.60	0.52	0.27	2.40	0.52	0.27	2.70	0.42	0.23	1.60	0.70	0.49
6. Mangrove forest plantation implementation	2.27	0.46	0.21	1.73	0.70	0.50	2.53	0.52	0.27	2.47	0.52	0.27
7. Maintenance	2.20	0.42	0.28	2.50	0.71	0.50	2.60	0.52	0.27	2.70	0.82	0.68
8. Environmental adjustment in Pak Klong Bangkra Yai implementation	2.20	0.41	0.17	1.47	0.64	0.41	2.67	0.49	0.24	2.67	0.49	0.24
9. Keeping clean implementation	2.20	0.41	0.17	1.40	0.63	0.40	2.67	0.49	0.24	1.80	0.68	0.46
10. Evaluation	2.33	0.58	0.33	2.00	0.42	0.18	2.67	0.58	0.33	2.67	0.58	0.33
Total	2.43	0.30	0.09	1.76	0.47	0.22	2.46	0.35	0.12	1.94	0.59	0.35

4.3.2.2 Educational Project on the Ecotourism (Table 16).

1) Consultation: administrators had participated on a high level ($\bar{X}= 2.80$), the border patrol police officers had participated on a medium level ($\bar{X}= 2.20$), fishermen leader had participated on a low level ($\bar{X}= 1.40$), and tourists had participated on a low level ($\bar{X}= 1.20$) respectively.

2) Planning: administrators had participated on a high level ($\bar{X}= 2.53$), the border patrol police officers had participated on a medium level ($\bar{X}= 2.20$), fishermen leader had participated on a low level ($\bar{X}= 1.47$), and tourists had participated on a low level ($\bar{X}= 1.13$) respectively.

3) Decision making: administrators had participated on a high level ($\bar{X}= 2.80$), the border patrol police officers had participated on a low level ($\bar{X}= 1.40$), fishermen leader had participated on a medium level ($\bar{X}= 1.13$), and tourists had participated on a low level ($\bar{X}= 1.13$) respectively.

4) Learning: fishermen leader had participated on a high level ($\bar{X}= 2.60$), the border patrol police officers had participated on a high level ($\bar{X}= 2.40$), administrators had participated on a medium level ($\bar{X}= 1.80$), and tourists had participated on a low level ($\bar{X}= 1.60$) respectively.

5) To prepare equipment of natural study manual booklet: the border patrol police officers had participated on a high level ($\bar{X}= 2.70$), administrators had participated on a high level ($\bar{X}= 2.50$), fishermen leader had participated on a low level ($\bar{X}= 1.40$), and tourists had participated on a low level ($\bar{X}= 1.20$) respectively.

6) To provide natural study manual booklet implementation: the border patrol police officers had participated on a medium level ($\bar{X}= 2.27$), administrators had participated on a medium level ($\bar{X}= 1.73$), tourists had participated on a low level ($\bar{X}= 1.60$), and fishermen leader had participated on a low level ($\bar{X}= 1.40$) respectively.

7) Evaluation: the border patrol police officers had participated on a high level ($\bar{X}= 2.67$), fishermen leader had participated on a high level ($\bar{X}= 2.67$), administrators had participated on a medium level ($\bar{X}= 2.33$), and tourists had participated on a medium level ($\bar{X}= 2.33$) respectively.

Table 16 Means of the Participation in Education on the Ecotourism of Implementation Project.

Statement	Participation Level											
	Administrators			Tourists			People in the community (The border patrol police officers)			People out of the community (Fishermen leader)		
	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2
1. Consultation	2.8	0.42	0.18	1.20	0.42	0.18	2.20	0.42	0.18	1.40	0.52	0.27
2. Planning	2.53	0.52	0.27	1.13	0.35	0.12	2.20	0.42	0.17	1.47	0.52	0.27
3. Decision making	2.80	0.41	0.17	1.13	0.35	0.12	1.40	0.51	0.26	1.13	0.35	0.12
4. Learning	1.80	0.72	0.52	1.60	0.76	0.57	2.40	0.74	0.55	2.60	0.73	0.53
5. To prepare equipment of natural study manual booklet	2.50	0.53	0.28	1.20	0.42	0.18	2.70	0.43	0.23	1.40	0.70	0.49
6. To provide natural study manual booklet implementation	1.73	0.80	0.64	1.60	0.74	0.54	2.27	0.46	0.21	1.40	0.51	0.26
7. Evaluation	2.33	0.58	0.33	2.33	0.58	0.33	2.67	0.58	0.33	2.67	0.58	0.33
Total	2.36	0.40	0.16	1.46	0.41	0.16	2.26	0.41	0.16	1.87	0.61	0.37

4.3.2.2 Environmental Ethics Project (Table 17).

1) Consultation: administrators had participated on a high level ($\bar{X}= 2.70$), the border patrol police officers had participated on a medium level ($\bar{X}= 2.20$), fishermen leader had participated on a low level ($\bar{X}= 1.50$), and tourists had participated on a low level ($\bar{X}= 1.30$) respectively.

2) Planning: administrators had participated on a high level ($\bar{X}= 2.47$), the border patrol police officers had participated on a medium level ($\bar{X}= 2.20$), fishermen leader had participated on a low level ($\bar{X}= 1.47$), and tourists had participated on a low level ($\bar{X}= 1.20$) respectively.

3) Decision making: administrators had participated on a high level ($\bar{X}= 2.60$), the border patrol police officers had participated on a low level ($\bar{X}= 1.53$), fishermen leader had participated on a low level ($\bar{X}= 1.20$), and tourists had participated on a low level ($\bar{X}= 1.13$) respectively.

4) Opinion: fishermen leader had participated on a high level ($\bar{X}= 2.80$), the border patrol police officers had participated on a high level ($\bar{X}= 2.80$), tourists had participated on a high level ($\bar{X}= 2.40$), and administrators had participated on a medium level ($\bar{X}= 2.20$) respectively.

5) The examination of value: the border patrol police officers had participated on a high level ($\bar{X}= 2.80$), fishermen leader had participated on a high level ($\bar{X}= 2.60$), tourists had participated on a medium level ($\bar{X}= 2.20$), and administrators had participated on a medium level ($\bar{X}= 2.10$) respectively.

6) To fix model behaviors: the border patrol police officers had participated on a high level ($\bar{X}= 2.73$), fishermen leader had participated on a high level ($\bar{X}= 2.53$), tourists had participated on a medium level ($\bar{X}= 2.27$), and administrators had participated on a medium level ($\bar{X}= 2.13$) respectively.

7) Behavioral practice of tourism resource conservation: administrators had participated on a high level ($\bar{X}= 2.73$), the border patrol police officers had participated on a high level ($\bar{X}= 2.47$), fishermen leader had participated on a medium level ($\bar{X}= 2.20$), and tourists had participated on a medium level ($\bar{X}= 2.13$) respectively.

8) Evaluation: the border patrol police officers had participated on a high level ($\bar{X}= 2.67$), fishermen leader had participated on a medium level ($\bar{X}= 2.33$), administrators had participated on a medium level ($\bar{X}= 2.33$), and tourists had participated on a medium level ($\bar{X}= 2.00$) respectively.

Table 17 Means of the Participation in Environmental Ethics of Implementation Project.

Statement	Participation Level											
	Administrators			Tourists			People in the community (The border patrol police officers)			People out of the community (Fishermen leader)		
	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2	\bar{X}	S.D.	σ^2
1. Consultation	2.70	0.48	0.23	1.20	0.48	0.23	2.20	0.42	0.18	1.50	0.53	0.28
2. Planning	2.47	0.52	0.27	1.20	0.41	0.17	2.20	0.41	0.17	1.47	0.52	0.27
3. Decision making	2.60	0.51	0.26	1.13	0.35	0.12	1.53	0.52	0.27	1.20	0.41	0.17
4. Opinion	2.20	0.61	0.38	2.40	0.65	0.42	2.80	0.66	0.44	2.80	0.64	0.41
5. The examination of value	2.10	0.32	0.10	2.20	0.63	0.40	2.80	0.42	0.18	2.60	0.52	0.27
6. To fix model behaviors	2.13	0.35	0.12	2.27	0.46	0.21	2.73	0.46	0.21	2.53	0.52	0.27
7. Behavioral practice of tourism resource conservation	2.73	0.46	0.21	2.13	0.35	0.12	2.47	0.52	0.27	2.20	0.41	0.17
8. Evaluation	2.33	0.58	0.33	2.67	0.58	0.33	2.00	0.42	0.18	2.33	0.58	0.33
Total	2.41	0.22	0.04	1.83	0.51	0.26	2.43	0.44	0.19	2.08	2.60	0.36

4.3.3 Evaluation on the Project (Table 18).

Evaluation on the project in an after PAR. It was found that activities of projects had harmoniously with the administrators, the tourists, the people in the community and the people out of the community need (82.22%), had appropriated with environmental community (86.67%). Contents, trainers ,time of studying in the classroom, the real location, practicing, and equipments had appropriation (above 70%). Participation of the administrators, the tourists, people in the community and the people out of the community had at the nearly high level (73.33%). The Park, the administrators, the tourists, the people in the community and the people out of the community had received the benefit of activities at the nearly high level (above 70.00%). And the projects could be possibly to continue implementation of the Park (71.11%) after post the projects and researcher take off the Park.

Table 18 Percentages of Evaluation on the Projects.

Activities	Numbers	Percentage
1. Harmonious project with the administrators, the tourists, the people in the community and the people out of the community need		
- Yes.	74	82.22
- No.	16	17.78
2. Appropriated project with environmental community		
- Yes.	78	86.67
- No.	12	13.33
3. Contents had appropriation		
- Yes.	75	83.33
- No.	15	16.67
4. Trainers had appropriation		
- Yes.	75	83.33
- No.	15	16.67
5. Time of studying in the classroom had appropriation		
- Yes.	66	73.33
- No.	24	26.67
6. Time of studying in the real location had appropriation		
- Yes.	64	71.11
- No.	26	28.89

Table 18 (Cont.)

Activities	Numbers	Percentage
7. Time of practicing had appropriation		
- Yes.	65	72.22
- No.	25	27.78
8. Equipments had appropriation		
- Yes.	70	77.78
- No.	20	22.22
9. Participation of the administrators, the tourists, the people in the community and the people out of the community		
- Yes.	66	73.33
- No.	24	26.67
10. Benefit of the activities, which the Park received		
- Yes.	78	86.67
- No.	12	13.33
11. Benefit of the activities, which the administrators received		
- Yes.	64	71.11
- No.	26	28.89
12. Benefit of the activities, which the tourists received		
- Yes.	70	78.78
- No.	20	22.22
13. Benefit of the activities, which the people in the community received		
- Yes.	72	80.0
- No.	18	20.0
14. Benefit of the activities, which the people out of the community received		
- Yes.	70	77.78
- No.	20	22.22

Table 18 (Cont.)

Activities	Numbers	Percentage
15. Possibility of the continuous project implementation of the Park, tourists and the local people		
- Yes.	64	71.11
- No.	26	28.89
16. Possibility of the cooperation between the Park and relevant agency		
- Yes.	66	73.33
- No.	24	26.67
Total	90	100.0

4.3.4 The Results of PAR for Sustainable Tourism Around the Sirindhorn International Environmental Park.

4.3.4.1 Learning Achievement

1) Before PAR

In term of knowledge, attitudes and participation of tourism resources conservation and ecotourism, there were found that in a before PAR, most of the personnel had knowledge, attitudes and participation of tourism resources conservation and ecotourism at the medium level.

2) After PAR

From learning tourism resources conservation and ecotourism through environmental education process, it was found that in an after PAR, personnel had more knowledge of tourism resources conservation, which knowledge before and after PAR were statistically different at the 0.05 level and had positive correlation at a nearly high level ($r = 0.6940$; $p < 0.001$). They had more attitudes towards tourism resources conservation, which attitude before and after PAR were statistically different at the 0.05 level and had positive correlation at a medium level ($r = 0.5339$; $p < 0.001$). And it was found that consultation, planning, and decision making activity, most of personnel had participated on a high level were administrators ($\bar{X}=2.90$, 2.60, and 2.83 respectively). Learning activity, most of personnel had participated on a high level ($\bar{X}=2.80$) was fishermen leader. To prepare areas and equipments, mangrove forest

plantation implementation, maintenance, environmental adjustment in the Pak Klong Bangkra Yai, keeping clean implementation, and evaluation activity, most of personnel had participated on a high level ($\bar{X}=2.70, 2.47, 2.67, 2.67, 2.67$ and 2.67 respectively) were the border patrol police officers.

And it was found that in an after PAR, personnel had more knowledge of ecotourism, which knowledge before and after PAR were statistically different at the 0.05 level and had positive correlation at a high level ($r = 0.8657$; $p < 0.001$). And they had more attitudes towards ecotourism, which attitude before and after PAR were statistically different at the 0.05 level and had positive correlation at a high level ($r = 0.9128$; $p < 0.001$). And it was found that consultation, planning, and decision making activity, most of personnel had participated on a high level were administrators ($\bar{X}=2.80, 2.53, \text{ and } 2.80$ respectively). Learning activity, most of the personnel had participated on a high level ($\bar{X}=2.60$) was fishermen leader. To prepare equipment of natural study manual booklet, and evaluation activity, most of personnel had participated on a high level ($\bar{X}=2.70, 2.60$ respectively) and to provide natural study manual booklet implementation activity, most of personnel had participated on a medium level ($\bar{X}=2.70$) were the border patrol police officers.

4.3.4.2 Change on Economic, Social and Environment of Community Participated in PAR.

4.3.4.2.1 Economic Change

1) Before PAR

In term of economic benefits to locals, it was found that in a before PAR, most of the border patrol police officers had not received extra income by touring in the Park because of it was on routine duty. In the last year, the average extra income from the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee was given them only 128.57 baht/person/week but did not received everybody. And in term of budgets, it was found that before project the Sirindhorn International Environmental Park was received budgets subsidy from government.

In term of economically viable industry, it was found that in a before PAR, the local people had not any economically viable industry in the Park. The local people in the community was the border patrol police officers, who were on duty protective borderland duty and the local people out of the community was fishermen, who had caught aquatic animals. They had not participated tourism industry in the Park.

2) After PAR

In term of extra income, it came to a positive direction. This was considered by the fact that in an after PAR, there was a better change on the economic benefits to locals. The border patrol police officers who were on duty local guide in the Park. They had received more extra income about 2-300 baht/person/week from the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee, which it was revenue from tickets, donated money and bicycle riding activity summary above more 3 millionbaht/year. And in term of budgets, it was found that in an after PAR, the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee had supported budgets for maintenance of the Park.

In term of economically viable industry it came to a positive direction. This was considered by the fact that in an after PAR, there was a better change on the tourism industry in the Park. The border patrol police officers who were on duty local guide tourism place in the Park.

4.3.4.2.2 Social Change

1) Before PAR

In term of community benefits, it was found that in a before PAR, the fishermen had never formed the tourism resource conservation group before. Moreover, it was not found that any government organization had come there to promote tourism resource conservation continuously. So the fishermen did not have any experiences to form a group manage tourism resource conservation. And it had not body of knowledge of tourism resource conservation and ecotourism. It had lacked medias the attraction or service locations before, during and after trip.

In term of participation planning education and employment, it was found that in a before PAR, the local people had not participated planning education in the Park. It always organizes the training course program for the local people who were the border patrol police officers. This course referred to the general principles on the natural resources and environmental conservation but did not emphasize on the tourism resources conservation specially the natural resources in mangrove plantation, which was the very important tourism resource in this Park. Additionally, they had not participated employment because the Park lacked proper maintenance and management.

2) After PAR

In term of community benefits, it came to a positive direction. This was considered by the fact that in an after PAR, there was unite fishermen for tourism resource conservation. Fishermen help each other in conserving tourism resources. They also had established other social units related to PAR program such as a group of tourism resource conservators. And it had rules of visiting the Mrigadayavan Palace, which the visitors should be practises are as follows:

- (1) Taking photos and multimedias for advertising or spreading out must to permit from authorities.
- (2) Please dressing neat suit.
- (3) Do not wear a hat and shoes upstairs the palace.
- (4) Using polite words and do not acclaim loudly disturbance the other persons.
- (5) Controlling manners and do not run and play upstairs the palace.
- (6) Do not bring foods and drinks upstairs the palace.
- (7) Do not entrance the taboo places, which have intercepted by the flower chains.
- (8) Do not bring liquors and drunken goods in boundary of the palace.
- (9) Do not play gambles in boundary of the palace.
- (10) Do not perform anythings, which are born demages with any places in boundary of the palace.
- (11) Throwing the garbage in the garbage bins and pleases keep clean.

In term of body of knowledge, it was found that in an after PAR, there were a better social development in the community and the Park. In the community, the people in the community such as the border patrol police officer and the people out of the community such as fisherman leader had knowledge tourism resource conservation and ecotourism transform others the border patrol police officer and fisherman in order to realize the growth of tourism has triggered the deterioration of tourism resources. And the development of facilities and services to accommodate the increasing tourists, which has affected the environment and led the unjustified consumption of resources. The Sirindhorn International Enviromental Park was an educational site for the conservation and restoration of mangrove forest, beach forest

and variety forest, a habit for various creatures and an invaluable site for ecotourism and historical tourism of Thailand and of the world. In addition, it had drafted the natural study manual booklet for the tourists and the people in order to study before, during and after trip in the Park.

In term of participation planning education and employment, it came to a positive direction. This was considered by the fact that in an after PAR, the local people had participated planning education in the Park. There should be the insertes a subject of tourism resource conservation and ecotourism as a curriculum of training courses program for the local people, there should be expansion of informal education on the same topics by using any other media. Additionally, they had participated employment of tourism in the Park. The border patrol police officers who were on duty local guide.

4.3.4.2.3 Environmental Change

1) Before PAR

In term of resource benefits and reduce resource degradation, it was found that in a before PAR, there were many garbage both in the Mrigadayavan Palace area, the Sirindhorn mangrove plantation and its surroundings that made by the tourists who visited and the local people did not throw the garbage into the garbage bin. Additionally, the water in Pak Klong Bangkra Yai was obstructed by the blown sand and inconvenient seawater movement that caused the shallow canal and affected to the salty level in the canal, they would run away from the waves by mooring their boats to that area and transferred all their aquatic animals to the truck. That area is not a good place to moor the boats for transferring the aquatic animals because of the very strong waves. The large numbers of mooring boats made trouble to the living of aquatic animals and their laying eggs in the water of the mangrove plantation. Besides, the fishermen caught the aquatic animals in that area that caused the lower quantity of aquatic animals.

In term of supply-oriented management, it was found that in a before PAR, tourism in the Park was considered a mass tourism where a large group of tourists come in the morning and leave in the evening. The facts those tourists generally leave problems behind and that the maintenance was below standard had led to the severe deterioration of natural, environmental or tourism resources. Additionally, the Park was permitted the tourists drove them car into the Mrigadayavan Palace area which its was destroyed nature and environment around the Park.

In term of acceptance of resource value, it was found that in a before PAR, most personnel had value of tourism resources conservation at the medium level.

2) After PAR

In term of resource benefits and reduce resource degradation, it came to a positive direction. This was considered by the fact that in an after PAR, there was a better environmental development than before in the Park. The Park had increased cleaning by tourists and the local people who threw garbage in the garbage bins. And there was adjust the environment in Pak Klong Bangkra Yai, which was prepared a macro car for digging the sand in above-mentioned cannal by the tourists and the local people. It had better effect to the growth of mangrove trees in the Sirindhorn Mangrove Plantation. Additionally, tourists and the local people planted the mangrove trees such as *Rhizophora mucronata*. in the Sirindhorn Mangrove Plantation. There were an increasing numbers of 90 mangrove trees.

In term of supply-oriented management, it came to a positive direction. This was considered by the fact that in an after PAR, tourism in the Park was considered increasing an ecotourism where a small-medium group of tourists come in the morning and leave in the evening. Some group stay in the long-stays within the Park. Additionally, the Park did not permit the tourists drove their car into the Mrigadayavan Palace area. It was permitted the tourists stopped their car at carpark which its was front of the Park and walked in the Mrigadayavan Palace area.

In term of acceptance of resource value, researcher followed up tourists and the local people behavioral practice of tourism resource conservation around two months. The result was found that in an after PAR, most of personnel had value of tourism resources conservation were average 4.77 points at the prizing level. Consideration each personnel found that the border patrol police officers had the most value of tourism resources conservation were average 5.38 points at the acting level ,the tourists were average 5.03 points at the acting level, and the fishermen leader were average 3.90 points at the prizing level respectively.

