

Original article

Appropriate Community Participation Process for Dispute Resolution in Kon Watershed Management, Nan Province, Northern Thailand

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ABSTRACT

The research aims to develop Appropriate Community Participation Process (ACPP) for the dispute resolution in Kon watershed management, Nan Province. The Participatory Action Research (PAR), which emphasizes the establishment of a Core Planning Team (CPT) and the People's Party (PP), were used for the research methodology. The PAR provides a mechanism to build a multi-stakeholder partnership and identify land utilization problems in watershed regions.

The results showed that community empowerment for the protection and conservation zone and the utilization zone were 72.89 % (163.02 km²) and 27.11% (60.64 km²), respectively. The planning and management for natural resource in the watershed region emphasizes: zoning for land utilization, forest and headwater restoration; forest fire protection, water resource development; and potential community career promotion. In addition, a pilot project utilizing Geographic Information System (GIS) to provide flashflood and landslide warnings drew the attention of the CPT of Amphur Chiang Klang to yearn for more knowledge and skills, and finally led the Municipality for the continual actions.

The precision and accuracy testing of ACPP towards the CPT and PP process can solved conflict in Kon watershed. It took almost three years for the community to accept the fact that the ACPP was capable of resolving conflicts in Kon watershed. Nonetheless, socio-economic and culture characteristics as well as foregoing conflicts among the watershed community have limited the application of ACPP. As a result, should the ACPP be started at a small-scale watershed with the consideration of physical and socio-economic characteristics in harmony. It is advisable that multi-stakeholders in the watershed area must be clearly defined and any ACPP action should be incorporated to the conduct of the study. This would encourage confidence among the people towards the researcher. Finally, the government has important role in proceeding ACPP adoption for watershed management, as it has the potential to reduce conflicts in other watershed regions within Thailand.