4.3.4.3 Sustainable Tourism.

1) Before PAR

In term of long-term benefits, it was found that in a before PAR, its had not clearly economic, community and resource benefits as follows:

1.1) In economic benefits to locals aspect, it was found that before the project most of the border patrol police officers had not received extra

income by touring in the Park because of it was on routine duty. And in term of budgets, it was found that before project the Sirindhorn International Environmental Park was received budgets subsidy from government.

1.2) In community benefits aspect, it was found that the fishermen had never formed the tourism resource conservation group before. Moreover, it was not found that any government organization had come there to promote tourism resource conservation continuously. So the fishermen did not have any experiences to form a group manage tourism resource conservation. And it had not body of knowledge of tourism resource conservation and ecotourism. It had lacked medias the attraction or service locations before, during and after trip.

1.3) In resource benefits aspect, it was found that before the project, there were many garbage both in the Mrigadayavan Palace area, the Sirindhorn mangrove plantation and its surroundings that made by the tourists who visited and the local people did not throw the garbage into the garbage bin. Additionally, the water in Pak Klong Bangkra Yai was obstructed by the blown sand and inconvenient seawater movement that caused the shallow canal and affected to the salty level in the canal, they would run away from the waves by mooring their boats to that area and transferred all their aquatic animals to the truck. That area is not a good place to moor the boats for transferring the aquatic animals because of the very strong waves. The large numbers of mooring boats made trouble to the living of aquatic animals and their laying eggs in the water of the mangrove plantation. Besides, the fishermen caught the aquatic animals in that area that caused the lower quantity of aquatic animals.

In term of moral/ethical responsibility & behavior, it was found that in a before PAR, most personnel were the average of behavioral practice of tourism resource conservation 2.01 points at medium level.

In term of enlightenment, it was found that in a before PAR, administrators, tourists and the local people did not know research and development. It was harmonious with administrators, the tourists, the local people in the community and continue implementation of the Park.

2) After PAR

In term of long-term benefits, it was found that in an after PAR, its had clearly and continuously economic, community and resource benefits as follows:

2.1) In term of extra income, it came to a positive direction. This was considered by the fact that there was a better change on the economic benefits to locals. The border patrol police officers who were on duty local guide in the Park. They had received more extra income about 2-300 baht/person/week from the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee, which it was revenue from tickets, donated money and bicycle riding activity above more 3 millionbaht/year. And in term of budgets, it was found that the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee had supported budgets for maintenance of the Park.

2.2) In term of community benefits, it came to a positive direction. This was considered by the fact that there was unite fishermen for tourism resource conservation. Fishermen help each other in conserving tourism resources. They also had established other social units related to PAR program such as a group of tourism resource conservators. And it had rules of visiting the Mrigadayavan Palace, which the visitors should be practises for tourism.

2.3) In term of resource benefits and reduce resource degradation, it came to a positive direction. This was considered by the fact that there was a better environmental development than before in the Park. The Park had increased cleaning by tourists and the local people who threwed garbage in the garbage bins. And there was adjust the environment in Pak Klong Bangkra Yai, which was prepared a macro car for digging the sand in above-mentioned cannal by the tourists and the local people. It had better effect to the growth of mangrove trees in the Sirindhorn Mangrove Plantation. Additionally, tourists and the local people planted the mangrove trees such as *Rhizophora mucronata*. in the Sirindhorn Mangrove Plantation. There are an increasing numbers of 90 mangrove trees.

In term of moral/ethical responsibility & behavior, researcher followed up tourists and the local people's behavioral practice of tourism resource conservation around two months. The result was found that in an after PAR, most of personnel had value of tourism resources conservation were average 4.77 points at the prizing level. Consideration each personnel found that the border patrol police officers had the most value of tourism resources conservation were average 5.38 points at the acting level ,the tourrists were average 5.03 points at the acting level, and the fishermen leaders were average 3.90 points at the prizing level respectively. And th toursits and the local people had better change behavioral practice of tourism resource

conservation. From the average of behavioral practice of tourism resource conservation had generated 1.14 points more behavioral practice of tourism resource conservation after PAR (3.15 points). They had values serve as the birthplace of our environmental ethics.

In term of enlightenment, this was considered by the fact that from evaluation on the project of PAR. It was found that in an after PAR, activities of projects had harmoniously with the administrators, the tourists, the people in the community and the people out of the community need (82.22%), had appropriated with environmental community (86.67%). Contents, trainners, time of studying in the classroom, the real location, practicing, and equipments had appropriation (above 70%). Participation of the administrators, the tourists, people in the community and the people out of the community had at the nearly high level (73.33%). The Park, the administrators, the tourists, the people in the community and the people out of the community had received the benefit of activities at the nearly high level (above 70.00%). And the projects could be possibly to continue implementation of the Park (71.11%) after post the projects and researcher took off the Park.

CHAPTER V

DISCUSSION

The growth of tourism has triggered the deterioration of tourism resources. For example, the development of facilities and services to accommodate the increasing tourists, which has affected the environment and led the unjustified consumption of resources. There is an attempt to develop tourism in a conservation-oriented manner. Tourism Authority of Thailand has employed a tourism development strategy, which is preventive of effects on the tourism resources under the concept of “conservation-oriented development for the sustainability of Thai tourism”. The principal of conserving tourism resources is that they must be consumed in a sustainable manner known as sustainable tourism. As well, there is ecotourism, which focuses on the study at the tourist attractions in order to save the ecosystem with a special consideration of local participation, which is a part of tourism in natural, cultural or historical sites. It is a measure, which encourages participation in the preservation of tourism resources and a guideline to the realization of sustainable tourism under the national tourism management master plan.

It is very important that awareness and environmental ethics are created in people for the conservation of natural resources and the environment. New tourism management must be found for the development of sustainable tourism through the collaboration of the administrators, tourists and the local people living in the Sirindhorn International Environmental Park for the benefits of community environmental education which will lead the local people to realize the significance of the situation and finally to participate with the tourism resources conservation. From the research finding, it leads to a knowledge that can explain PAR concerning on sustainable tourism development around the Park. The results of study will be discussed as follow:

5.1 Finding on PAR for Sustainable Tourism around the Sirindhorn International Environmental Park.

5.1.1 Learning Achievement

In knowledge, attitudes and participation of tourism resources conservation and ecotourism aspects, it was found that after a participation in PAR focusing on learning tourism resources conservation and ecotourism through environmental education process. The personnel had more knowledge of tourism resources conservation, which knowledge before and after PAR were statistically different at the 0.05 level and had positive correlation at a nearly high level ($r = 0.6940$; $p < 0.001$). They had more attitudes towards tourism resources conservation, which attitude before and after PAR were statistically different at the 0.05 level and had positive correlation at a medium level ($r = 0.5339$; $p < 0.001$). And it was found that consultation, planning, and decision making activity, most of personnel had participated on a high level were administrators ($\bar{X}=2.90, 2.60, \text{ and } 2.83$ respectively). Learning activity, most of personnel had participated on a high level ($\bar{X}=2.80$) was fishermen leader. To prepare areas and equipments, mangrove forest plantation implementation, maintenance, environmental adjustment in the Pak Klong Bangkra Yai, keeping clean implementation, and evaluation activity, most of personnel had participated on a high level ($\bar{X}=2.70, 2.47, 2.67, 2.67, 2.67$ and 2.67 respectively) were the border patrol police officers.

And it was found that in an after PAR, personnel had more knowledge of ecotourism, which knowledge before and after PAR were statistically different at the 0.05 level and had positive correlation at a high level ($r = 0.8657$; $p < 0.001$). And they had more attitudes towards ecotourism, which attitude before and after PAR were statistically different at the 0.05 level and had positive correlation at a high level ($r = 0.9128$; $p < 0.001$). And it was found that consultation, planning, and decision making activity, most of personnel had participated on a high level were administrators ($\bar{X}=2.80, 2.53, \text{ and } 2.80$ respectively). Learning activity, most of the personnel had participated on a high level ($\bar{X}=2.60$) was fishermen leader. To prepare equipment of natural study manual booklet, and evaluation activity, most of personnel had participated on a high level ($\bar{X}=2.70, 2.60$ respectively) and to provide natural study manual booklet implementation activity, most of

personnel had participated on a medium level ($\bar{X}=2.70$) were the border patrol police officers.

The survey results demonstrates of support of tourist and local people towards tourism resource conservation and ecotourism. The border patrol police officers had play vital role to preserve the tourism resources because they were well-grounded with tourism resources conservation and work closely in the area. In addition to, the Park always organizes the training course program for the border patrol police officers everyyear while fishermen group poorly support assistance for conservation since they were busy with how to earn their livings. Moreover, tourists had poorest cooperation towards tourism resources conservation. Since they were hurry for a once-day tour, they were not interested to join activities. The result was in accordance with the study of Chaiteeranuwatsiri M. (1998) on “A Participatory Action Research on Students, Families, School, and Community Development through Environmental Education Process” found that the impact of the project were the increasing of the knowledge, attitudes and behavior of the target groups toward the management of the natural resource and environment and still continuing participate the activities in the school. The study of Koseyayothin M. (2002), on “Participatory Action Research on Nature Framing for Agricultural Households in Thai-Cambodia Border Areas” found that results revealed that after undertaking participatory action research. The achievements of the samples learning in nature were increased significantly at the level of 0.01. The study of Rawang W. (2001), “Community-Cultures Based Environmental Education: A Case Study for the World Cultural Heritage of Ayutthaya Historic City” found that the participants level of knowledge, skill and participation with highly statistically significant difference at 0.01, together with the majority (94.08%). The study of Midling M.J. (1996), “Environmental Education in China: The Case of Secondary Schools in Sichuan Province” found that Students in six pilot EE schools had significantly higher total mean scores on an environmental knowledge scale than did students from the nine non-pilot EE schools in the sample. Differences in attitudes toward environmental protection, while statistically significant, were weaker than were differences in environmental knowledge. The study of Woods A. L. (1993), “ Sustainable Development and Tropical Rainforest Loss: the Design and Validation of an Interdisciplinary Environmental Education Curriculum Unit” found that compared to the control group and the experimental group showed more positive attitudes toward science (df 1,628; F = 5.01; p = . 0255). And the study of Miller

A. (1995), “Attitudes toward Ecotourism, Economy, and Wildlife in a Canadian Boreal Region: Implication for Northern Development (Alberta)” found that attitudes toward ecotourism development should be a primary consideration for tourism development proposals. Consideration of attitudes may result in development, which more accurately reflects and incorporates local citizen issues and concerns into planning and development processes. Many rural development researchers speculate that the long-term success of development in rural areas may increase if citizens' attitudes are considered and incorporated into development planning.

5.1.2 Change on Economic, Social and Environment of Community Participated in PAR.

5.1.2.1 Economic Change

In economic aspects, it was found that after a participation in PAR focusing on extra income, there was a better change on the economic benefits to locals. The border patrol police officers who were on duty local guide in the Park. They had received more extra income about 2-300 baht/person/week from the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee, which it was revenue from tickets, donated money and bicycle riding summary above more 3 millionbaht/year. And in term of budgets, it was found that the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee had supported budgets for maintenance of the Park. And there was a better change on the tourism industry in the Park. The border patrol police officers who were on duty local guide tourism place in the Park.

The impact of economic change were the result of the border patrol police officers were routine training parachute and divided to control the Sirindhorn International Environmental Park, they did not received extra income for this additional works. The survey and interview the border patrol police officers were suggested that revenue distributing was required for local people and relevant officers as well. And a part of revenue was supported for maintenance tourism resource of the Park, etc. The result was in accordance with the study of Koseyayothin M. (2002), “Participatory Action Research on Nature Framing for Agricultural Households in Thai-Cambodia Border Areas” found that income, expense, profit and loss, it came to a positive direction. This was considered by the fact that farmers could earn more

revenue than their expenses. The revenue was accounted for the income from selling nature farming and the saving from consuming vegetable planted in household instead of buying.

5.1.2.2 Social Change

In social aspects, it was found that after a participation in PAR focusing on community benefits, there was unite fishermen group for tourism resource conservation. Fishermen group help each other in conserving tourism resources. They also had established other social units related to PAR program such as a group of tourism resource conservators. And it had rules of visiting the Marigayavan Palace, which the visitors should be practises are as follows:

- (1) Taking photos and multimedias for advertising or spreading out must to permit from authorities.
- (2) Please dressing neat suit.
- (3) Do not wear a hat and shoes upstairs the palace.
- (4) Using polite words and do not acclaim loudly disturbance the other persons.
- (5) Controlling manners and do not run and play upstairs the palace.
- (6) Do not bring foods and drinks upstairs the palace.
- (7) Do not entrance the taboo places, which have intercepted by the flower chains.
- (8) Do not bring liquors and drunken goods in boundary of the palace.
- (9) Do not play gambles in boundary of the palace.
- (10) Do not perform anythings, which are born damages with any places in boundary of the palace.
- (11) Throwing the garbage in the garbage bins and pleases keep clean.

Additonally, there were a better social development in the community and the Park. In the community, the people in the community such as the border patrol police officers and the people out of the community such as fishermen leader had knowledge tourism resource conservation and ecotourism transform others the border patrol police officers and fishermen in order to realize the growth of

tourism has triggered the deterioration of tourism resources. And the development of facilities and services to accommodate the increasing tourists, which has affected the environment and led the unjustified consumption of resources. The Sirindhorn International Environmental Park was an educational site for the conservation and restoration of mangrove forest, beach forest and variety forest, a habitat for various creatures and an invaluable site for ecotourism and historical tourism of Thailand and of the world. In addition, it had the natural study manual booklet for the tourists and the people in order to study before, during and after trip in the Park. The local people had participated planning education in the Park. There should be the insertes a subject of tourism resource conservation and ecotourism as a curriculum of training courses program for the local people; there should be expansion of informal education on the same topics by using any other media. Additionally, them had participated employment of tourism in the Park. The border patrol police officers who were on duty local guide.

The impacts of social change were the result of fishermen caught aquatic animals and they carry its for sale. But fishermen's seaboard had power of wind wave that they could not stop them boats. They invaded in Pak Klong Brangkra Yai. This action disturbs aquatic animals and mangrove forest. Moreover, the Park had only natural interpretation, and had not natural study manual booklets for tourists for before, during and after trip. There were some solutions for the mentional problem such as posting the border wood against estuary invading and stoping them boats, restrictions for touring the Park and distributing natural study manual booklets for interested tourist. The result was in accordance with the study of Koseyayothin M. (2002), "Participatory Action Research on Nature Framing for Agricultural Households in Thai-Cambodia Border Areas" found that there was an integration of farmers for nature farming. Farmers help each other in making nature farming, they were united and always wxchanges ideas to find out the solution they had faced.

5.2.2.3 Environmental Change

In environment aspects, it was found that after a participation in PAR focusing on resource benefits and reduce resource degradation, it came to a positive direction. This was considered by the fact that there was a better environmental development than before in the Park. The Park had increased cleaning by tourists and the local people whom throwed garbage in the garbage bins. And there was adjust the

environment in Pak Klong Bangkra Yai, which was prepared a macro car for digging the sand in above-mentioned cannal by the tourists and the local people. It had better effect to the growth of mangrove trees in the Sirindhorn Mangrove Plantation. Additionally, tourists and the local people planted the mangrove trees such as *Rhizophora mucronata*. in the Sirindhorn Mangrove Plantation. There are an increasing numbers of 90 mangrove trees. Tourism in the Park was considered increasing an ecotourism where a small-medium group of tourists come in the morning and leave in the evening. Some group stay in the long-stays within the Park. Additionally, the Park did not permit the tourists drove them car into the Mrigadayavan Palace area. It was permitted the tourists to stop them car at the carpark which its was front of the Park and walked in the Mrigadayavan Palace area. Researcher followed up tourists and the local people behavioral practice of tourism resource conservation around two months. The result was found that most of personnel had value of tourism resources conservation were average 4.77 points at the prizing level. Consideration each personnel found that the border patrol police officers had the most value of tourism resources conservation were average 5.38 points at the acting level, the tourrists were average 5.03 points at the acting level, and the fishermen leader were average 3.90 points at the prizing level respectively.

The impacts of environmental change were the result of the selfishness of tourists and the local people, who were thrown garbage along the way and the collecting of sand, which blocked waterway. The survey suggested the solution by help collecting and not littering garbage. Next to keeping clean activity, the Park had keep cleaning activity within the area everyweek, which it was continuous activitiy by the border patrol police officers. Moreover, the collecting of sand, which blocked waterway the long-term solution, from interview Police Lieutenant Colonel Changsuwan P. Chief of the Park was found that the future Park should be building the embankment for long term solving the problem of sea sand blowing over Pak Klong Bangkra Yai against wind, so sand will not be clogged at waterway. The result was in accordance with the study of Chaiteeranuwatsiri M. (1998), "A participatory action research on students, families, school, and community development through environmental education process" found that the impact of the project were the increasing of the knowledge, attitudes and behavior of the target groups toward the management of the natural resource and environment and still continuing participate the

activities in the school. The study of Koseyayothin M. (2002), “Participatory Action Research on Nature Framing for Agricultural Households in Thai-Cambodia Border Areas” found that the sampled agriculturists showed an improvement in social economic and environment factors. Agriculturists decreased the use of toxic substances, using the herbs instead to protect and get rid pests, using the residual for making natural fertilizers. The study of Li H. I. (1995), “ Sustainable Development: Toward an Understanding of the Ethical Foundations of Environmental Education” found that environmental ethics cannot be separated from inter-human ethics. As school education has a significant impact on the cultivation of our moral character, it is important to recognize and respect students as moral agents in the context of environmental education. And the study of Moan S. A. (1993), “Ecotourism on the Yucatan Peninsula: Ecotourism Potentials in the Rio Lagartos Wildlife Preserve (Maxico)” found that (1) There is a need for much site data to be collected. (2) The site's natural resources must be protected and managed wisely, as these are the resources, which attract the ecotourists. (3) Ecotourism must provide sources of funding which will; (a) act as an incentive to motivate locals to protect natural resources, (b) fund management, environmentally sensitive development, and education programs. (4) Ecotourism development must meet the needs of all the user groups affected by the project.

5.1.3 Sustainable Tourism.

In sustainable tourism aspects, it was found that after a participation in PAR focusing on long-term benefits, it was found that its had cleary and continuously economic, community and resource benefits as follows:

1) In term of extra income, it came to a positive direction. This was considered by the fact that there was a better change on the economic benefits to locals. The border patrol police officers who were on duty local guide in the Park. They had received more extra income about 2-300 baht/person/week from the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee, which it was revenue from tickets and donated money above more 3 millionbaht/year. And in term of budgets, it was found that the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee had supported budgets for maintnence of the Park.

2) In term of community benefits, it came to a positive direction. This was considered by the fact that there was unite fishermen group for tourism resource conservation. Fishermen group help each other in conserving tourism resourecs. They also had established other social units related to PAR program such as a group of tourism resource conservators. And it had rules of visiting the Marigayavan Palace, which the visitors should be practises for tourism.

3) In term of resource benefits and reduce resource degradation, it came to a positive direction. This was considered by the fact that there was a better environmental development than before in the Park. The Park had increased cleaning by tourists and the local people whom threw garbage in the garbage bins. And there was adjust the environment in Pak Klong Bangkra Yai, which was prepared a macro car for digging the sand in above-mentioned cannal by the tourists and the local people. It had better effect to the growth of mangrove trees in the Sirindhorn Mangrove Plantation. Additionally, tourists and the local people planted the mangrove trees such as *Rhizophora mucronata*. in the Sirindhorn Mangrove Plantation. There are an increasing numbers of 90 mangrove trees.

Researcher followed up tourists and the local people's behavioral practice of tourism resource conservation around two months in an after PAR. The result was found that most of personnel had value of tourism resources conservation were average 4.77 points at the prizing level. Consideration each personnel found that the border patrol police officers had the most value of tourism resources conservation were average 5.38 points at the acting level, the tourrists were average 5.03 points at the acting level, and the fishermen leader were average 3.90 points at the prizing level respectively. And the toursits and the local people had better change behavioral practice of tourism resource conservation. From the average of behavioral practice of tourism resource conservation had generated 1.14 points more behavioral practice of tourism resource conservation after PAR (3.15 points). They had values serve as the birthplace of our environmental ethics. Additionally, evaluation on the project of PAR. It was found that activities of projects had harmoniously with the administrators, the tourists, the people in the community and the people out of the community need (82.22%), had appropriated with environmental community (86.67%). Contents, trainners, time of studying in the classroom, the real location, practicing, and equipments had appropriation (above 70%). Participation of the administrators, the tourists, people in

the community and the people out of the community had at the nearly high level (73.33%). The Park, the administrators, the tourists, the people in the community and the people out of the community had received the benefit of activities at the nearly high level (above 70.00%). And the projects could be possibly to continue implementation of the Park (71.11%) after post the projects and researcher took off the Park.

The survey results play vital changes in economy, society and environment. It was obviously seen that tourists had improved their behaviors and they help preserving the natural tourism resources. For example, the number of garbage and writing on trees had decreased. In addition to test value of tourism resources conservation were at the prizing level or decision making level (level 4-5). The most important group was the border patrol police officers who had value of tourism resources conservation were at the acting level or practise level (level 6-7). Because of when seeing the polices' seriousness to protect the Park, tourists follow the rule as well whereas the tourists was second to the border patrol police officers, they had value of tourism resources conservation were at the acting level since they observed the border patrol police officers who took full responsibility, to inspect the forest and being local guides. Although they had the least knowledge of tourism resources conservation and ecotourism. Moreover, fishermen had poorest had value of tourism resources conservation were at the prizing level since the survey causes only awareness for ecology. Nevertheless, they unavoidably post them boats at the estuary. Because of the strong wind outside, they had to land them boat and invade the mangrove forest. The survey was concluded that the local people and tourists were willing to help preserve the tourism resources; though the survey team had already withdrawn from the Park. The result was in accordance with the study of Boonyobhas A. (1996), "Tourism Planning Concept for Ko Samui, Thailand: A sustainable Environment Development Approach" found that the sustainable development concept recognizes that economic, environmental and sociocultural issues are equally important and need to be integrated into the planning process in order to provide long-term utilization for tourism development.

The survey result was based correctly of hypothesis. The researcher estimated correctly towards the post-research on knowledge, attitude, practise and participation of tourists and the local people were in the high level more than pre-research (medium level), as well as the natural attraction had been developed more in

the ecotourism. The local people had increased income to generate 2-300 baht/person/week. To reduce the damage on natural tourist attraction was correctly based on the hypothesis.

This makes good impact on the national attraction, tourists and local people and possibility expected benefits of research as follows:

1) From this research, it was found that administrators, tourists and the local people had more knowledge, attitude, practise and participation of tourism resources conservation and ecotourism. Form the assessment from the post-test, tourists and the local people had gained better knowledge, attitude with 0.05 statistic significance.

2) From this research, it was found that in an after PAR, the Park could apply into developing ecotourism occupation, reduce destroy tourism and leading to sustainable tourism as follows:

2.1) Economic change: there was a better change on the economic benefits to locals. The border patrol police officers who were on duty local guide in the Park. They had received more extra income about 2-300 baht/person/week from the Mrigadayavan Palace Foundation, which it had supported budgets for maintnence of the Park. In addition to, there was a better change on the tourism industry in the Park. The border patrol police officers who were on duty local guide tourism place in the Park.

2.2) Social Change: there was unite fishermen group for tourism resource conservation. Fishermen group help each other in conserving tourism resourecs. They also had established other social units related to PAR program such as a group of tourism resource conservators. And it had rules of visiting the Marigayavan Palace. In addition, there were a better social development in the community and the Park. In the community, the local people were a knowledge transformation between members and they realized that the tourism has triggered the deterioration of tourism resources. In the Park, the Marigadayavan Palace Foundation had joined efforts in maintaining the Park in order to be an educational site for the conservation and restoration of mangrove forest for various creatures and an invaluable site for ecotourism and historical tourism of Thailand and of the world. And the Park had have rule of visiting in the Marigadayavan Palace and had the natural study manual booklet for the tourists and the people in order to study before, during and after trip.

2.3) Environmental Change: the Park had increased cleaning by tourists and the local people whom threw garbage in the garbage bins. There was adjust the environment in Pak Klong Bangkra Yai, which was prepared a macro car for digging the sand in above-mentioned cannal by the tourists and the local people. It had better effect to the growth of mangrove trees in the Sirindhorn Mangrove Plantation. In the future Park should be building the embankment for long-term solving the problem of sea sand blowing over Pak Klong Bangkra Yai against wind, so sand would not be clogged at waterway. Additionally, tourists and the local people planted the mangrove trees such as *Rhizophora mucronata*. in the Sirindhorn Mangrove Plantation. There are an increasing numbers of 90 mangrove trees. Tourism in the Park was considered increasing an ecotourism where a small-medium group of tourists come in the morning and leave in the evening. Some group stay in the long-stays within the Park. Additionally, the Park did not permit the tourists drove them car into the Mrigadayavan Palace area. It was permitted the tourists to stop them car at the carpark which its was front of the Park and walked in the Mrigadayavan Palace area. Researcher followed up tourists and the local people behavioral practice of tourism resource conservation. It was found that they had environmental ethics and better change behavioral practice of tourism resource to effect sustainable tourism.

5.2 Apply PAR Method to Sustainable Tourism Development in the Other Areas.

In PAR method, through the planning is cooperated by every party in every process, there is still an unexpected incident that may affect to the success or failure of these activities. Thus the researcher and developer should have contingency plan and flexibility to handle this situation based on way of lives in the community. An example from this research was that a few of the border patrol police officers who were one of the sample groups. They were routine training parachute and divided to control the Sirindhorn International Environmental Park, they could not join this research as well. Fishermen group were busy with how to earn their livings, so they were not able to join the project continuously. Moreover, the tourists had poorest cooperation towards tourism resources conservation since they were hurry for a once-day tour; they were not

interested to join activities. And researcher studied indentifies the problems and the requirements of the community after PAR. See in the Figure 22.

Flexibility during the program: to introduce tourism resource conservation to the sample groups, researcher must to study indentifies the problems and the requirements in the first step in order to solve the problems are to organize PAR. The reason of proposing on the new participatory action research for sustainable tourism development has been followed by the mistake idea of previous research. There are three participation groups, which are 1) the administrators, tourists and the local people group 2) the related operation officers group, and 3) researcher group, have joined and made the decision as well as understood all problems for proceeding the survey process. However it is found that the problems and the requirements of the community do not exist to the conceptual framework of the research. It is needed to adjust the conceptual framework of the research, therefore, the survey is needed to do in order to know the exact problem, the requirement of the community and be able to set as an idea of research. Thence it will bring to brainstorming, participation, judgment, perception and understanding of the researcher group, for forwarding to proceeding of the participatory action research. It is consists of 3 phases; pre-research phase is data collection about the problems and the requirements of the community, the joint meeting, research instruments method and test relating to the attitude prior to the research action, research phase is conduction according to the activities of the projects, which are as follows:

- 1) Tourism resources learning and conservative project.

Activities requiring participation, which focuses on the development of tourism resources conservation, related knowledge, understanding and attitudes in administrators, tourists and the local people. The activities are such as educational activity on tourism resources conservation, plantation activity within the area of the park, environmental adjustment activity in the Park and keeping clean activity within the area of the Park.

- 2) Educational project on the ecotourism.

Activities requiring participation, which focuses on the development of the new tourism form, related knowledge, understanding and attitudes in administrators, tourists and the local people. The activities are such as educational activity on ecotourism and natural study manual booklet conveyance activity. More activities on

ecotourism in the tourist attraction such as cagak rowing, broad jump and bird watching activity, etc. will be beneficial to the income of tourist attraction for maintenance the environment and tourism resources as well as making more income to the local people.

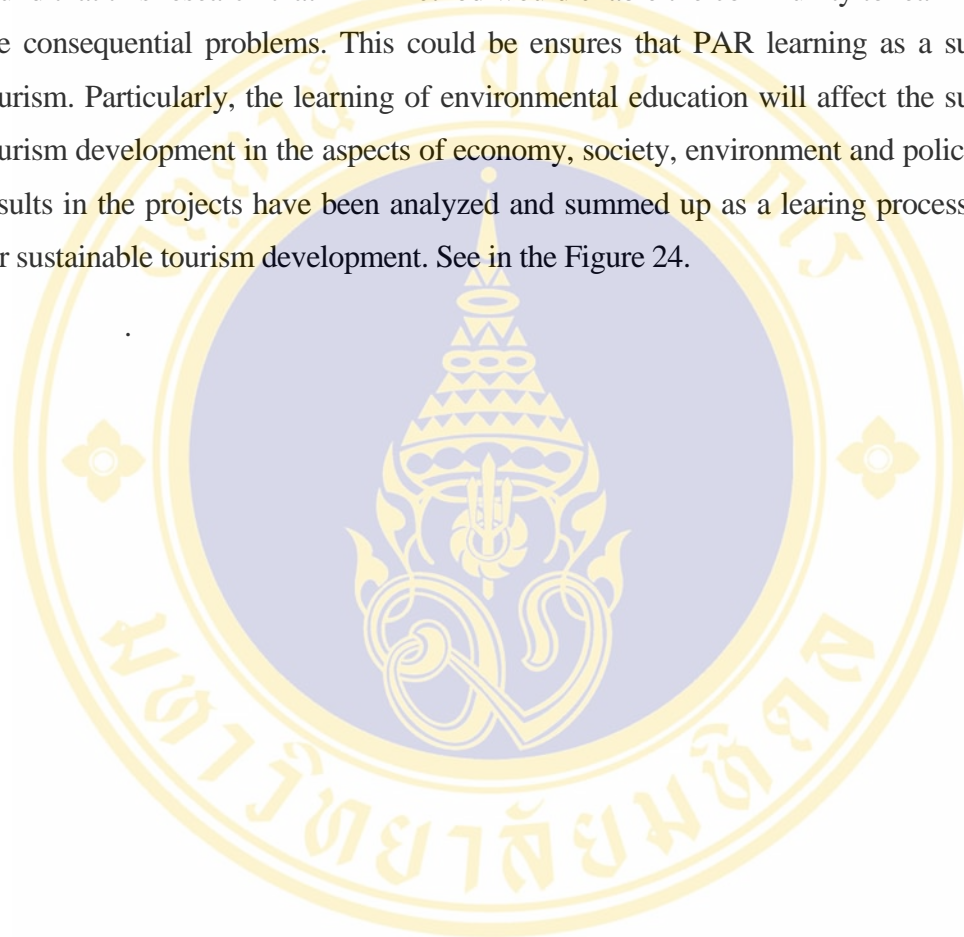
3) Environmental ethics project.

Activities requiring participation for the improvement, conservation or refurbishment or the development of the awareness of the local people in the appropriate direction, making it possible for them to live seamlessly with the nature and the environment. The activities are such as faith inspiring activity, model behaviors forming activity and behavioral practice activity.

Post-research is test on the knowledge and attitude after the research, testing value of tourism resources conservation, behavior observation as well as the estimation towards the project for that developing the knowledge, attitude, practise and participation in tourism resources conservation and the better economic change such as the economic benefits to locals and the economical viable industry. A part of income from tourism has spared to the local people, the other part is for maintaining the environment and tourism resources. The economical viable industry has promoted the tourism and helps the local people have income as well as becomes the local guide. The local products as souvenirs for tourists are a source of income from the tourism. The social change such as the community benefits and the participation planning education employment. It has impacted on the gathering of local people in preserving the natural tourism resources, making the awareness, restrictions for touring the Park and distributing the natural interpretation and natural study manual booklets towards the tourism for interested tourists. The participation planning education employment such as the resource benefits and reduce resource degradation, increasing the numbers of natural resources and maintaining the natural resources, the supply-oriented management by limiting the numbers of tourists in sensitive area and focusing on the acceptance of resource values for the impact of sustainable tourism. The important indicators such as education on tourism resources conservation, long-term benefits that impacts on economic, social and environment in long-term, the moral/ethical responsibility and behavior that they have values serve as the birthplace of our environmental ethics. The result in this project was found that researcher applied to

integrate theories and summed up as a process of environmental ethics as shown in Figure 23, and enlightenment, which are the follow-up on the continuous estimation.

Based on this research, PAR is an appropriate method to be applied in the other areas. This will stimulate a better change on economy, society and environment. It was found that this research that PAR method would enable the community to learn and solve the consequential problems. This could be ensures that PAR learning as a sustainable tourism. Particularly, the learning of environmental education will affect the sustainable tourism development in the aspects of economy, society, environment and policy. All the results in the projects have been analyzed and summed up as a learning process on PAR for sustainable tourism development. See in the Figure 24.



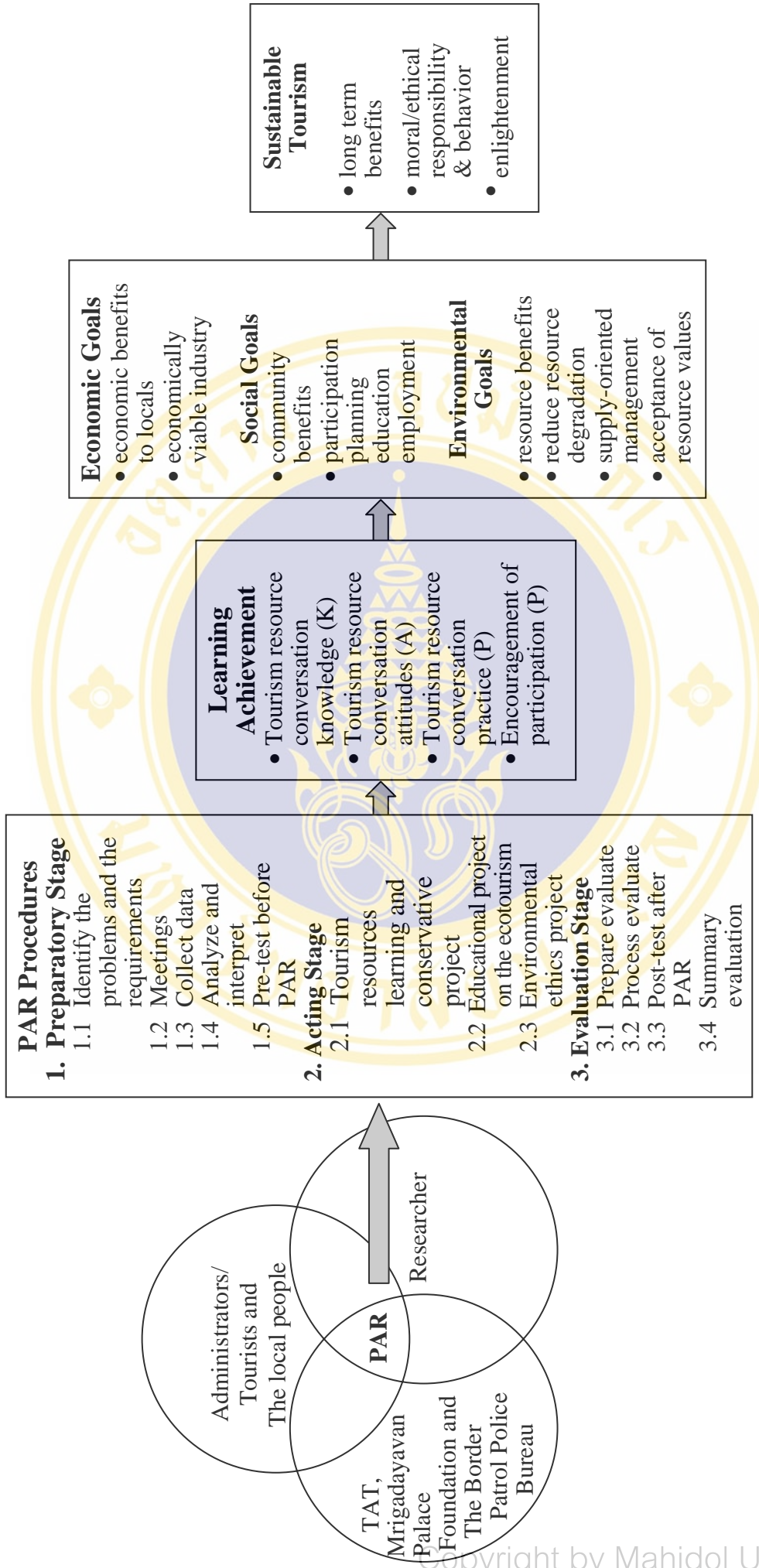


Figure 22: Process on Participatory Action Research for Sustainable Tourism Development (pre-research)

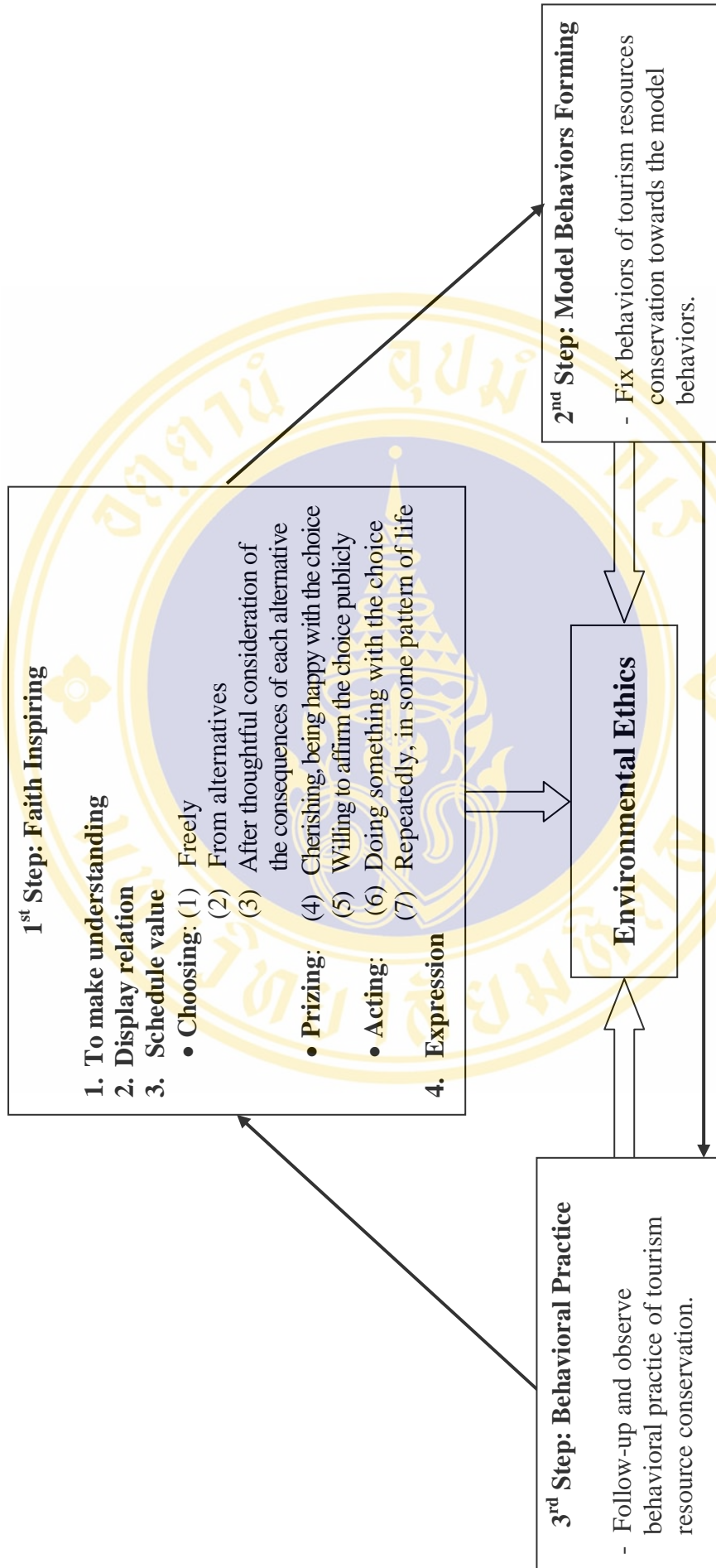


Figure 23: Process of Environmental Ethics.