Keywords: community participation, dispute resolution, watershed management

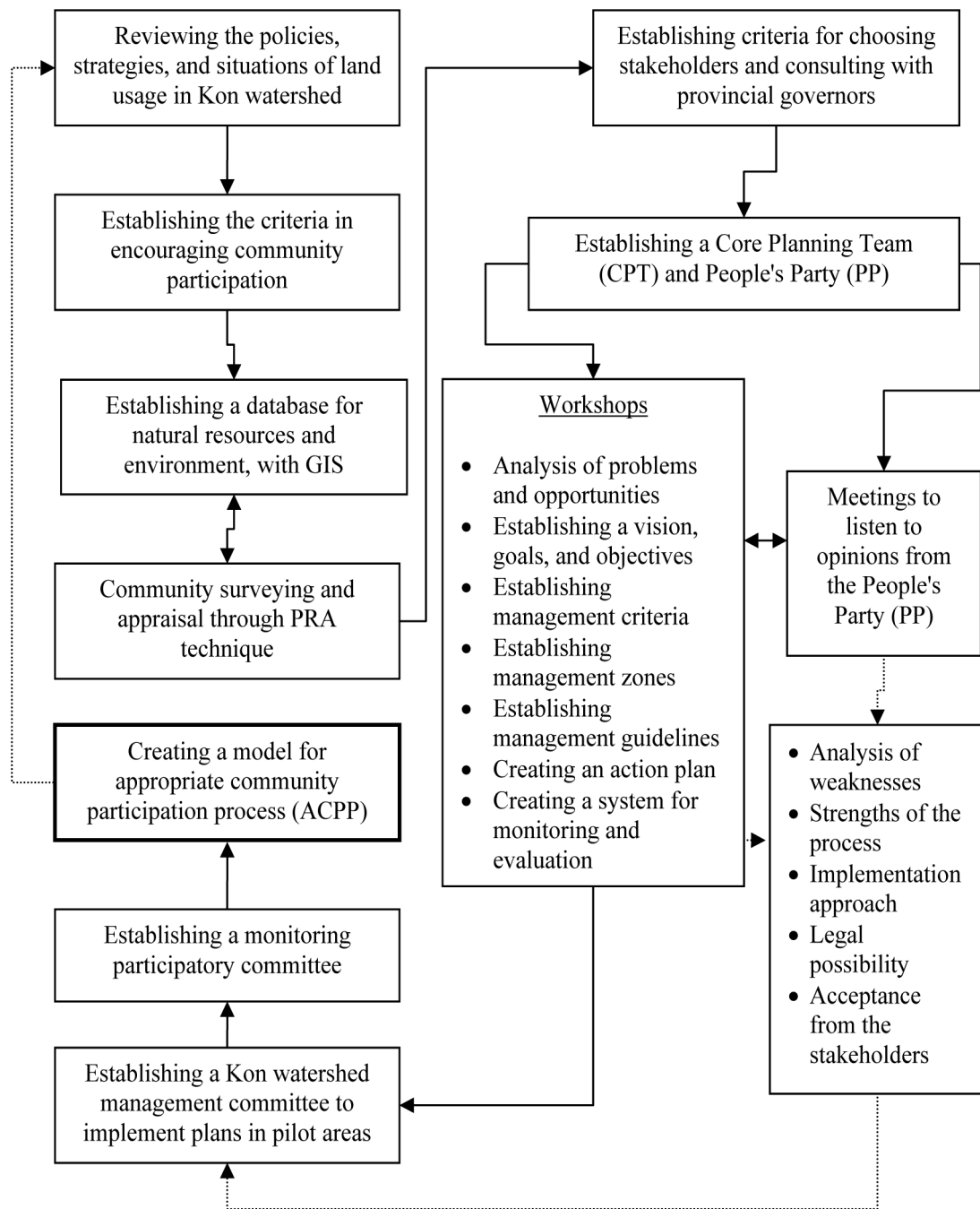


Figure 1. Designing the steps of the Appropriate Community Participation Process (ACPP) for disputes resolution in Kon Watershed Management

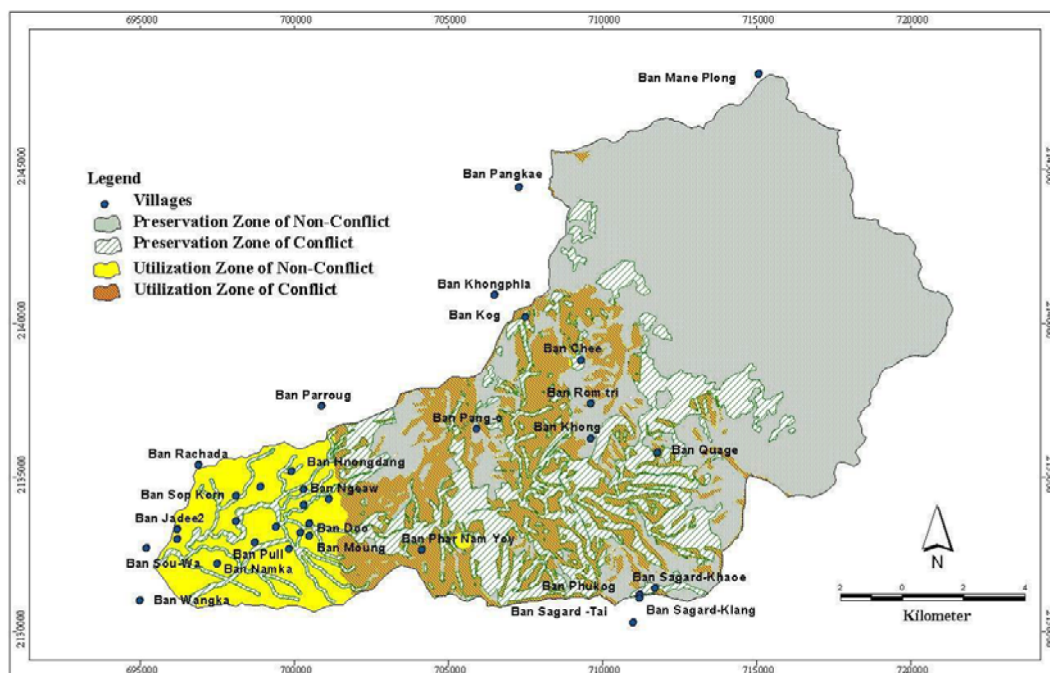


Figure 2. Map of 4 types Management zones in Kon watershed area.

INTRODUCTION

Kon watershed is the sub-watershed of Nan watershed, and covers an area of 223.66 km². Some of the upper watershed is situated in Doi Phu Ka National Park and comprises 25 villages. Shifting cultivation is the main farming pattern and this has led to some forest depletion.