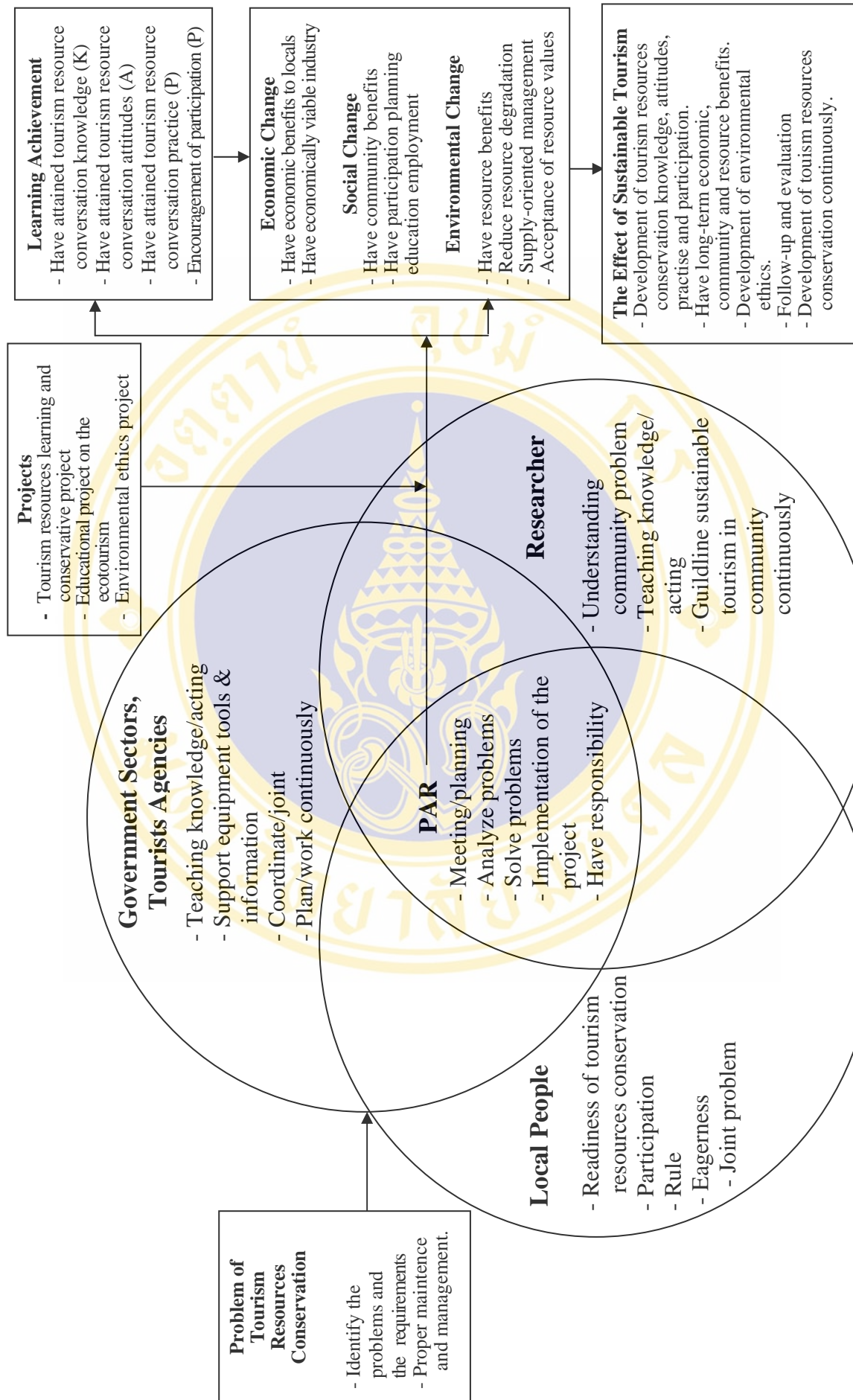


Figure 24: Learning Process on Participatory Action Research for Sustainable Tourism Development (post-research)

CHAPTER VI

CONCLUSION

6.1 Conclusion

This participatory action research (PAR) for sustainable tourism development through environmental education process: a case study of the Sirindhorn International Environmental Park is a research and development using PAR method. The objectives of study had components are as follows: 1) To promote participation and develop knowledge, attitudes and practices in conserving tourism resources to administrators, tourists and the local people 2) To study and compare economic, social, and environment goals appearances of above-mentioned administrations, tourists and the local people before and after undertaking PAR, and 3) To develop ecotourism in the Park as a form of sustainable development.

About the hypothesis regarding the study, it is stated found that after the conduct of this research, it is knowing the procedure activities of occupation development through PAR method. Researcher estimates that the tourists and the local people have increased the knowledge, attitudes, practices and participation of tourism resources conservation. The Sirindhorn International Environmental Park can apply into doing the new tourism form. This also will help generate new alternatives used for developing ecotourism occupation, increased income from tourism, decreased destroy tourism resources, leading to development of economy, society, environment and sustainable tourism.

Sampling in this research is consists of people in 3 groups, which are 90 persons such as 30 are tourists, 30 are fishermen leader and 30 are the border patrol police officers in the Sirindhorn International Environmental Park. PAR process is classified into 3 stages: preparatory stage, acting stage and evaluation stage. The results is divided into 3 phases, i.e.pre-research phase, research phase and post-research phase can be concluded as follows:

6.1.1 Pre-Research Phase

1) PAR for sustainable tourism development will be successful if the framework and proceeding of this research were relates with 3 groups of people. The first were administrators, tourists and the local people whose join with PAR project. The second were the officails, which work in areas doing PAR. The last one was the researcher who advice PAR methodology. Everybody have the ability to think and works in teamwork in order to better the quality of life. Let is begining to be originated from personal conception on community problems and requirement, and lead to a better understanding and action that will provoqe a change on oneself and community in intellectual mind and physical aspects.

2) Identify the Problems and the Requirements

According to the meeting, it can be concluded of the problems and requirements in the Park are as follows:

2.1) Environmental problem in the Park

2.1.1 Throwing the garbage in the tourism places.

2.1.2 The Park is facing of the blockade of sand by the water blowing through Pak Klong Bangkra Yai.

2.1.3 The soil has the acid condition and the seawater has the modified level of the salty.

2.2) Environmental education management problem

2.2.1 There is no particular program about the ecotourism and the mangrove forest conservation.

2.2.2 The border patrol police officers are not able to work as their training because of the limited restrictions of official system.

2.2.3 Without the good knowledge, the strategy and media channels for environmental education.

2.3) Human resources development problem

- The local people and the tourists have no moral development on the environmental ethics.

2.4) Community problem

- The attack by fishermen to the seashore and no cooperation with the Park.

3) Characteristics of the Personnels

Most of the personnel were male (74.44%), age between 26 to 35 years old (35.56%); average age was 35.22 years old, education level lower than bachelors (58.89%), hold a post in the government (38.89%), total working period between 6 to 15 years old (56.67%), domicile of central region (40.0%), income between 5,001 to 10,000 baht/month (36.67%), cost travel of tourism between 1,001 to 2,000 baht/trip (37.78%), had not received extra income from the Park (76.67%), had not received information of tourism resource conservation (65.56%), had not received information of ecotourism (86.67%), sources of tourism in the Park from journal (22.06%), the most favourite tourism place in the Park was the Mrigadayavan Palace (21.43%), and the most favourite tourism activities in the Park was see beautiful and ancient place (19.49%).

4) Pre-test Before PAR

4.1) Testing the Knowledge of Tourism Resources Conservation Before PAR

It was found that in a before PAR, most of personnel had knowledge of tourism resources conservation before project were average 14.44 points at the medium level and lacked knowledge (below 50%) on the type of tourism resource, meaning and principle of conservation and tourism resource conservation, factors that have effect on mangrove forest plantation. Consideration each personnel found that the border patrol police officers had the most knowledge of tourism resources conservation were average 17.77 points, the tourists were average 16.47 points, and the fishermen leader were average 9.10 points respectively.

4.2) Testing the Attitude Towards Tourism Resources Conservation Before PAR

It was found that in a before PAR, most of personnel had attitude towards the tourism resources conservation before projects were average 3.51 points at the medium level and had the undesirable attitude (below 3.66 points) towards the purpose of tourism resources conservation, and mangrove forest plantation. Consideration each personnel found that the border patrol police officers had the most attitude towards the tourism resources conservation were average 3.67 points, the tourists were average 3.57 points, and the fishermen leader were average 3.27 points respectively.

4.3) Testing the Knowledge of Ecotourism Before PAR

It was found that in a before PAR, most of personnel had knowledge of ecotourism before project was average 13.87 points at the medium level and lacked knowledge (below 50%) on the type of tourism resource, tourism development, meaning and principle of sustainable tourism development and ecotourism.

Consideration each personnel found that the border patrol police officers had the most knowledge of ecotourism were average 15.96 points, the tourists were average 15.13 points, and the fishermen leader were average 10.53 points respectively.

4.4) Testing the Attitude Towards Ecotourism Before PAR

It was found that in a before PAR, most of personnel had attitude towards the tourism resources conservation before project was average 2.70 points at the medium level and had the undesirable attitude (below 3.66 points) towards the purpose of ecotourism management, and providing natural study manual booklet conveyance. Consideration each personnel found that the border patrol police officers had the most attitude towards the ecotourism were average 2.96 points, the tourists were average 2.80 points, and the fishermen leader were average 2.31 points respectively.

4.5) Testing the Value of Tourism Resources Conservation Before PAR

It was found that in a before PAR, most of personnel had value of tourism resource conservation was average 2.01 points at the medium level and had the undesirable value (below 2.66 points) towards the purpose of choosing the tourists place, rule of tourism, attention and follow to the environmental news, and lacked behavioral model forming. Consideration each personnel found that the border patrol police officers had the most value of tourism resources conservation were average 2.40 points, the tourists were average 2.27 points, and the fishermen leader were average 1.37 points respectively.

6.1.2 Research Phase

1) Tourism Resources Learning and Conservative Project.

1.1) Teaching Knowledge: Researcher has consulted with the administrators and asked for the cooperation from Police Lieutenant Colonel Peerapong Changsuwan who are responsible for that Park by teaching knowledge how to conserve the tourism resources to the tourists, the local people and also invited him as a guest speaker who is knowledgeable and able to present the training program entitled on the conservation on the mangrove plantation natural resources and how to plant and maintain the mangrove plantation. And researcher is teaching knowledgeable and able to present the training program entitled on the ecology, the principles of conservation and environmental education & tourism resources conservation.

1.2) Taking Action: After teaching knowledge to the tourists and the local people, there are activities for operations are as follows:

(1) To plant the mangrove trees in the Sirindhorn Mangrove Plantation by requesting for the cooperation with Police Lieutenant Colonel Changsuwan P., Chief of the Park project to be as a guest speaker for teaching the knowledge of planting the mangrove trees with mangrove types such as *Rhizophora mucronata*. numbers of 90 trees and also prepared the land for planting.

(2) To adjust the environment in Pak Klong Bangkra Yai by requesting for the cooperation with him to be as a guest speaker and teaching the knowledge and reason to adjust that environment area and the effect of deterioration. The administrators prepared a macro car for digging the sand in the above-mentioned canal.

(3) To clean up that area by requesting for the cooperation with him to be as a guest speaker and teaching the knowledge and to explain why do they have to keep clean in the Park and the effects of uncleanness on that place. The administrators and the researcher prepared for the garbage bins all over the Park.

1.3) Implementation

After teaching knowledge to the tourists and the local people, there are activities for operations are as follows (pictures in the appendix):

(1) Planting mangrove trees in the land of the Sirindhorn Mangrove Plantation, which were prepared one mangrove tree such as *Rhizophora mucronata*., which was one of mangrove type for each the tourist and local people. Next to start planting mangrove trees.

(2) Adjusting the environment in Pak Klong Bangkra Yai, which was prepared a macro car for digging the sand in the above-mentioned canal by the tourists and the local people, participated in the environmental adjustment.

(3) To clean up that area around the Park by the tourists and the local people, participated in keeping clean within the Park and throw in the garbage bins.

1.4) Maintenance

(1) To maintain mangrove trees, that the tourists and the local people cooperated plantation by us. To maintain mangrove trees everyweek.

(2) The fishermen do not entrance into the canal in order to do not make trouble to the living of aquatic animals and their laying eggs in the water of the mangrove plantation.

(3) Everybody do not throw the garbages within the Park but throw its into the garbage bins, which its are prepared by the Park.

2) Educational Project on the Ecotourism.

2.1) Teaching Knowledge: Researcher has consulted with the administrators and asked for the cooperation from Police Lieutenant Colonel Changsuwan P., who are responsible for that Park by teaching the knowledge how to ecotourism to the tourists, the local people and also invited him as a guest speaker who is knowledgeable and able to present the training program entitled on the tourism of the Park. And researcher is teaching knowledgeable and able to present the training program entitled on the ecology, sustainable tourism management, ecotourism, and providing natural study manual booklet conveyance in the Park.

2.2) Taking Action: After teaching knowledge to the tourists, the local people, there are activities for operations are as follows:

(1) This step is divided the personnel each group, which it is consisted of ten persons per group to nine groups are approximately. Next to paint pictures freely of the most favourite the tourism place in the Sirindhorn International Environmental Park. Additionally, with route and describe it.

(2) Each group displays the painting picture of the most favourite the tourism place in the Park. The results of the most of favourite the tourism places in the Park are as follows:

2.1) The Mrigadayavan Palace.

2.2) The Sirindhorn Mangrove Plantation.

2.3) The King Rama VI monument.

2.4) Chaophraya Ramrakop residence

(3) Providing natural study manual booklet conveyance of the Park. Researcher took pictures of the most favourite the tourism place in the Park such as the Mrigadayavan Palace, the Sirindhorn Mangrove Plantation, the King Rama VI monument and Chaophraya Ramrakop residence potted in papers in order to provide natural study manual booklet of the Sirindhorn International Environmental Park.

3) Environmental Ethics Project

3.1) Faith Inspiring

Each group displays the opinion of the title “the problems of tourism resources, prevention and solution about the problems on tourism resources”. The results of opinions are as follows:

(1) Most of the problems of tourism resources can be classified are as follows:

1.1) Devaluation on tourism resources such as throwing garbage in tourist attractions and leave the dirty garbage into the water, which causes foul water.

1.2) Breaking the rule and the restrictions of the tourist attraction.

1.3) A large number of facilities in the tourist attraction destroyed the condition of the environment and eco-system in that tourist attraction.

1.4) Traveling without moral, behavior on attention on conservation of tourism resources such as collecting flowers, breaking tree branches, writing and drawing, as well as destroying corals for their souvenirs in that tourist attraction.

1.5) Irritation to the living place of water animals. This decreased the less numbers of them such as catching the water animals or irritation them during the period of their laying down eggs or reproduction.

1.6) Attack into the public place for the benefit of tourism such as attack into the restricted area of reserved forest, island or mangrove land for the benefit of tourism of theirs such as to build up the hotel accommodation and restaurant.

1.7) The damage on the environment in the tourist attraction such as cutting the forestry and destroying the antiques etc.

(2) Mostly the prevention and protection principles on the tourism resources can be specified are as follows:

2.1) Social measurements: for example the religion ceremony for against the destroy on the forestry by arranging the being ordained ceremony ect. Besides, to make the feeling of gratitude, beloved and protect to the national resources and environment of the community by themselves or to always keep watching and protecting any effects that will occur. Moreover, there will be an expression of admiration or prepare a prize for a person who plays a major role in conservation the environment and national resources in the community.

2.2) Political measurements: for example the certain policy of government for prevention and protection the national resources and environment as well as a plan for appropriately arranges for tourism development.

2.3) Economical measurements: for example the management on the income for maintaining and developing the national resources and environment of tourism.

2.4) Management of measurements: for example the system of administrative management in using the national resources and environment in tourism in order to be able to control the use of national resources in tourism for appropriated conditions and not lose the balance of nature such as planning to use the national resources, splitting the use of land, arranging the manual booklet to study about the nature, prohibiting cars in some areas and park the cars that obstruct the traffic and the beautiful scenery of the tourist attraction.

2.5) Natural measurements: for example not allow the tourists or people enter or disturb in the area where the animals laying down their eggs or their reproduction and the tourist attraction where is getting back to the previous nature.

2.6) Limitation of the tourist numbers: due to the tourist attraction is carrying capacity the numbers of tourists without destroying that place or making unbalance to the nature.

The characteristics of valuing, it was found that most of personnel had value of tourism resources conservation were average 4.77 points at the prizing level. Consideration each personnel found that the border patrol police officers had the most value of tourism resources conservation were average 5.38 points at the acting level, the tourrists were average 5.03 points at the acting level, and the fishermen leader were average 3.90 points at the prizing level respectively

3.2) Model Behaviors Forming

This activity is opinion concerning the model behaviors forming. It was found that most of personnel had fixed model behaviors forming of tourism resources conservation were average 4.37 points at the good level. Consideration each personnel found that the border patrol police officers had the most opinion concerning the model behaviors forming of tourism resources conservation were average 4.58 points at the good level, the tourrists were average 4.46 points at the good leve l, and the fishermen leader were average 4.06 points at the good level respectively. Next to the commanders with preferred behaviors are used as this model behaviors so that the people may acknowledge and do the same in model behaviors by behavioral practice activity.

3.3) Behavioral Practice

It was found that in an after PAR, most of personnel had behavioral practice of tourism resources conservation were average 3.15 points at the good level. Consideration each personnel found that the administrators had the most behaviral practice of tourism resources conservation were average 3.77 points at the good level, border patrol police officers were average 3.43 points at the good level,

the tourists were average 2.69 points at the good level, and the fishermen leader were average 2.69 points at the good level respectively.

6.1.3 Post-Research Phase

In post-research phase, it was found that tourists and the local people had more knowledge, attitude, practise and participation of tourism resources conservation and ecotourism. Form the assessment from the post-test, tourists and the local people had gained better knowlwdge, attitude with 0.05 statistic significance.

1) Knowledge, Attitude and Participation of Tourists and the Local People Participated in Partucipatory Action Research

1.1) Before PAR

In term of knowledge, attitudes and participation of tourism resources conservation and ecotourism, it was found that in a before PAR, most of the personnel had knowledge, attitudes and participation of tourism resources conservation and ecotourism at the medium level.

1.2) After PAR

From learning tourism resources conservation and ecotourism through environmental education process, it was found that in an after PAR, personnel had more knowledge of tourism resources conservation, which knowledge before and after PAR were statistically different at the 0.05 level and had positive correlation at a nearly high level ($r = 0.6940$; $p < 0.001$). They had more attitudes towards tourism resources conservation, which attitude before and after PAR were statistically different at the 0.05 level and had positive correlation at a medium level ($r = 0.5339$; $p < 0.001$). And participation was found that consultation, planning, and decision making activity, most of personnel had participated on a high level were administrators. Learning activity, most of personnel had participated on a high level was fishermen leaders. To prepare areas and equipments, mangrove forest plantation implementation, maintance, environmental adjustment in the Pak Klong Bangkra Yai, keeping clean implementation, and evaluation activity, most of personnel had participated on a high level were the border patrol police officers.

And it was found that in an after PAR, personnel had more knowledge of ecotourism, which knowledge before and after PAR were statistically different at the 0.05 level and had positive correlation at a high level ($r = 0.8657$; $p < 0.001$). And they had more attitudes towards ecotourism, which attitude before and after PAR were statistically different at the 0.05 level and had positive correlation at a high level ($r = 0.9128$; $p < 0.001$). And participation was found that consultation, planning, and

decision making activity, most of personnel had participated on a high level were administrators. Learning activity, most of the personnel had participated on a high level was fishermen leader. To prepare equipment of natural study manual booklet, and evaluation activity, most of personnel had participated on a high level and to provide natural study manual booklet implementation activity, most of personnel had participated on a medium level were the border patrol police officers.

2) Change on Economic, Social and Environment of Community Participated in Participatory Action Research

2.1) Economic Change

(1) Before PAR

In term of economic benefits to locals, it was found that in a before PAR, most of the border patrol police officers had not received extra income from tourism in the Park because of it was on routine duty. In the last year, the average extra income from the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee was given them only 128.57 baht/person/week but did not received everybody. And in term of budgets, it was found that before project the Sirindhorn International Environmental Park was received budgets subsidy from government.

In term of economically viable industry, it was found that in a before PAR, the local people had not any economically viable industry in the Park. The local people in the community was the border patrol police officers, who were on duty protective borderland duty and the local people out of the community was fishermen, who had caught aquatic animals. They had not participated tourism industry in the Park.

(2) After PAR

In term of extra income, it came to a positive direction. This was considered by the fact that in an after PAR, there was a better change on the economic benefits to locals. The border patrol police officers who were on duty local guide in the Park. They had received more extra income about 2-300 baht/person/week from the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee, which it was revenue from tickets, donated money and bicycle riding activity summary above more 3 millionbaht/year. And in term of budgets, it was found that in an after PAR, the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee had supported budgets for maintenance of the Park.

In term of economically viable industry it came to a positive direction. This was considered by the fact that in an after PAR, there was a better change on the tourism industry in the Park. The border patrol police officers who were on duty local guide tourism place in the Park.

2.2) Social Change

(1) Before PAR

In term of community benefits, it was found that in a before PAR, the fishermen had never formed the tourism resource conservation group before. Moreover, it was not found that in a before PAR, any government organization had come there to promote tourism resource conservation continuously. So the fishermen did not have any experiences to form a group manage tourism resource conservation. And it had not body of knowledge of tourism resource conservation and ecotourism. It had lacked medias the attraction or service locations before, during and after tourism.

In term of participation planning education and employment, it was found that in a before PAR, the local people had not participated planning education in the Park. It always organizes the training course program for the local people who were the border patrol police officers. This course referred to the general principles on the natural resources and environmental conservation but did not emphasize on the tourism resources conservation specially the natural resources in mangrove plantation, which was the very important tourism resource in this Park. Additionally, they had not participated employment because the Park lacked proper maintenance and management.

(2) After PAR

In term of community benefits, it came to a positive direction. This was considered by the fact that in an after PAR, there was unite fishermen group for tourism resource conservation. Fishermen group help each other in conserving tourism resources. They also had established other social units related to PAR program such as a group of tourism resource conservators. And it had rules of visiting the Marigayavan Palace.

In term of body of knowledge, it was found that in an after PAR, there were a better social development in the community and the Park. In the community, the people in the community such as the border patrol police officers and the people out of the community such as fishermen leader had knowledge tourism resource conservation and ecotourism transform others the border patrol police officers and fishermen in order to realize the tourism has triggered the deterioration of

tourism resources. And the development of facilities and services to accommodate the increasing tourists, which has affected the environment and led the unjustified consumption of resources. The Sirindhorn International Environmental Park was an educational site for the conservation and restoration of mangrove forest, beach forest and variety forest, a habitat for various creatures and an invaluable site for ecotourism and historical tourism of Thailand and of the world. In addition, it had the natural study manual booklet for the tourists and the people in order to study before, during and after trip in the Park.

In term of participation planning education and employment, it came to a positive direction. This was considered by the fact that in an after PAR, the local people had participated planning education in the Park. There should be the insertes a subject of tourism resource conservation and ecotourism as a curriculum of training courses program for the local people; there should be expansion of informal education on the same topics by using any other media. Additionally, them had participated employment of tourism in the Park. The border patrol police officers who were on duty local guide.

3) Environmental Change

(1) Before PAR

In term of resource benefits and reduce resource degradation, it was found that in a before PAR, there were many garbage both in the Mrigadayavan Palace area, the Sirindhorn Mangrove Plantation and its surroundings that made by the tourists who visited and the local people did not throw the garbage into the garbage bin. Additionally, the water in Pak Klong Bangkra Yai was obstructed by the blown sand and inconvenient seawater movement that caused the shallow canal and affected to the salty level in the canal, they would run away from the waves by mooring their boats to that area and transferred all their aquatic animals to the truck. That area is not a good place to moor the boats for transferring the aquatic animals because of the very strong waves. The large numbers of mooring boats made trouble to the living of aquatic animals and their laying eggs in the water of the mangrove plantation. Besides, the fishermen caught the aquatic animals in that area that caused the lower quantity of its.

In term of supply-oriented management, it was found that in a before PAR, tourism in the Park was considered a mass tourism where a large group of tourists come in the morning and leave in the evening. The facts those tourists generally leave problems behind and that the maintenance was below standard had led to the

severe deterioration of natural, environmental or tourism resources. Additionally, the Park was permitted the tourists drove their car into the Mrigadayavan Palace area which its was destroyed nature and environment around the Park.

In term of acceptance of resource value, it was found that in a before PAR, most personnel had value of tourism resources conservation at the medium level.

(2) After PAR

In term of resource benefits and reduce resource degradation, it came to a positive direction. This was considered by the fact that in an after PAR, there was a better environmental development than before in the Park. The Park had increased cleaning by tourists and the local people whom threw garbage in the garbage bins. And there was adjust the environment in Pak Klong Bangkra Yai, which was prepared a macro car for digging the sand in above-mentioned cannal by the tourists and the local people. It had better effect to the growth of mangrove trees in the Sirindhorn Mangrove Plantation. Additionally, administrators, tourists and the local people planted the mangrove trees such as *Rhizophora mucronata*. in the Sirindhorn Mangrove Plantation. There are an increasing numbers of 90 mangrove trees.

In term of supply-oriented management, it came to a positive direction. This was considered by the fact that in an after PAR, tourism in the Park was considered increasing a ecotourism where a small-medium group of tourists come in the morning and leave in the evening. Some group stay in the long-stays within the Park. Additionally, the Park did not permit the tourists drove their car into the Mrigadayavan Palace area. It was permitted the tourists stopped their car at carpark which its was front of the Park and walked in the Mrigadayavan Palace area.

In term of acceptance of resource value, researcher followed up tourists and the local people's behavioral practice of tourism resource conservation around two months. The result was found that in an after PAR, most of personnel had value of tourism resources conservation were average 4.77 points at the prizing level. Consideration each personnel found that the border patrol police officers had the most value of tourism resources conservation were average 5.38 points at the acting level, the tourists were average 5.03 points at the acting level, and the fishermen leader were average 3.90 points at the prizing level respectively.

3) Sustainable Tourism.

3.1) Before PAR

In term of long-term benefits, it was found that in a before PAR, its had not clearly economic, community and resource benefits as follows:

(1) In economic benefits to locals aspect, it was found that most of the border patrol police officers had not received extra income from tourism in the Park because of it was on routine duty. And in term of budgets, it was found that the Sirindhorn International Environmental Park was received budgets subsidy from government.

(2) In community benefits aspect, it was found that the fishermen had never formed the tourism resource conservation group before. Moreover, it was not found that any government organization had come there to promote tourism resource conservation continuously. So the fishermen did not have any experiences to form a group manage tourism resource conservation. And it had not body of knowledge of tourism resource conservation and ecotourism. It had lacked medias the attraction or service locations before, during and after trip.

(3) In resource benefits aspect, it was found that there were much garbage both in the Mrigadayavan Palace area, the Sirindhorn Mangrove Plantation and its surroundings that made by the tourists who visited and the local people did not throw the garbage into the garbage bins. Additionally, the water in Pak Klong Bangkra Yai was obstructed by the blown sand and inconvenient seawater movement that caused the shallow canal and affected to the salty level in the canal, they would run away from the waves by mooring their boats to that area and transferred all their aquatic animals to the truck. That area is not a good place to moor the boats for transferring the aquatic animals because of the very strong waves. The large numbers of mooring boats made trouble to the living of aquatic animals and their laying eggs in the water of the mangrove plantation. Besides, the fishermen caught the aquatic animals in that area that caused the lower quantity of its.

In term of moral/ethical responsibility & behavior, it was found that in a before PAR, most personnel had the average of behavioral practice of tourism resource conservation 2.01 points at medium level.

In term of enlightenment, it was found that in a before PAR, administrators, tourists and the local people did not know research and development. It was harmonious with administrators, the tourists, and the local people in the community and continues implementation of the Park.

3.2) After PAR

In term of long-term benefits, it was found that in an after PAR, its had clearly and continuously economic, community and resource benefits as follows:

(1) In term of extra income, it came to a positive direction. This was considered by the fact that there was a better change on the economic benefits to locals. The border patrol police officers who were on duty local guide in the Park. They had received more extra income about 2-300 baht/person/week from the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee, which it was revenue from tickets, donated money and bicycle riding activity above more 3 millionbaht/year. And in term of budgets, it was found that the Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee had supported budgets for maintenance of the Park.

(2) In term of community benefits, it came to a positive direction. This was considered by the fact that there was unite fishermen group for tourism resource conservation. Fishermen group help each other in conserving tourism resources. They also had established other social units related to PAR program such as a group of tourism resource conservators. And it had rules of visiting the Marigayavan Palace, which the visitors should be practise for tourism.

(3) In term of resource benefits and reduce resource degradation, it came to a positive direction. This was considered by the fact that there was a better environmental development than before in the Park. The Park had increased cleaning by tourists and the local people who threwed garbage in the garbage bins. And there was adjust the environment in Pak Klong Bangkra Yai, which was prepared a macro car for digging the sand in above-mentioned cannal by the tourists and the local people. It had better effect to the growth of mangrove trees in the Sirindhorn Mangrove Plantation. Additionally, administrators, tourists and the local people planted the mangrove trees such as *Rhizophora mucronata*. in the Sirindhorn Mangrove Plantation. There are an increasing numbers of 90 mangrove trees.

In term of moral/ethical responsibility & behavior, researcher followed up tourists and the local people behavioral practice of tourism resource conservation around two months. The result was found that in an after PAR, most of personnel had more value of tourism resources conservation were average 4.77 points at the prizing level. Consideration each personnel found that the border patrol police officers had the most value of tourism resources conservation were average 5.38 points at the

acting level, the tourists were average 5.03 points at the acting level, and the fishermen leader were average 3.90 points at the prizing level respectively. And the tourists and the local people had better change behavioral practice of tourism resource conservation. From the average of behavioral practice of tourism resource conservation had generated 1.14 points more behavioral practice of tourism resource conservation after PAR (3.15 points). They had values serve as the birthplace of our environmental ethics.

In term of enlightenment, this was considered by the fact that from evaluation on the project of PAR. It was found that in an after PAR, activities of projects had harmoniously with the administrators, the tourists, the people in the community and the people out of the community need (82.22%), had appropriated with environmental community (86.67%). Contents, trainers, time of studying in the classroom, the real location, practicing, and equipments had appropriation (above 70%). Participation of the administrators, the tourists, people in the community and the people out of the community had at the nearly high level (73.33%). The Park, the administrators, the tourists, the people in the community and the people out of the community had received the benefit of activities at the nearly high level (above 70.00%). And the projects could be possibly to continue implementation of the Park (71.11%) after post the projects and researcher took off the Park.

6.2 Recommendations from the Research

From this research, it was found that a participatory action research could educate and enhance practise in tourism resources conservation to tourists and the local people in the Park. It also stimulated a better change on economic, social and environment. As the result PAR is considered as social learning model. Thus, to supporting an education to tourists and the local people are as follows:

6.2.1 From this research, it was found that in an after PAR, most of personnel had knowledge of tourism resources conservation at the high level and positive correlation at a nearly high level (69.40%) and had attitude towards the tourism resources conservation at the high level and positive correlation at a medium level (53.39%) as well. Therefore, there should be an increase of knowledge of tourism resources conservation, specifically fishermen leader had the least knowledge of

tourism resources conservation and the least attitude towards the tourism resources conservation by promoting and giving information on tourism resources conservation such as providing tourism resources conservation situation at present and any problem in the Park. Concerning to the study, it was found that the tourists had knowledge of tourism resources conservation at the high level and caused high level attitude towards tourism resources conservation at the high level as well. To realize the fact of present situation and to know the right way to conserve the tourism resources also affect the attitude and the decision on conserving tourism resources in the right way.

6.2.2 From this research, it was found that in an after PAR, most of personnel had knowledge of ecotourism after project at the high level and positive correlation at a nearly high level (86.57%) and had attitude towards the ecotourism at the high level and positive correlation at a high level (91.28%) as well. Therefore, there should be an increase of knowledge of ecotourism, specifically fishermen leader had the least knowledge of ecotourism and the least attitude towards the ecotourism by promoting and giving information on ecotourism such as providing ecotourism management. Concerning to the study, it was found that tourists had knowledge of ecotourism at the high level caused high level attitude towards the ecotourism at the high level as well. To realize the fact of present situation and to know the right way to ecotourism management by natural study manual booklet for studying before, during and after trip also effect to the attitude towards the ecotourism in the right way.

6.2.3 From this research, it was found that in an after PAR, most of personnel had behavioral practice of tourism resource conservation at the high level (4.77 points) as well. Therefore, there should be observing behavioral tourism resources conservation continuously, specifically the tourists and fishermen leader had behavioral practice of tourism resource conservation at the high level by being a good sample in tourism resources conservation before and after one's eyes.

6.2.4 From this research, it was found that in an after PAR, the Park always organizes the training course program for the local people who were the border patrol police officers. A curriculum had have the contents of the training program were basic conservation. The past, it did not put much emphasis on tourism resource conservation, mangrove forest plantation, and ecotourism matter. It made the local people lacked knowledge and understanding in tourism resources conservation and ecotourism, therefore, there should be the insertes a subject of tourism resource conservation and ecotourism as a curriculum of training courses program for the border patrol police

officers, there should be expansion of informal education on the same topics by using other media.

6.2.5 From this research, it was found that in an after PAR, the Park had many tourist attractions. It should be more activities on ecotourism in the tourist attraction such as cagak rowing, broad jump and bird watching activity, etc. will be beneficial to the income of tourist attraction for maintenance the environment and tourism resources as well as making more income to the local people.

6.2.6 From this research, it was found that in an after PAR, most of personnel had the most activity in the Park were see beautiful and ancient place (19.49%), natural study (14.49%), and learning in tourism place (10.9%) respectively. For better knowledge and attitude towards the tourism resources conservation the Park could be created by providing natural study manual booklet of the Park for the tourists and the people in order to study before, during and after trip also effect the knowledge and attitude towards the ecotourism in the right way.

6.2.7 From this research, it was found that in an after PAR, most of personnel had the most attitude towards the building the embankment (44.44%) and interviewed Police lieutenant Colonel Changsuwan P. Chief of the Park, that the future Park should be building the embankment for long term solving the problem of sea sand blowing over Pak Klong Bangkra Yai against wind, so sand will not be clogged at waterway. Because of due to the water in Pak Klong Bangkra Yai was obstructed by the blown sand and inconvenient seawater movement that caused the shallow canal and affected to the salty level in the canal. In the rainy season, as the water level in canal increased, it affected to the decreasing salty in the water. However, the insufficient quantity of rain in the summer and the level of water in canal was little that made more increasing of the salty level. This happen had the effect to the growth of some plants in the mangrove plantation.

6.2.8 From this research, it was found that in before PAR, the Park laced proper maintenance and management. It was very important that developed tourism in the Park. It should be employment tourism manager who is professional tourism management. He develops tourism management and software for ecotourism in the Park.

6.3 Recommendations for the Further Study

6.3.1 From the research, it was found that PAR method was a great role to the accomplishment in educating and enhancing skill in tourism resource conservation to community people, thus contributing to development of economic goal, social goal, and environmental goal. This is an effective way to study environmental education. Thus, PAR should be applied to introduce other environmental studies to community such as agrotourism or agriculture.

6.3.2 From the research, it was found that tourists and the local people in the Park participated in the program had experienced a better change of economic, social and environment. They still continue their work though the program was ended. Therefore, PAR should be applied to other target groups especially other tourists and fishermen. It is believed that if strong tourists and fishermen, its success apply PAR can be rolled out and it will create continuous sustainable tourism development in the Park.

6.3.3 There should be study with the other areas or tourism places, which tourism had lacked proper maintenance and management, as well as the need for the Park or tourism places to be ecotourism for sustainable tourism.

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A Participatory Action Research for Sustainable Tourism Development through Environmental Education Process: A Case Study of The Sirindhorn International Environmental Park Project.

Nature of Problem

Tourism is one of the world's most significant industries. World Travel and Tourism Council (WTTC) has projected that tourism is the world's most significant economic branch presently and that it will continue to become even more important in the future. In 2003 World's Travel & Tourism Industry is expected to generate 3.7% of GDP and 67,441,100 jobs while the Broader Travel & Tourism Economy is expected to total 10.2% of GDP and 194,562,000 jobs. Looking ahead, the forecast for travel of tourism demand is expected to total 2.9% real growth in 2003, and 4.6% real growth per annum between 2004 and 2003 (<http://www.wttc.org/measure/pdf>, Dec. 2003).

Thailand is still known as one of the countries with the richest tourism resources in Asia with its 2,579 tourist attractions nationwide, 1,385 of which are natural and 1,194 of which are cultural (Tourism Authority of Thailand, 1997). It enjoys the popularity of the tourists in the same fashion as other countries. Tourism plays a substantial role in the economic system and the country's development. Its continued expansion has generated most of national revenue for almost twenty years. Number of tourist arrival to Thailand has generated 1.7 million persons more number of tourist arrival to Thailand in 2002 (11.8 million persons) and than in 2001 (10.1 million persons). Tourist revenues has generated 0.1% of GDP (%) more tourist revenues in 2002 (5.9% of GDP (%)) and than in 2001 (5.8% of GDP (%)). And tourist expenditures in Thailand has generated 102.1% of GDP (%) more tourist expenditures in Thailand in 2002 (3,850% of GDP (%)) and than in 2001 (3,747.9% of GDP (%))(<http://www.tat.or.th>, Dec. 2003).

While tourism generates great economic and social benefits, it inevitably consumes tourism resources such as natural and cultural tourism resources. Although it was believed that such resources are inexhaustible, it is now realized that the growth of tourism has triggered the deterioration of tourism resources. For example, the

development of facilities and services to accommodate the increasing tourists which has affected the environment and led the unjustified consumption of resources. There is no perfect country with unlimited abundance. Each and every country experiences different problems of varied magnitudes depending upon their management capability. These problems may stem from internal factors within the system or external factors which affect tourism namely social characteristics, economy and domestic and foreign politics. Tourism itself may affect external environments as well. As for Thailand, the Tourism Authority of Thailand has conducted a research and concluded that 172 tourist attractions of the country are in a poor state with critical problems. Physical problems of the tourist attractions is the major problem (34.06%) with environmental problems, management policy, facilities, tourists' welfare and on-site activities following at 27.19%, 19.69%, 11.25%, 6.56% and 1.25% respectively (Tourism Authority of Thailand, 1997).

In the mean time, many countries have joined the extensive and global movement to strive for environment and natural resource conservation. The reason being those environmental problems are becoming more serious and are more threatening to the lives and well-being of humans and other living creatures. Tourism development, as well as agricultural and industrial developments, is accused as the root of environmental problems with related conflicts and protests abound. The Earth Summit held at Rio De Janeiro, Brazil, in June 1992, has encouraged the cooperation of the public and the private sections in establishing systems and procedures to foster sustainable development from the decision-making level to the specification of important practical guidelines in order to make sustainable tourism development. The Summit was a part of Agenda 21 on travel and tourism industry which realized that the world's natural resources are deteriorating and diminishing at a rate faster than the replenishment. Certain travel and tourism related activities consume primarily the fragile natural and cultural resources. Therefore, care should be taken in preserving such resources so that they will last long into the future. The Earth Summit has detailed the results of ignorance which may lead to a fatal destruction in the short term, resulting in the introduction of regulations on economic punishments as well as irreversible destruction of the scenery, wildlife, construction and cultural diversity – the supporting factors which the tourism industry need to rely on in the long term.

Consequently, there is an attempt to develop tourism in a conservation-oriented manner. Thailand has previously defined clear categories of tourism as natural tourism and cultural (as well as historical) tourism. Tourism Authority of Thailand has employed a tourism development strategy which is preventive of effects on the tourism resources under the concept of “conservation-oriented development for the sustainability of Thai tourism” (Tourism Authority of Thailand, 1997). The principal of conserving tourism resources is that they must be consumed in a sustainable manner known as sustainable tourism. The World Tourism Organization (WTO) defines sustainable tourism as “the kind of tourism that brings satisfaction to the tourists and the locals as the owners of the tourist attractions while considering loss prevention and continued development.” As well, there is ecotourism, which focuses on the study at the tourist attractions in order to save the ecosystem with a special consideration of local participation, which is a part of tourism in natural, cultural or historical sites. Ecotourism is a measure, which encourages participation in the preservation of tourism resources and a guideline to the realization of sustainable tourism under the national tourism management master plan.

The Sirindhorn International Environmental Park was previously the station of the 1st Sub-division, Tactical Training Division (Rama VI camp) and Airborne Reinforcement Sub-division, Supporting Division, Border Patrol Bureau (Narasuan camp). It was once a perfect mangrove forest with pleasant natural beauty as well as natural and cultural tourism resources. One particular example is the Mrigadayavan Palace built by the King Rama VI as a summer palace, which attracts as many as 200,000 tourists per year (Source: Mrigadayavan Palace Foundation, 2001-2003). This is considered a mass tourism where a large group of tourists come in the morning and leave in the evening. The facts those tourists generally leave problems behind and that the maintenance is below standard have led to the severe deterioration of natural, environmental or tourism resources. This is most obvious in the fast failing and reducing the mangrove forest area, which harmonizes a research of tourist attractions of the country are in a poor state with critical problems. Her Royal Highness Princess Maha Chakry Sirindhorn has presided over the site on 17th August 1994 in order to plant different mangrove forests in the areas of the Park in Klong Bangkra Yai and Klong Bangkra Noi, Cha-Am sub-district, Cha-Am district, Phetchaburi province and witness the condition of the ground and deserted area with salty flakes on the surface. She has

suggested that a solution should be found in order to restore them to the green and lush natural beauty for recreational and ecosystem study related purposes.

The Border Patrol Police Bureau, Huay Sai Development and Education Center under the Royal Patronage of His Majesty the King and the Mrigadayavan Palace Foundation under the Royal Patronage of Her Highness Princess Sirisopapannawadee have joined efforts in maintaining the Park as a living natural museum and a testimonial to H.R.H Princess Maha Chakry Sirindhorn's contribution to and ability in environmental, historical and cultural conservation for people of all nations to see. Additionally, it is to be an educational site for the conservation and restoration of mangrove forest, beach forest and variety forest, a habitat for various creatures and an invaluable site for ecotourism and historical tourism of Thailand and of the world. However, the Park lacked proper maintenance and management. Additionally, fishermen in the seashore attacked into the mangrove forest. It is very important that awareness and environmental ethics are created in people for the conservation of natural resources and the environment. New tourism management must be found for the development of sustainable tourism through the collaboration of the administrators and the local people living in the Park for the benefits of community environmental education which will lead the locals to realize the significance of the situation and finally to participate with the tourism resources conservation.