More than 80% is classified as watershed area class 1A. The watershed measure in class 1A prohibits human resettlement as it is a reserve for water supply. However, this area is still in dispute between government officials and local people. Furthermore, forest fires, soil degradation, and drought are environmental factors contributing to the overall problems. There is no comprehensive management method for this watershed area. Thus, in order to sustain Kon watershed, the land-use planning must consist of soil capability, conservation and natural resource rehabilitation and environmental pollution

control. If these three issues can be implemented, the benefits gained from natural resources utilization will increase over time.

ACPP in Kon watershed management is community capacity building through multi-stakeholders partnerships that consist of the government sector, private sector, local administrative organization and local people. In each, appropriate representatives have a role to identify relevant problems. It is their role to discover an appropriate management practice that meets the needs of local people.

The ACPP for dispute resolution in Kon watershed Management had the following main objectives: (1) to study the existing condition of the natural resources and socio-economic status of the community, along with analyzing problems in watershed management and (2) design a process that encourages community participation in watershed management. The ultimate objective of this process would be to expand its use

and create a model for dispute resolution in other watershed groups that have similar characteristics.

MATERIALS AND METHODS

Materials

1. Topography map series L7017.
2. GIS Data based-map.
3. Secondary data from documentation and research of the study area.
4. Semi-structured interview form.
5. Evaluation form to testing community participation process.
6. Field equipments: Camera, tape recorder, GPS.
7. Computer: appropriate hardware and software.

Methods

The ACPP methodology used PAR due to the focus on multi-stakeholder partnerships. The processes consisted of establishing a group of stakeholders to create a Core Planning Team (CPT) and proceed with a multilateral team with the People's Party (PP). The CPT is used as the main tool in: identifying problems; determining vision, goals and objectives; establishing management criteria; management zones and management guidelines. It is also useful for creating an action plan for a monitoring and evaluation program. Workshops enable the CPT to work together, with a GIS database acting as a decision support system. The researchhher was also the facilitator in order to convince in the entire workshop of the benefits of this process (Niyom and Rattana, 2004). The process that was under taken is listed below:

1. To review the national policies and strategies, by focusing on natural resources, environmental management and analysis of land utilization in Kon watershed area.

2. To conduct a community survey by using Participatory Rural Appraisal (PRA) techniques.

3. To establish criteria and principles that encourage community participation.

4. To establish a database for natural resources and environment in the watershed area using Geographic Information System (GIS) and the PRA approach.

5. To establish a group of stakeholders to create a CPT and PP.

6. To establish the CPT consisting of 53 people and the PP consisting of 75 people as approved by the provincial governor.

7. To create workshops to establish a participatory watershed management plan.

8. To establish "an Implementation Plan for Pilot Project Locations Regarding Natural Resources Management in Watershed Areas."

9. To monitor and evaluate the PAR.

10. To use Key Performance Indicators (KPI's) to examine the model validity of the ACPP.

11. To recommend guidelines for the resource management program in the Kon watershed to ensure successful outcomes.

RESULT AND DISCUSSION

Problem Identification and SWOT Analysis of Kon Watershed

Kon Watershed is located in a mountainous area ranging from 100 to 1,920 m MSL. It consists of 27 km of the Kon River, a major tributary of the Kon watershed. Shifting cultivation is practiced in some parts where there is 150 cm soil depth and good drainage.

The problems of the Kon watershed can be categorized into five main areas: natural resources; economics; quality of life; environmental pollution; and management.

Problem identification of Kon watershed required a technical approach of collecting secondary data from related organizations. This approach linked three techniques: GIS data information; field survey; and PRA. From the SWOT analysis, the Kon watershed area was shown to be in a deteriorated state, due to decreasing forest cover and a lack of water sources. In part, this is due to illegal land possession.

Classification of Kon Watershed Management Zones

1. Preservation and protected areas are located in the watershed area where it is suitable for conservation. This includes areas of head water, natural disaster zones and areas where unsustainable agricultural practices are common. Locations that fit this description include two sub-categories:

1.1 Non-conflict preservation and protected area suitable for preservation or protection. In the present state, these areas are within the boundaries of areas protected by law and have not been trespassed into, or are within areas that already have government policies or projects for restoration.

1.2 Conflict preservation and protected area suitable for conservation and protection. In their present state this area is

being utilized by people without following basic principles of natural resource and environmental conservation through farming activities and residence establishment. This also includes areas that are outside the jurisdiction of conservation laws.