Selfishness and the lack of a conservative mind are a foundation of the natural resources and environment destruction. It is supported by the concept of economic growth-oriented development, which does not consider the effects it might have as well. The environment awareness promotion needs to address a new vision in which all humans live in the same age and share the same resources. They must realize their ownership and rights to benefit from the environment and natural resources together in simple ways. It must be consisted of a thinking system or a value which is far for the natural resource allocation which must not be based only on the economy but also the values of the society and the lives or environmental ethics. That is, people in the society must take part in remedying environmental problems with awareness of the environmental problems on the basis of actual natural understanding and responsibility to oneself and the society. However, environmental problems can be resolved only with the collaboration of the people, organizations or agencies. Those who are to participate in the effort must have love, understanding, unity, sacrifice, and

ability to express one's opinions and the willingness to listen to those of the others. This kind of collaboration will reduce power-based relationship and the chain of command. Participatory action is democratic in terms of thoughts, decision making, planning, acting and following up. Participatory Action Research (PAR) is one of the procedures which promotes joint efforts in solving problems in order to achieve the goals of communities, agencies or organizations. PAR is a scientific method which provides proof to the facts of every stage of the operation, allows for supporting information based planning, real-world experiments and the use of data to improve the operational system which results in innovations that contribute to the sustainable development in the operational areas.

Environmental education is a long-term preventive and remedial measure for environmental problems. It is a learning process, which focuses on the establishment of knowledge, thoughts, awareness, responsibility as well as appropriate and sustainable practices regarding environment in the learners. As well, it is the foundation for the development to citizens with awareness of and concerns about the environment and related problems. They must be have the knowledge, skills, enticement, and commitment in the mission of remedying environmental problems for the conservation of environment quality and the informed, balanced and sustainable consumption of natural resources and the environment for the people of the present and the future.

The researcher is concerned about the background and significance of the issues above. Therefore, the researcher is interested in conducting a participatory action research for sustainable tourism development through environmental education process in order to create in administrators, tourists and the locals the tourism resources conservation awareness and practices – a contribution to the national sustainable tourism development.

Visions/Goals

1. The administrations, tourists and the local people have more knowledge, attitude and practices in conserving tourism resources.

2. The administrations, tourists and the local people have more participation in conserving tourism resources.

3. Developing tourism in the Park as from of ecotourism.

Missions/Objectives

1. To promote participation and develop knowledge, attitudes and practices in conserving tourism resources to administrators, tourists and the local people.

2. To study and compare economic, social, and environment goals appearances of above-mentioned administrations, tourists and the local people before and after undertaking PAR.

3. To develop ecotourism in the Park as a form of sustainable development.

Project Procedures

This research involves seven months of procedures. The stages of activities are as follows:

1) **Preparatory stage** (approximately 46 days): The important activities as follows:

1.1 Identify the problems and the requirements by studying the preliminary data from the observation of the environment in the Park. Conduct a survey of the community, take photographs and interview the local people.

1.2 Hold a meeting with the administrators of the Park in order to proceed with the planning.

1.3 Collect data by studying the documents.

1.4 Analyze and interpret. Hold data analysis meeting, prepare research tools and layout the activities.

1.4 Pre-test before project.

2) **Acting stage** (approximately 160 days): Carry out the three projects and nine activities with joint efforts from the researcher, administrators, tourists and the local people are as follows:

2.1 Tourism resources learning and conservative project. The four activities are as follows:

- 2.1.1 Educational activity on tourism resources conservation.
- 2.1.2 Mangrove forest plantation activity within the area of the park.
- 2.1.3 Environmental adjustment activity in Pak Klong Bangkra Yai.
- 2.1.4 Keeping clean activity within the area of the Park.

2.2 Educational project on the ecotourism. The two activities are as follows:

- 2.2.1 Educational activity on ecotourism.
- 2.2.2 Natural study manual booklet conveyance activity.

2.3 Environmental ethics project. The three activities are as follows:

- 2.3.1 Faith inspiring activities.
- 2.3.2 Model behaviors forming activities.
- 2.3.3 Behavioral practice activities.

3) Evaluation stage (approximately 15 days): Evaluation is done throughout the period of the procedures. It is done prior to the action in order to study the actual condition; during the procedures to monitor the progress of the activities and at the conclusion of the project to summarize using questionnaires, post-tests after project, intensive interviews, behavioral observation and results analysis for data collection.

Summary table by the procedures, activities and duration using the program evaluation and review technique (PERT) as in Table 1 and details of activities and durations for this research using PERT technique in Figure 1.

Table 1: The procedures, activities and duration using the program evaluation and review technique (PERT).

Project Procedures	Activities	Duration
1. Preparatory stage		46 days
1.1 Identify the problems and the requirements.	1.1 Study preliminary data <ul style="list-style-type: none"> • Observe the environment in the Park • Survey the community. • Take photographs. • Interview the local people. 	(3-5-7 days) (3-5-7 days) (3-5-7 days) (5-7-10 days)

Table 1 (Cont.)

Project Procedures	Activities	Duration
1.2 Meetings.	1.2 Hold meetings with the administrators of the Park.	(2-4-6 days)
1.3 Collect data.	1.3 Study the documents.	(3-5-7 days)
1.4 Analyze and interpret.	1.4 Details <ul style="list-style-type: none"> • Hold data analysis meetings. • Prepare research tools. • Layout the activities. 	(10-15-20 days) (7-10-15 days) (10-15-20 days)
1.5 Pre-test before project.	1.5 Pre-test knowledge and attitudes before project	(1-2-3 days)
2. Action stage	2.1 Tourism resources learning and conservative project. <ol style="list-style-type: none"> 1) Provide education on tourism resources conservation. 2) Mangrove forest plantation within the area of the Park. 3) Environmental adjustment in Pak Klong Brangkra Yai. 4) Keeping clean within the area of the Park. 2.2 Educational project on the ecotourism. <ol style="list-style-type: none"> 1) Provide education on cotourism. 2) Natural study manual booklet conveyance. 2.3 Environmental ethics project. <ol style="list-style-type: none"> 1) Faith inspiring. 2) Model behaviors forming. 3) Behavioral practice. 	160 days (1-2-3 days) (20-30-40 days) (10-15-20 days) (20-30-40 days) (2-3-5 days) (10-15-20 days) (2-3-5 days) (10-2-3 days) (45-60-75 days)
3. Evaluation stage.	Summarize and evaluate the project <ul style="list-style-type: none"> • Interviews • Questionnaires • Recording operational results • Observe the participation • Hold a meeting, present the results, write the reports. 	15 days (1-2-3 days) (10-15-20 days)

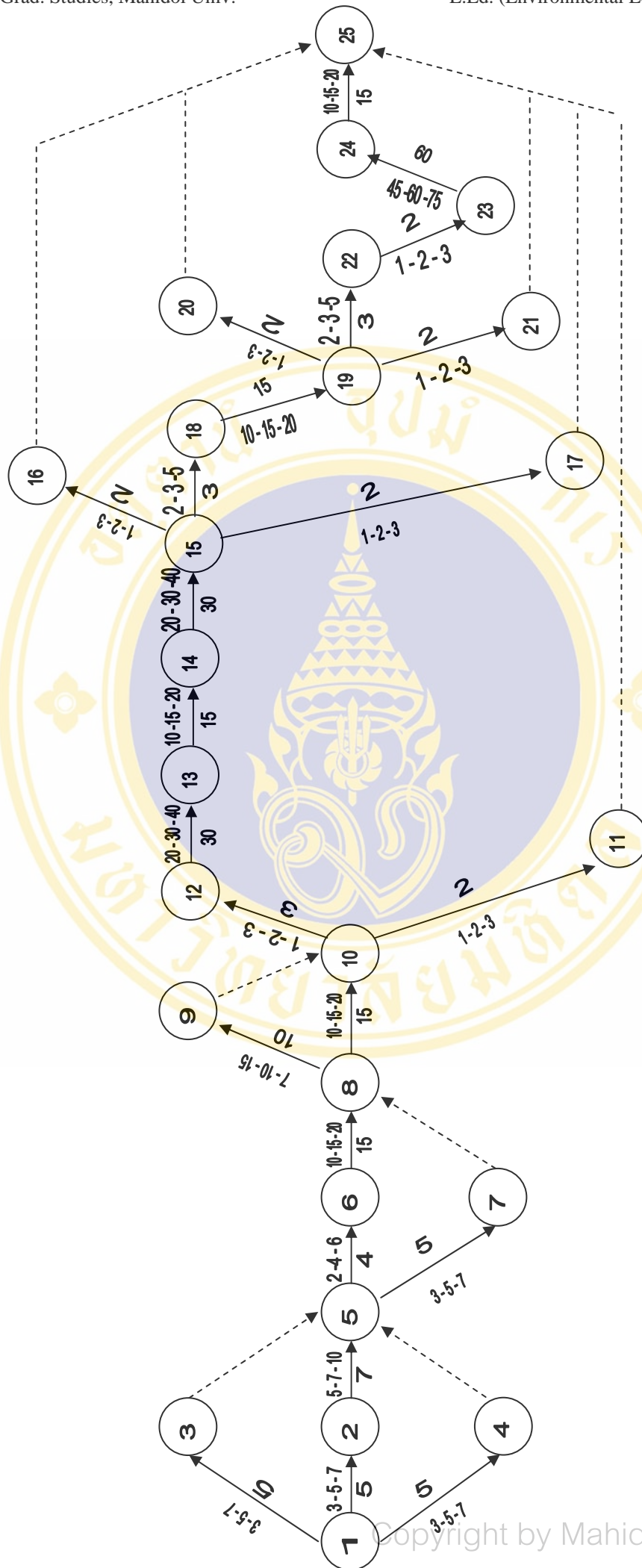


Figure 1: Details of activities and durations for the Participatory Action Research for Sustainable Tourism Development Through Environmental Education Process by PERT technique.

Legends of activities under the project

- **Event 1-2** Survey of the community in the Park
(Duration $t_o = 3$ days, $t_m = 5$ days, $t_p = 7$ days and $t_e = 5$ days)
- **Event 1-3** Take photographs in the Park
(Duration $t_o = 3$ days, $t_m = 5$ days, $t_p = 7$ days and $t_e = 5$ days)
- **Event 1-4** Observe the environment in the Park
(Duration $t_o = 3$ days, $t_m = 5$ days, $t_p = 7$ days and $t_e = 5$ days)
- **Event 2-5** Interview the local people
(Duration $t_o = 5$ days, $t_m = 7$ days, $t_p = 10$ days and $t_e = 7$ days)
- **Event 5-6** Meetings with the administrators of the Park
(Duration $t_o = 2$ days, $t_m = 4$ days, $t_p = 6$ days and $t_e = 4$ days)
- **Event 5-7** Study the documents
(Duration $t_o = 3$ days, $t_m = 5$ days, $t_p = 7$ days and $t_e = 5$ days)
- **Event 6-8** Data analysis meeting
(Duration $t_o = 10$ days, $t_m = 15$ days, $t_p = 20$ days and $t_e = 15$ days)
- **Event 8-9** Prepare the research tools
(Duration $t_o = 7$ days, $t_m = 10$ days, $t_p = 15$ days and $t_e = 10$ days)
- **Event 8-10** Layout the activities
(Duration $t_o = 10$ days, $t_m = 15$ days, $t_p = 20$ days and $t_e = 15$ days)
- **Event 10-11** Pre-test knowledge and attitude of tourism resources conservation before PAR
(Duration $t_o = 1$ day, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 10-12** Providing education on tourism resources conservation
(Duration $t_o = 1$ days, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 12-13** Mangrove forest plantation within the area of the Park
(Duration $t_o = 20$ days, $t_m = 30$ days, $t_p = 40$ days and $t_e = 30$ days)
- **Event 13-14** Environmental adjustment in the Pak Klong Bangkra Yai
(Duration $t_o = 10$ days, $t_m = 15$ days, $t_p = 20$ days and $t_e = 15$ days)
- **Event 14-15** Keeping clean within the area of the Park
(Duration $t_o = 20$ days, $t_m = 30$ days, $t_p = 40$ days and $t_e = 30$ days)
- **Event 15-16** Post-test knowledge and attitude of tourism resources conservation after PAR
(Duration $t_o = 1$ days, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)

- **Event 15-17** Pre-test knowledge and attitude of ecotourism before PAR
(Duration $t_o = 1$ day, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 15-18** Providing education on ecotourism
(Duration $t_o = 2$ days, $t_m = 3$ days, $t_p = 5$ days and $t_e = 3$ days)
- **Event 18-19** Providing natural study manual booklet
(Duration $t_o = 10$ days, $t_m = 15$ days, $t_p = 20$ days and $t_e = 15$ days)
- **Event 19-20** Post-test knowledge and attitude of ecotourism after PAR
(Duration $t_o = 1$ days, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 19-21** Pre-test characteristic of value before PAR
(Duration $t_o = 1$ day, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 19-22** Faith inspiring
(Duration $t_o = 2$ days, $t_m = 3$ days, $t_p = 5$ days and $t_e = 5$ days)
- **Event 22-23** Model behaviors forming
(Duration $t_o = 1$ days, $t_m = 2$ days, $t_p = 3$ days and $t_e = 2$ days)
- **Event 23-24** Behavioral practice
(Duration $t_o = 45$ days, $t_m = 60$ days, $t_p = 75$ days and $t_e = 60$ days)
- **Event 24-25** Evaluation
(Duration $t_o = 10$ days, $t_m = 15$ days, $t_p = 20$ days and $t_e = 15$ days)

Budgets

Budgets are supported from Mahidol University and researcher.

Times

During January to July 2004.

Location

The Sirindhorn International Environmental Park, Cha-Am sub-district, Cha-Am district, Phetchaburi province.

Responsible Projects

Police Major Kitti Ariyanon and team.

Related Units

1. The Border Patrol Police Bureau.
2. Huay Sai Development and Education Center under the Royal Patronage of His Majesty the King.
3. The Mrigadayavan Palace Foundation under the Royal Patronage of Her Highness Princess Sirisopapannawadee.
4. Mahidol University.
5. Tourism Authority of Thailand.

Expected Benefits

1. The Sirindhorn International Environmental Park and the community are developed. The administrators, tourists and the local people have attained tourism resources conservation knowledge, attitudes and practices.
2. The administrators, tourists and the local people participate in tourism resources conservation.
3. The Park has had enhance environment.
4. The new tourism form is adapted to the Park and helps with the sustainable tourism resource development.

1. Tourism Resources Learning and Conservative Project

Nature of Problem

Thailand is a particularly resourceful country. It has a great deal of natural and cultural resources valuable to tourism, which generates great economic and social benefits. Although it was believed that such resources are inexhaustible, it is now realized that the growth of tourism has triggered the deterioration of tourism resources. For example, the development of facilities and services to accommodate the increasing tourists, which has affected the environment and led the unjustified consumption of resources. As for Thailand, the Tourism Authority of Thailand has conducted a research in 1997 and concluded that 172 tourist attractions of the country are in a poor state with critical problems. Physical problems of the tourist attractions is the major problem (34.06%) with environmental problems, management policy, facilities, tourists' welfare and on-site activities following at 27.19%, 19.69%, 11.25%, 6.56% and 1.25% respectively (Tourism Authority of Thailand, 1997).

In the mean time, many countries have joined the extensive and global movement to strive for environment and natural resource conservation. The reason being that environmental problems are becoming more serious and are more threatening to the lives and well-being of humans and other living creatures. Tourism development, as well as agricultural and industrial developments, is accused as the root of environmental problems with related conflicts and protests abound. The Earth Summit held at Rio De Janeiro, Brazil, in June 1992, has encouraged the cooperation of the public and the private sections in establishing systems and procedures to foster sustainable development from the decision-making level to the specification of important practical guidelines in order to make sustainable the tourism development. The Summit was a part of Agenda 21 on travel and tourism industry, which realized that the world's natural resources are deteriorating and diminishing at a rate faster than the replenishment. Certain travel and tourism related activities consume primarily the fragile natural and cultural resources. Therefore, care should be taken in preserving such resources so that they will last long into the future. The Earth Summit has detailed the results of ignorance which may lead to a fatal destruction in the short term, resulting in the introduction of regulations on economic punishments as well as

irreversible destruction of the scenery, wildlife, construction and cultural diversity – the supporting factors which the tourism industry need to rely on in the long term.

The Sirindhorn International Environmental Park was previously the station of the 1st Sub-division, Tactical Training Division (Rama VI camp) and Airborne Reinforcement Sub-division, Supporting Division, Border Patrol Bureau (Narasuan camp). It was once a perfect mangrove forest with pleasant natural beauty as well as natural and cultural tourism resources. One particular example is the Mrigadayavan Palace built by King Rama VI as a summer palace. Not into 40 years ago forest areas were destroyed absolutely. Result rain did not to fall real reason and had decreased volumes. Land was without the rain, soil lacked maintenance to occur not balance in nature, soil erosion almost highly. Condition of forest ecosystem was destroyed, result water volumes flowed to Klong Bangkra Yai and Klong Bangkra Noi had decreased water volumes. The mangrove forests were most obvious in the fast failing and reducing the mangrove forest area. A survey of the Klong Bangkra Noi revealed that the areas of total mangrove forests were about 22.08 rai or 1.29% of the total areas, and Klong Bangkra Yai revealed that the areas of total mangrove forests were about 11.88 rai or 0.69% of the total areas. Main problems because of building the infrastructures cross-waterway, throwing the garbage from community into the canal and due to the water in Pak Klong Bangkra Yai was obstructed by the blown sand and inconvenient seawater movement that caused the shallow canal and affected to the salty level in the canal. Additionally, due to the water in Pak Klong Bangkra Yai was obstructed by the blown sand and inconvenient seawater movement that caused the shallow canal and affected to the salty level in the canal, the tourists throw the garbage in tourism place and lacked proper maintenance and management. It had led to the severe deterioration of natural, environmental or tourism resources.

Her Royal Highness Princess Maha Chakri Sirindhorn visited the Rama VI camp on August 14, 1994 and gave an idea that “to make an appropriate land in order to try out and get back the condition of mangrove plantation for returning the habitat science into the nature”. After that she planted several kinds of trees in the mangrove plantation in Pak Klong Bangkra Noi and Klong Bangkra Yai on August 17, 1994 and gave an additional idea how to maintain and survive all that trees and continued to plant some more trees. The Border Patrol Police Bureau has joined with Huay Sai Development and Education Center under the Royal Patronage of His Majesty’s King

and Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Petcharat Rachasuda Sopapanwadee have together established the Sirindhorn International Environmental Park to dedicate for her on the occasion of the 48th birthday anniversary in the year 2003. Its have joined efforts in maintaining the Park as a living natural museum and a testimonial to His Majesty's contribution to and ability in environmental, historical and cultural conservation for people of all nations to see. Additionally, it is to be an educational site for the conservation and restoration of mangrove forest, beach forest and variety forest, a habitat for various creatures and an invaluable site for ecotourism and historical tourism of Thailand and of the world.

Consequently, the tourists and the local people know to natural tourism conservation principles, and environmental management, specifically mangrove forest, which importance resources of the Sirindhorn International Environmental Park. It is a method of conserving the natural resources and the environment the tourism place. A primary duty of the administrators of the Park in cooperation with the local people as well as the tourists in real life, so that they will last long into the future. Hence, these projects are provided.

Objectives

1. To promote participation and develop knowledge, attitude and practices in conserving tourism resources to administrators, tourists and the local people.
2. To provide environmental enhancing in the Park.

Targets

1. The administrations, tourists and the local people have knowledge, attitude and practices in conserving tourism resources.
2. The administrations, tourists and the local people have participation in conserving tourism resources.

Project Implementation

1) Preparatory stage

1.1 Identify stage

- Studying the preliminary data
- Meeting/consulting
- Observation of the environment in the Park
- Survey of the community
- Interview the local people

1.2 Meeting and planning/collect data and analyze

- Meeting with the administrators of the Park
- Collect data
- Analyze
- Layout the activities
- Prepare research tools
- Connect to ask the plants

2) Acting stage

2.1 Knowledgeable stage: educational activity on tourism resources conservation.

- Study documents
- Study in the classroom
- Study real location

2.2 Take an action stage:

2.2.1 Mangrove forest plantation activity within the area of the park.

2.2.2 Environmental adjustment activity in Pak Klong Bangkra Yai.

2.2.3 Keeping clean activity within the area of the Park.

- Survey areas
- Prepare areas
- Cooperative implementation
- Maintenance.

3) Evaluation stage

3.1 Evaluate pre-projects

- Questionnaires (pre-test)

3.2 Evaluate during projects

- Recording operational results
- Check output
- Observe the participation

3.3 Evaluate post-projects

- Questionnaires (post-test)
- To summarize
- Meeting
- Present the results
- Write the reports

Budgets

Budgets are supported from Mahidol University and researcher.

Times

During January to March 2004.

Location

The Sirindhorn International Environmental Park, Cha-Am sub-district, Cha-Am district, Phetchaburi province.

Responsible Projects

Police Major Kitti Ariyanon and team.

Related Units

1. The Border Patrol Police Bureau.
2. Huay Sai Development and Education Center under the Royal Patronage of His Majesty the King.
3. The Mrigadayavan Palace Foundation under the Royal Patronage of Her Highness Princess Sirisopapannawadee.
4. Mahidol University.
5. Tourism Authority of Thailand.

Expected Benefits

1. The administrators, tourists and the local people have attained tourism resources conservation knowledge, awareness and practices.
2. The administrators, tourists and the local people participate in tourism resources conservation.
3. The Park has had enhance environment.

2. Educational Project on the Ecotourism

Nature of Problem

Tourism is one of the world's most significant industries. World Travel and Tourism Council (WTTC) has projected that tourism is the world's most significant economic branch presently and that it will continue to become even more important in the future. Thailand is still known as one of the countries with the riches tourism resources in Asia with its 2,579 tourist attractions nationwide, 1,385 of which are natural and 1,194 of which are cultural (Tourism Authority of Thailand, 1997). It enjoys the popularity of the tourists in the same fashion as other countries. Tourism plays a substantial role in the economic system and the country's development. Its continued expansion has generated most of national revenue for almost twenty years.

While tourism generates great economic and social benefits, it inevitably consumes tourism resources such as natural and cultural tourism resources. Although it was believed that such resources are inexhaustible, it is now realized that the growth of tourism has triggered the deterioration of tourism resources. For example, the development of facilities and services to accommodate the increasing tourists which has affected the environment and led the unjustified consumption of resources. The reason being those environmental problems are becoming more serious and are more threatening to the lives and well-being of humans and other living creatures. Tourism

development, as well as agricultural and industrial developments, is accused as the root of environmental problems with related conflicts and protests abound. The Earth Summit held at Rio De Janeiro, Brazil, in June 1992, has encouraged the cooperation of the public and the private sections in establishing systems and procedures to foster sustainable development from the decision-making level to the specification of important practical guidelines in order to make sustainable the tourism development. The Summit was a part of Agenda 21 on travel and tourism industry which realized that the world's natural resources are deteriorating and diminishing at a rate faster than the replenishment. Certain travel and tourism related activities consume primarily the fragile natural and cultural resources.

There is an attempt to develop tourism in a conservation-oriented manner. Thailand has previously defined clear categories of tourism as natural tourism and cultural (as well as historical) tourism. Tourism Authority of Thailand has employed a tourism development strategy which is preventive of effects on the tourism resources under the concept of “conservation-oriented development for the sustainability of Thai tourism” (Tourism Authority of Thailand, 1997). The principal of conserving tourism resources is that they must be consumed in a sustainable manner known as “**sustainable tourism**”. As well, there is ecotourism, which focuses on the study at the tourist attractions in order to save the ecosystem with a special consideration of local participation, which is a part of tourism in natural, cultural or historical sites.

The Sirindhorn International Environmental Park was new occurrence, which the Border Patrol Police Bureau, Huay Sai Development and Education Center under the Royal Patronage of His Majesty the King and the Mrigadayavan Palace Foundation under the Royal Patronage of Her Highness Princess Sirisopapannawadee have together established the Sirindhorn International Environmental Park to dedicate for her on the occasion of the 48th birthday anniversary in the year 2003. And its have joined efforts in maintaining the Park as a living natural museum and a testimonial to H.R.H Princess Maha Chakry Sirindhorn's contribution to and ability in environmental, historical and cultural conservation for people of all nations to see. Additionally, it is to be an educational site for the conservation and restoration of mangrove forest, beach forest and variety forest, a habitat for various creatures and an invaluable site for ecotourism and historical tourism of Thailand and of the world.

Consequently, the tourists and the local people have knowledge in ecotourism, which is the new tourism form and encourages participation in the conservation of tourism resources. And natural study manual booklet conveyance in the Park, which is a form of providing knowledge to the tourists at the attractions or service locations, and a guideline to the realization of sustainable tourism under the national tourism management master plan. A primary duty of the administrators of the Park in cooperation with the local people as well as the tourists in real life. Hence, these projects are provided.

Objectives

1. To promote participation and develop knowledge, attitude and practices in ecotourism to administrations, tourists and the local people.
2. To provide natural study manual booklet conveyance of the Park.

Targets

1. The administrations, tourists and the local people have knowledge, attitude and practices in ecotourism.
2. The administrations, tourists and the local people have participation in natural study manual booklet conveyance for ecotourism in the Park.

Project Implementation

1) Preparatory stage

1.1 Identify stage

- Studying the preliminary data
- Meeting/consulting
- Observation of the environment in the Park
- Survey of the community
- Interview the local people

1.2 Meeting and planning/collect data and analyze

- Meeting with the administrators of the Park
- Collect data
- Analyze
- Layout the activities
- Prepare research tools
- Prepare accessories for providing natural study manual booklet

2) **Acting stage**

2.1 Knowledgeable stage: educational activity on ecotourism.

- Study documents
- Study in the classroom
- Study in the real location

2.2 Take an action stage: natural study manual booklet conveyance activity.

- Survey areas
- Prepare equipments
- Cooperative implementation
- To spread out the tourists and people.

3) **Evaluation stage**

3.1 Evaluate pre-projects

- Questionnaires (pre-test)

3.2 Evaluate during projects

- Recording operational results
- Check output
- Observe the participation

3.3 Evaluate post-projects

- Questionnaires (post-test)
- To summarize
- Meeting
- Present the results
- Write the reports

Budgets

Budgets are supported from Mahidol University and researcher.

Times

During March to May 2004.

Location

The Sirindhorn International Environmental Park, Cha-Am sub-district, Cha-Am district, Phetchaburi province.

Responsible Projects

Police Major Kitti Ariyanon and team.

Related Units

1. The Border Patrol Police Bureau.
2. Huay Sai Development and Education Center under the Royal Patronage of His Majesty the King.
3. The Mrigadayavan Palace Foundation under the Royal Patronage of Her Highness Princess Sirisopapannawadee.
4. Mahidol University.
5. Tourism Authority of Thailand.

Expected Benefits

1. The administrators, tourists and the local people have attained ecotourism knowledge, awareness and practices.
2. The administrators, tourists and the local people participate in providing natural study manual booklet conveyance.

3. To have natural study manual booklet of the Park for the tourists and people to before, during and after study.

3. Environmental Ethics Project

Nature of Problem

Tourism generates great economic and social benefits; it inevitably consumes tourism resources such as natural and cultural tourism resources. Although it was believed that such resources are inexhaustible, it is now realized that the growth of tourism has triggered the deterioration of tourism resources. For example, the development of facilities and services to accommodate the increasing tourists which has affected the environment and led the unjustified consumption of resources. There is no perfect country with unlimited abundance. Each and every country experiences different problems of varied magnitudes depending upon their management capability. These problems may stem from internal factors within the system or external factors which affect tourism namely social characteristics, economy and domestic and foreign politics. Tourism itself may affect external environments as well. As for Thailand, the Tourism Authority of Thailand has conducted a research in 1997 and concluded that 172 tourist attractions of the country are in a poor state with critical problems. Physical problems of the tourist attractions is the major problem (34.06%) with environmental problems, management policy, facilities, tourists' welfare and on-site activities following at 27.19%, 19.69%, 11.25%, 6.56% and 1.25% respectively (Tourism Authority of Thailand, 1997).

In the mean time, many countries have joined the extensive and global movement to strive for environment and natural resource conservation. The reason being that environmental problems are becoming more serious and are more threatening to the lives and well-being of humans and other living creatures. Tourism development, as well as agricultural and industrial developments, is accused as the root of environmental

problems with related conflicts and protests abound. The Earth Summit held at Rio De Janeiro, Brazil, in June 1992, has encouraged the cooperation of the public and the private sections in establishing systems and procedures to foster sustainable development from the decision-making level to the specification of important practical guidelines in order to make sustainable tourism development. The Summit was a part of Agenda 21 on travel and tourism industry which realized that the world's natural resources are deteriorating and diminishing at a rate faster than the replenishment. Certain travel and tourism related activities consume primarily the fragile natural and cultural resources. Therefore, care should be taken in preserving such resources so that they will last long into the future. The Earth Summit has detailed the results of ignorance which may lead to a fatal destruction in the short term, resulting in the introduction of regulations on economic punishments as well as irreversible destruction of the scenery, wildlife, construction and cultural diversity – the supporting factors which the tourism industry need to rely on in the long term. Thailand is an attempt to develop tourism in a conservation-oriented manner. It has employed a tourism development strategy which is preventive of effects on the tourism resources under the concept of “conservation-oriented development for the sustainability of Thai tourism” (Tourism Authority of Thailand, 1997). As well, there is ecotourism, which focuses on the study at the tourist attractions in order to save the ecosystem with a special consideration of local participation, which is a part of tourism in natural, cultural or historical sites and a guideline to the realization of sustainable tourism under the national tourism management master plan.

The Sirindhorn International Environmental Park was previously the station of the 1st Sub-division, Tactical Training Division (Rama VI camp) and Airborne Reinforcement Sub-division, Supporting Division, Border Patrol Bureau (Narasuan camp). It was once a perfect mangrove forest with pleasant natural beauty as well as natural and cultural tourism resources. One particular example is the Mrigadayavan Palace built by the King Rama VI as a summer palace, which attracts as many as 200,000 tourists per year (Source: Mrigadayavan Palace Foundation, 2001-2003). This is considered a mass tourism where a large group of tourists come in the morning and leave in the evening. The facts those tourists generally leave problems behind and that the maintenance is below standard have led to the severe deterioration of natural, environmental or tourism resources. This is most obvious in the fast failing and

reducing the mangrove forest area, which harmonizes a research of tourist attractions of the country are in a poor state with critical problems. Her Royal Highness Princess Maha Chakry Sirindhorn has presided over the site on 17th August 1994 in order to plant different mangrove forests in the areas of the Park in Klong Bangkra Yai and Klong Bangkra Noi, Cha-Am sub-district, Cha-Am district, Phetchaburi province and witness the condition of the ground and deserted area with salty flakes on the surface. She has suggested that a solution should be found in order to restore them to the green and lush natural beauty for recreational and ecosystem study related purposes. The Border Patrol Police Bureau, Huay Sai Development and Education Center under the Royal Patronage of His Majesty the King and the Mrigadayavan Palace Foundation under the Royal Patronage of Her Highness Princess Sirisopapannawadee have joined efforts in maintaining the Park as a living natural museum and a testimonial to H.R.H Princess Maha Chakry Sirindhorn's contribution to and ability in environmental, historical and cultural conservation for people of all nations to see. Additionally, it is to be an educational site for the conservation and restoration of estuary forest, beach forest and variety forest, a habitat for various creatures and an invaluable site for ecotourism and historical tourism of Thailand and of the world.

Consequently, the tourists and the local people have understanding, and know to valuable tourism resources conservation in the Park, so that they will last long into the future. A primary duty of the administrators of the Park must be the modeling, and develop the local people proper ideas and attitude. Also, to enhance them to live harmoniously with the nature. Hence, these projects are provided.

Objectives

1. To inspire the faith for administrations, tourists and the local people in conserving tourism resources in the Park.
2. To fix the model behaviors forming in conserving tourism resources for tourists and the local people.
3. To get tourists and the local people have behaviors people in conserving tourism resources, and practice until to habit.

Targets

1. The administrations, tourists and the local people have understanding, and know to valuable tourism resources conservation in the Park.
2. The administrations are good model behaviors in conserving tourism resources.
3. Tourists and the local people have behaviors people in conserving tourism resources, and practice until to habit.

Project Implementation

1) Preparatory stage

1.1 Identify stage

- Studying the preliminary data
- Meeting/consulting
- Survey of the community
- Interview the local people

1.2 Meeting and planning/collect data and analyze

- Meeting with the administrators of the Park
- Collect data
- Analyze
- Layout the activities
- Prepare research tools

2) Acting stage

2.1 Faith inspiring stage

- To make understanding
- Display relation
- Schedule value
- Expression

2.2 Model behaviors forming stage

- Schedule the model behaviors
- Stimulating practice

2.3 Behavioral practice stage

- Monitoring
- Reinforcement (rewards/punishments)

3) Evaluation stage

3.1 Evaluate pre-projects

- Questionnaires

3.2 Evaluate during projects

- Questionnaires
- Recording operational results
- Check output
- Observe behaviors

3.3 Evaluate post-projects

- Observe behaviors
- To summarize
- Meeting
- Present the results
- Write the reports

Budgets

Budgets are supported from Mahidol University and researcher.

Times

During May to July 2004.

Location

The Sirindhorn International Environmental Park, Cha-Am sub-district, Cha-Am district, Phetchaburi province.

Responsible Projects

Police Major Kitti Ariyanon and team.

Related Units

1. The Border Patrol Police Bureau.
2. Huay Sai Development and Education Center under the Royal Patronage of His Majesty the King.
3. The Mrigadayavan Palace Foundation under the Royal Patronage of Her Highness Princess Sirisopapannawadee.
4. Mahidol University.
5. Tourism Authority of Thailand.

Expected Benefits

1. The administrations, tourists and the local people have understanding, and know to valuable tourism resources conservation in the Park.
2. The administrations, tourists and the local people have behaviors people in conserving tourism resources, and practice until to habit.
3. The tourism resources are be in the Park altogether.

Questionnaires

Topic

A Participatory Action Research for Sustainable Tourism Development through Environmental Education Process: A Case Study of The Sirindhorn International Environmental Park.

Section 1: Backgrounds of Personnel General Status: Social Economic and Environment.

Please make in and fill out details according to fact in the bank.

1. Tourists People in the community People out of the community
(The border patrol police officers)

2. Social Data

- (1) Gender Male Female

- (2) Age.....Years.

- (3) Education.

- Lower than Bachelor Degree Bachelor Degree Higher than Bachelor Degree

- (4) Occupation.

- To be employed Commence

- To hold a post in the government Fisherman Others (please specify...)

- (5) Total working period.....Years.

- (6) Domicile.

- North region Central region

- Northeastern region Southern region

3. Economic Data

(1) Income.

- Lower than 5,000 baht/month 5,001-10,000 baht/month
 10,001-15,000 baht/month Higher than 15,000 baht/month

(2) Tourists. Cost travel of tourism per trip.

- Lower 1,000 baht/trip 1,001-2,000 baht/trip
 2,001-3,000 baht/trip Higher than 3,000 baht/trip

(3) People in the community (the border patrol police officers). Do you ever receive extra income in the Park?

- No. Yes.....baht/month

4. Environmental Data

(1) Do you ever receive information of tourism resources conservation?

- No. Yes.

(2) According to (1) if the answer in Yes, from which source did you get the information of tourism resources conservation.

- Television Newspaper
 Radio Journal
 Tourism Authority Brochure or Leaflet
 Others (please specify.....)

(3) Do you ever receive information of ecotourism?

- No. Yes.

(4) According to (3) if the answer in Yes, from which source did you get the information of ecotourism.

- | | |
|---|--|
| <input type="checkbox"/> Television | <input type="checkbox"/> Newspaper |
| <input type="checkbox"/> Radio | <input type="checkbox"/> Journal |
| <input type="checkbox"/> Tourism Authority | <input type="checkbox"/> Brochure or Leaflet |
| <input type="checkbox"/> Others (please specify.....) | |

(5) Do you know information of tourism in the Park?

- | | |
|---|--|
| <input type="checkbox"/> Television | <input type="checkbox"/> Newspaper |
| <input type="checkbox"/> Radio | <input type="checkbox"/> Journal |
| <input type="checkbox"/> Tourism Authority | <input type="checkbox"/> Brochure or Leaflet |
| <input type="checkbox"/> Others (please specify.....) | |

(6) The most favourite tourism palace in the Park.

- | | |
|--|---|
| <input type="checkbox"/> Herbaceous forest | <input type="checkbox"/> The Sirindhorn mangrove plantation |
| <input type="checkbox"/> Opened zoo | <input type="checkbox"/> Demonstrate area of the self-reliance theory |
| <input type="checkbox"/> Camp service center | <input type="checkbox"/> Sport recreation center |
| <input type="checkbox"/> The Mrigadayavan Palace | <input type="checkbox"/> The King Rama VI monument |
| <input type="checkbox"/> Chaophraya Ramrakop residence | <input type="checkbox"/> Others (please specify.....) |

(7) The most favourite tourism activities in the Park.

- | | |
|---|--|
| <input type="checkbox"/> Natural study | <input type="checkbox"/> Bird watching |
| <input type="checkbox"/> Bicycle riding | <input type="checkbox"/> See beautiful and ancient place |
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Photo |
| <input type="checkbox"/> Camping | <input type="checkbox"/> Learning in tourism place |
| <input type="checkbox"/> Others (please specify.....) | |

Section 2: Knowledge and Attitude of Tourism Resources Conservation

2.1 Questionnaires on the knowledge of tourism resources conservation

Item	Statement	Yes	No
1	Tourism is infinite resource because it is non-wasteful resource.		
2	Tourism resource means the natural tourism resource only.		
3	The natural tourism resource in naturally means mountain, mangrove forest, waterfall, etc.		
4	Place or human made including the living, culture and tradition are one type of the tourism resources.		
5	Tourism resource is as though capital of industrial production of tourism. If it is destroyed, tourism must be concerned.		
6	To facilitate and service in order to support the numbers of tourist in the tourist attractions by not affecting to the tourism resources.		
7	Natural resource and environmental conservation in the tourist attractions is to keep the resources the best by not using it.		
8	The principle of tourism resource conservation is to utilize them and in long duration.		
9	Tourism resources conservation is a duty of officer or concern persons.		
10	There are many tourism resources to be used and no need to be recycled.		
11	It is necessary to follow all the regulations of each tourist attraction.		
12	To keep the tourism resource is one way to conserve tourism resources.		
13	The number of tourist and population who visit the place is a factor that has changed the natural environment in the tourist attractions.		
14	Garbage in the tourist attractions will decrease the beauty of tourist place.		

Item	Statement	Yes	No
15	The natural resource of mangrove forest is the very important to the residential system because it is the living place, laying an egg and reproducing of aquatic animals.		
16	To destroy a few mangrove forests for utilization does not damage to the residential system.		
17	Another way to conserve the mangrove forest is to plant and rehabilitate the bad mangrove forest back to original condition.		
18	To leave a few garbage in the mangrove forest area doesn't affect to the residential system of mangrove forest		
19	Another way to revive natural resources is not to disturb and catch the aquatic animals in the mangrove forest areas.		
20	The environmental change such as the increasing and decreasing of the sea and level of salt-water in the mangrove forest has affected to the growth of some plants in that area.		
21	The good land for planting mangroves must be in the muddy land with full of water.		
22	The old aged of seed in pod of mangrove, which is reddish on its pole, is the selected type for planting in mangrove land.		
23	The suitable space between one plant to the other one should be 0.5 X 0.5 meter.		
24	The enemies of mangrove forest are pest insect such as Lappet moths, Bag-worm moths, Fire flies, Leaf-eating and caterpillar and foe plants such as <i>Acrostichum aureum</i> , <i>Acanthus spp.</i> , <i>Derris trifoliata</i> and many creepers etc.		

2.2 Questionnaires on the attitude towards tourism resources conversation

Statement	Attitude Level				
	Strongly Agree	Agree	Un certain	Disagree	Strongly Disagree
1. It is not necessary to conserve the tourism resource because it is infinite resources.					

Statement	Attitude Level				
	Strongly Agree	Agree	Un certain	Disagree	Strongly Disagree
2. To bring undestroyed garbage into the tourist attractions can reduce the work of the officer and has no effects on the environment.					
3. People have their right to get the benefits from the tourism resources without caution on the bad affection.					
4. Buildings, which are located in the tourism resources, must concern with the natural condition and not locate in the line of sight of the beautiful nature.					
5. Disregard of environment such as uncleanness, stuffy room reduces the beauty of tourist attractions.					
6. More tourist attractions and disregard management cause the destructive tourism resources and environment.					
7. Tourism resources conservation is less important than the development of economic tourism.					
8. The officer should guide and take care of the tourists in order to prevent the violation of regulations of that tourist attraction.					

Statement	Attitude Level				
	Strongly Agree	Agree	Un certain	Disagree	Strongly Disagree
9. It is enough to give the knowledge of tourism resources conservation to only one tourist.					
10. It is necessary to encourage more activities on how to conserve on the tourism resources.					
11. The natural manual booklet about what to do or prohibit as well as the recommendations for each tourist attraction are needed.					
12. Others more facilities such as food center, the shelter of rest should be provided for the tourists.					
13. The tourists should throw the garbage in the garbage bin only.					
14. The recommendations and operation to conserve the tourism resources by people or tourists will make them care about that tourist sight					
15. If the tourists see the garbage in that area, they will not have good impression and want to return to that place again.					
16. To increase the numbers of mangrove forests will affect to the increasing numbers of aquatic animals and birds etc. in mangrove areas.					

Statement	Attitude Level				
	Strongly Agree	Agree	Un certain	Disagree	Strongly Disagree
17. To keep and conserve the mangrove forest should be the duty of the officer only.					
18. The environment should be adjusted when the sea blows sand over Pak Klong Bangkra Yai.					
19. The embankment should be built for solving the problem of sea sand blowing over Pak Klong Bangkra Yai.					
20. To enter into the mangrove forest will annoy the aquatic animals that are living, laying an egg or cultivation in the mangrove forest.					
21. To select the land for planting each mangrove must think about each land for that particular plant.					
22. The old aged of seed in pod of mangrove is good to be selected for planting or using the growing of young plant in the natural forest.					
23. It is necessary to plant the mangrove next to each other and not thinking about the length between each one in order to increase the numbers of mangrove trees.					
24. No need to conserve an insect and foe plants because they have no enemy.					

Section 3: Knowledge and Attitude of Ecotourism**3.1 Questionnaires on the knowledge of ecotourism**

Item	Statement	Yes	No
1	Tourism is the industry that does not affect to the natural resources and environment.		
2	The reason that causes the depreciation in value is a result of the rapid expansion of tourism industry.		
3	The development of tourism does not affect and change the residential system because of the improvement in its system.		
4	To limit the number of tourists is a suitable way to support the tourists in each place.		
5	The good principle of tourism is not to leave anything except their footprint and not to take anything from except the memory of that place.		
6	The irresponsibility of tourists and people are damaged to the tourist attraction.		
7	To keep the tourist attraction clean is the duty of the officer or the person who is responsible in that place only.		
8	Buying the souvenir, which is made of the natural resources, is a way to support the income to that tourist attraction.		
9	To take many tourists into the tourist attraction in the same time is good for that tourist attraction.		
10	To give the knowledge on environment to the tourists is unnecessary because the tourists want to enjoy only.		
11	The ecotourism is one measure to conserve the natural tourism resources.		
12	Ecotourism is natural and cultural tourism with educational and recreational purposes through the nature and environments of such ecosystem. The local people are to participate and gain the most from tourism activities in order to establish awareness for of sustainable ecosystem conservation.		
13	Planning ecotourism management in tourism place should be duty of only official manager in order to same standard.		

Item	Statement	Yes	No
14	Facilities in the tourist attractions are very important thing in the ecotourism.		
15	The ecotourism can help tourism resources conservation together with the economic development of the country.		
16	The ecotourism has less effecting to the environment than another tourism.		
17	The ecotourism will maintain the good quality of the tourist attraction and the good quality of the local people.		
18	The tourists will get the knowledge from the ecotourism and be satisfied from the experiences in traveling.		
19	The ecotourism will decrease the effect of the industrial development in tourism.		
20	The necessity of protection the natural tourism resources is to give the knowledge, understanding and making only one tourist group appreciate to conserve the tourism.		
21	The good effect to the local people and the tourist attractions in ecotourism is the large numbers of tourists.		
22	To promote, public relations and give the knowledge are the most important factor of the ecotourism.		
23	Training the local people as tour guide in the tourist attraction is a way to bring the benefit of the tourist attraction to the local people.		
24	The expenses to maintain the environment of that tourist place are from the income of ecotourism.		

3.2 Questionnaires on the attitude towards ecotourism

Statement	Attitude Level				
	Strongly Agree	Agree	Un certain	Disagree	Strongly Disagree
1. In general, the environment in the Park is still very beautiful nature.					
2. The management of ecotourism in the tourist place must not affect to the natural resources and environment in the tourist attraction.					

Statement	Attitude Level				
	Strongly Agree	Agree	Un certain	Disagree	Strongly Disagree
3. The local people must corporate with the management of ecotourism and get the benefit from the activities of those tourist attractions.					
4. The format of ecotourism should be facilitate to be the stable in economy, social and environment by affecting at least to the environment.					
5. The travel management must be responsible in morality to the environment.					
6. Others facilities such as food center, accommodation, ect. are needed to the increasing numbers of tourists.					
7. You are satisfied to see many tourists visit in the tourist attractions.					
8. The numbers of tourists should be limited according to the appropriate of the tourist attractions in order to be able to greetings the numbers of tourists and to maintain the beauty of the nature.					
9. The development of facilities should be related to the nature and environment in the tourist attraction.					
10. The comfortable shelters of rest should be prepared and service for the tourists.					
11. You want to study more about the natural tourism in the tourist attractions.					

Statement	Attitude Level				
	Strongly Agree	Agree	Un certain	Disagree	Strongly Disagree
12. You want to study more about the cultural tourism in the tourist attractions.					
13. Others activities concerning the tourism such as bird watching, rowing canoe, bicycle riding, etc. should be more prepared.					
14. Training for the local people to be knowledgeable and able to guide the travelers to visit in the tourist attractions.					
15. The sign for communicating on the nature in the tourist places should be prepared for the knowledge of tourists on those tourism resources.					
16. There should be the recommendation or preliminary discussions about the right regulations to the tourists before they visit in the Park.					
17. The natural study manual booklet for the tourists should be prepared for studying the tourist place before and after visiting.					
18. The natural interpretation should be prepared in the tourist place in order to facilitate and make them study the nature of the tourist places.					
19. The income from the ecotourism should be spread more to the local people.					
20. A part of income by collecting from entrance fee should be paid for the maintenance the tourist place.					

Section 4: Value, Opinion, Characteristics of Value, Fixed Model behaviors and Behavioral Observation in Tourism Resources Conservation

4.1 Questionnaires on the value of tourism resources conservation

Statement	Operational Level				
	Always	Often	Sometimes	Once a time	Never
1. You cooperate well with the activities on tourism resources conservation.					
2. When you visit to the tourist places, you always buy the souvenirs that made from the natural resources in those tourist attractions.					
3. When you want to rest, you always travel to the national park such as waterfall, sea, cave and mountain.					
4. To choose the tourist places, you always visit to only the popular places without caring about the crowd.					
5. You travel to the natural places because of your amusing.					
6. You don't need any unnecessary facilities and over need for traveling in each time.					
7. You told to the tourists and other people to keep clean in the tourist attractions by not throwing the garbage in that place.					
8. You are interested in studying the nature/living standard/local culture of the place where you visited.					
9. You always don't pay attention and never practice the rules of those tourist attractions.					

Statement	Operational Level				
	Always	Often	Sometimes	Once a time	Never
10. You always bring the garbage such as food containing, plastic bag into the tourist attractions.					
11. You throw the garbage into only the garbage bins that are prepared.					
12. You always help and protect the behavior of the person who destroy the natural resources and report to the officer.					
13. You always don't pay the service/entrance fee to that tourist places if you can be avoid.					
14. You always pay attention and follow to the environmental news from the medias such as radio, television, newspaper, brochure etc.					
15. You study the knowledge about the tourism resources conservation from many medias.					
16. You listen to any other opinions about the planning to conserve the tourism resources.					
17. You promote the beauty in natural park to the tourists.					
18. You are a good person who has conserved the tourism resources before and after one's eyes.					

4.3 Questionnaires on characteristic of valuing in tourism resources conservation

Statement	Criterion of characteristic of valuing in tourism resources conservation														
	Choosing freely		Choosing from alternatives		Choosing after thoughtful consideration of the consequences of each alternative		Cherishing, being happy with the choice		Willing to affirm the choice publicly		Doing something with the choice		Repeatedly, in some pattern of life		
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	
1. Cooperation well in any activities on tourism resources conservation															
2. Always buy the souvenirs that made from the natural resources of that tourist place.															
3. Always travel to the natural parks such as waterfall, beach, sea, cave and mountain.															
4. Choose the natural tourist places where are popular without caring about the crowd.															
5. Travel in the natural place for amusement.															
6. No need any unnecessary facilities and over need in traveling each time.															
7. Tell the tourists and other persons to keep clean by not throwing the garbage away in the tourist attractions.															
8. Need to study the nature/living standard/local culture of the tourist places where you have visited.															
9. Not pay attention and against the regulations of those tourist attractions.															

Statement	Criterion of characteristic of valuing in tourism resources conservation													
	Choosing freely		Choosing from alternatives		Choosing after thoughtful consideration of the consequences of each alternative		Cherishing, being happy with the choice		Willing to affirm the choice publicly		Doing something with the choice		Repeatedly, in some pattern of life	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
10. Take the garbage such as food containing, plastic bags into the natural tourist attractions.														
11. Throw the garbage into the garbage bins that are provided only.														
12. Follow the bad behaviors in destroy the places and natural resources and report to the officer when you see it.														
13. To be avoid the payment on service/entrance fee to that tourist places.														
14. Always give the importance and interested in the environmental news from the medias such as radio, television, newspaper, brochure etc.														
15. To study about tourism resources conservation from the medias.														
16. Accept the opinions from the others persons regarding tourism resources conservation.														
17. Promote the tourists to visit the beauty of the Parks.														
18. To be a good sample in tourism resources conservation before and after one's eyes.														

4.4 Questionnaires on the fixed model behaviors of tourism resources conservation

Statement	Fixed Model Behavior Level				
	Excellent	Good	Un certain	Not good	Not very Good
1. Cooperation well in any activities on tourism resources conservation.					
2. Always buy the souvenirs that made from the natural resources of that tourist place.					
3. Always travel to the natural parks such as waterfall, beach, sea, cave and mountain.					
4. Choose the natural tourist places where are popular without caring about the crowd.					
5. Travel in the natural place for amusement.					
6. No need any unnecessary facilities and over need in traveling each time.					
7. Tell the tourists and other persons to keep clean by not throwing the garbage away in the tourist places.					
8. Need to study the nature/living standard/local culture of the tourist places where you have visited.					
9. Not pay attention and against the regulations of that tourist place.					
10. Take the garbage such as food containing, plastic bags into the natural tourist attractions.					
11. Throw the garbage into the garbage bins that are provided only.					

Statement	Fixed Model Behavior Level				
	Excellent	Good	Un certain	Not good	Not very good
12. Follow the bad behaviors in destroy the places and natural resources and report to the officer when you see it.					
13. To be avoid the payment on service/entrance fee to that tourist places.					
14. Always give the importance and interested in the environmental news from the medias such as radio, television, newspaper, brochure etc.					
15. To study about tourism resources conservation from the medias.					
16. Accept the opinions from the others persons regarding the tourism resources conservation.					
17. Promote the tourists to visit the beauty of the Parks.					
18. To be a good sample in tourism resources conservation before and after one's eyes.					

4.5 Forms of behavioral observation in tourism resources conservation.

Statement	Behavioral observation															
	Administrators				Tourists				People in the community (The border patrol police officers)				People out of the community (Fishermen leader)			
	Always	Often	Some times	Once a Time	Never	Always	Often	Some times	Once a Time	Never	Always	Often	Some times	Once a Time	Never	
1. Cooperation well in any activities on tourism resources conservation																
2. Always buy the souvenirs that made from the natural resources of that tourist place.																
3. Always travel to the natural parks such as waterfall, beach, sea, cave and mountain.																
4. Choose the natural tourist places where are popular without caring about the crowd.																
5. Travel in the natural place for amusement.																
6. No need any unnecessary facilities and over need in traveling each time.																
7. Tell the tourists and other persons to keep clean by not throwing the garbage away in the tourist attractions.																

Behavioral observation																
Statement	Administrators				Tourists				People in the community (The border patrol police officers)				People out of the community (Fishermen leader)			
	Always	Often	Some times	Once a Time	Never	Always	Often	Some times	Once a Time	Never	Always	Often	Some times	Once a Time	Never	
8. Need to study the nature/living standard/local culture of the tourist places where you have visited.																
9. Not pay attention and against the regulations of those tourist attractions.																
10. Take the garbage such as food containing, plastic bags into the natural tourist attractions.																
11. Throw the garbage into the garbage bins that are provided only.																
12. Follow the bad behaviors in destroy the places and natural resources and report to the officer when you see it.																
13. To be avoid the payment on service/entrance fee to that tourist places.																

Behavioral observation																
Statement	Administrators				Tourists				People in the community (The border patrol police officers)				People out of the community (Fishermen leader)			
	Always	Often	Some times	Once a Time	Never	Always	Often	Some times	Once a Time	Never	Always	Often	Some times	Once a Time	Never	
14. Always give the importance and interested in the environmental news from the medias such as radio, television, newspaper, brochure etc.																
15. To study about tourism resources conservation from the medias.																
16. Accept the opinions from the others persons regarding tourism resources conservation.																
17. Promote the tourists to visit the beauty of the Parks.																
18. To be a good sample in tourism resources conservation before and after one's eyes.																

Section 5: Participation in the Projects

5.1 Forms of participate record in education on the new tourism form of implementation project.

Statement	Participation Level											
	Administrators			Tourists			People in the community (The border patrol police officers)			People out of the community (Fishermen leader)		
	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
1. Consultation												
2. Planning												
3. Decision making												
4. Learning												
5. To prepare equipment of natural study manual booklet												
6. To provide natural study manual booklet implementation												
7. Evaluation												

5.2 Forms of participate record in tourism resources conservation of implementation project.

Statement	Participation Level											
	Administrators			Tourists			People in the community (The border patrol police officers)			People out of the community (Fishermen leader)		
	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
1. Consultation												
2. Planning												
3. Decision making												
4. Learning												
5. To prepare areas and equipments												
6. Mangrove forest plantation implementation												
7. Maintenance												
8. Environmental adjustment in Pak Klong Bangkra Yai implementation												
9. Keeping clean implementation												
10. Evaluation												

5.3 Forms of participate record in environmental ethics development of implementation project.

Statement	Participation Level												
	Administrators			Tourists			People in the community (The border patrol police officers)			People out of the community (Fishermen leader)			
	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	
1. Consultation													
2. Planning													
3. Decision making													
4. Opinion													
5. The examination of value													
6. To fix model behaviors													
7. Behavioral practice of tourism resources conservation													
8. Evaluation													

Section 6: Evaluation and Suggestion of the Project

6.1 Form of evaluation project

1) Attitude towards the activities of participatory action research for sustainable tourism development through environmental education process: a case study of the Sirindhorn International Environmental Park project.

(1) Harmonious project with the administrators, the tourists, people in the community and the people out of the community need.

Yes. No.

(2) Appropriated project with environmental community.

Yes. No.

(3) Contents had appropriation.

Yes. No.

(4) Trainers had appropriation.

Yes. No.

(5) Time of studying in the classroom had appropriation.

Yes. No.

(6) Time of studying in the real location had appropriation.

Yes. No.

(7) Time of practicing had appropriation.

Yes. No.

(8) Equipments had appropriation.

Yes. No.

(9) Participation of the administrators, the tourists, the people in the community and the people out of the community.

Yes. No.

(10) Benefit of the activities, which the Park received.

Yes. No.

PICTURES OF ACTIVITIES IN PARTICIPATORY ACTION RESEARCH

PRE-RESEARCH PHASE



The Sirindhorn International Environmental Park, was situated Rama VI camp and Narasuan camp, Cha-Am subdistrict Cha-Am district, and Phetburi province. It had approximate areas on 2,400 rai, cover four villages as follows: Ban Bangsai Noi, Ban Bokia, Ban Hnayshai Tai, and Ban Huayjig. The Park was previously the station the 1st Sub-division, Tactical Training Division (Rama VI camp) and Airborne Reinforcement Sub-division, Supporting Division, Border Patrol Bureau (Narasuan camp).

There were many garbage in the Mrigadayavan Palace before PAR.



There were many garbage in the Sirindhorn Mangrove Plantation before PAR.

Due to water in Pak Klong Bangkra Yai was obstructed by the blown sand and inconvenient seawater movement before PAR





Identify the problems and requirements between administrators, tourists, the local people and researcher.



Meeting and planning with administrators tourists, the local people, and researcher.

Pre-test before PAR.



RESEARCH PHASE

1. TOURISM RESOURCES LEARNING AND CONSERVATIVE PROJECT.



Educational activity on tourism resources conservation.

Mangrove forest plantation activity within the area of the Park.



Mangrove types such as *Rhizophora mucronata*.

A macro car for digging the sand in the above-mentioned canal.



2. EDUCATIONAL PROJECT ON THE ECOTOURISM.



Educational activity on ecotourism.

Providing natural study manual booklet activity.



3. ENVIRONMENTAL ETHICS DEVELOPMENT PROJECT.

To make understanding, drawing freely the opinion of the title “the problems of tourism resources, prevention and solution about the problems on tourism resources”.



From observing, it was found that general tourism resources in the Park had been more cleaning.



Around the Sirindhorn International Environmental Park after PAR.

POST-RESEARCH PHASE

• ECONOMIC CHANGE



The Mrigadayavan Palace Foundation under the Royal Patronage of Her Royal Highness Princess Phetcharat Rachasuda Sopapanwadee, which it was revenue from tickets, donated money and bicycle riding summary above more 3 millionbaht/year. It had supported budgets for local guide and maintnence of the Park.

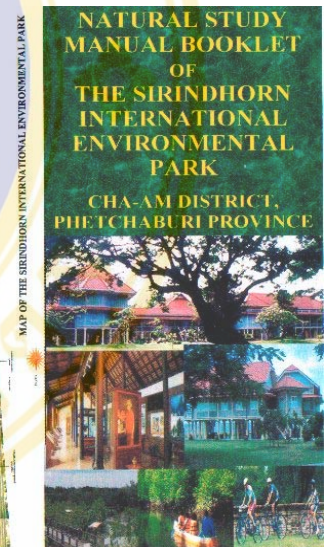
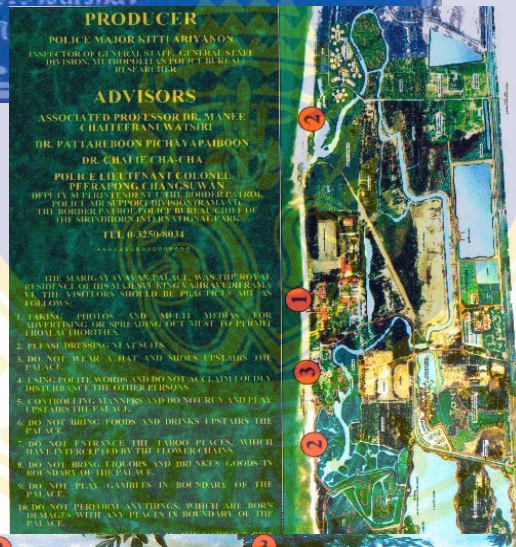


Ticket for visiting in the Sirindhorn International Environmental Park was cost 30 baht/person.

• SOCIAL CHANGE



The Park had rules of visiting the Marigayavan Palace, which the visitors should be practises.



Draft of natural study manual booklet of the Sirindhorn International Environmental Park for tourists study before, during and after tourism.

• ENVIRONMENTAL CHANGE



The Park had increased cleaning by tourists and the local people whom threw garbage in the garbage bins.





There was adjust the environment in Pak Klong Bangkra Yai, which was prepared a macro car for digging the sand in above-mentioned cannal by the tourists and the local people. It had better effect to the growth of mangrove trees in the Sirindhorn Mangrove Plantation.

Tourists and the local people planted the mangrove trees such as *Rhizophora mucronata*. in the Sirindhorn Mangrove Plantation. There are an increasing numbers of 90 mangrove trees.



The Park had increased cleaning by tourists and the local people whom threw garbage in the garbage bins. And the Park had keep cleaning activity within the area everyweek, which it was continuous activitiy by the border patrol police officers.

BIOGRAPHY

NAME	Police Major Kitti Ariyanon
DATE OF BIRTH	11 November 1969
PLACE OF BIRTH	Nakorn Prathom, Thailand
INSTITUTIONS ATTENDED	Police Cadet Academy, 1989-1992 Bachelor of Public Administration Mahidol University, 1998-1999 Master of Art (Criminology and Criminal Justice) Mahidol University, 2001-2005 Doctor of Education (Environmental Education)
RESEARCH GRANT	Research for Thesis Grant, Faculty of Grauate Stusies, Mahidol University.
POSITION & OFFICE	2004-Present, Provincial Police Region 3 Amphore Mueang, Nakorn Ratchasima Province. Position: Secretary of Commissioner of Provincial Police Region 3.