2. Utilization zones are areas that have the potential for beneficial uses other than the conservation of natural resources and environment, due to the factors like: land with deep, rich soil and has the potential for various kinds of agriculture, or are already residential areas. The utilization zones can be divided in two sub-categories:

2.1 Non-conflict utilization zones are areas suitable for use in a variety of ways. At present, utilization of these zones exists but may not be consistent, or these areas may have been utilized in ways that were not proper in accordance to academic principles. The people who utilize these lands are those who have a legal right to do so.

2.2 Conflict utilization zones are appropriate for agricultural or residential use, but at present may or may not be utilized. These areas are in protected places, part of the national park, or legally preserved through other methods - meaning those who utilize these areas are doing so illegally.

Table 1. Management Zones in Kon Watershed

Land Management Zones	Area (km ²)	Area (Rai)	%
1. Preserved and protected areas	163.02	101,888	72.89
1.1 Preserved and protected areas with no conflicts	119.63	74,770	53.49
1.2 Preserved and protected areas with conflicts	43.39	27,118	19.40
2. Utilization zones	60.64	37,897	27.11
2.1 Utilization zones with no conflicts	20.95	13,091	9.36
2.2 Utilization zones with conflicts	39.69	24,806	17.75
Total	223.66	139,784	100

Emergency Plan of Natural Resources Management in Kon Watershed

Determined land use boundary survey plan

An emergency plan is necessary for continuing determined land use pattern strategies. The priority of these plans is formulating a CPT situation. The CPT situation is selected by the local governor. The role is to then compose an environmental resolution plan and work cooperatively with stakeholders to create a multi-stakeholder partnership for design of a land use boundaries survey. The initial process should begin with organizing community decision-making in a participatory fashion. The end result should be reflective of community needs assessment whereby land ownership and cropping activities have been identified.

Water resources integrated plan

The preserved forest in the high lands have been destroyed and modified for agricultural land use by minority group migrants. This reformulation can often lead to water-use conflict. For example, water that has been diverted for supply to service agricultural activities in the upper catchment basin creates competition among water users who live in the lower catchment basin.

The main objective of water resources management supply for users in the watershed area is to promote agriculture activities. Therefore, a water resource management plan should be formulated in accordance with the prevailing environmental circumstances and agriculture activities (Thangtham, 1997). The content of the plan and procedure should emphasize the development of small water resources sufficient for agriculture demand and household use. The priority practices must resolve water resources conflict and specifically, the conflict between people in both the upper and lower catchments basin (Chinsukjaiprasert, 1997).

Building capacity for land use and promoting a sustainable development plan

The main objective of these plan is to build capacity for land use more effectively by: developing an agricultural productive system; modifying agricultural produce; creating a marketing plan; establishing community enterprise; and promoting eco-agricultural practices that reduce chemical fertilizer use. The principle organizations necessary for assisting these outcomes and to ensure accountability are the Department of Mineral Resources and the Department of Agriculture Development.

Promotion of a community strengthening plan

The focus point of this plan is to promote community strengthening and to enhance quality of life by developing community leadership capacity that embodies environmental consciousness in youth groups. This includes establishing a multi-stakeholder partnership network for conservation practice.

ACPP Validity Test

The validity measurement process of PAR takes into account the concept of community management and learning. The community will be invited to participate in research, undertaking the process from its initial stage up to implementation in target areas and including participatory monitoring and evaluation (Whyte, 1991; Praputnitisarn, 2003; Dulyakasem, 1993; Teewakul, 2000).

For validity measurement of ACPP for dispute resolution in Kon watershed management, this research set KPI's in five domains. These consisted of: process validity; democratic validity; outcome validity; catalytic validity; and dialogic validity (Mills, 2000; Filly, 1975; Kae and Megginson, 1981). This allowed CPT to set up the plan and invite community representatives to be

Table 2. Indicators and result of ACPP involved in the evaluation stage and the focus group (Table 2).

Table 2. Indicators and result of ACPP

Validity	Indicators	Results
1. Process validity	1.1 Innovative research process methodology.	Clear research design from the beginning.
	1.2 Selection of timeframe horizon.	Long-term implementation period (more than 2-3 years).
	1.3 Appropriateness of meeting agenda.	Meeting agenda set clearly.
2. Democratic validity	2.1 Diversity of stakeholders.	Diversity of stakeholders partnerships in CPT and community representatives.
	2.2 Decision making based on rational arguments.	GIS data and criteria agreed by stakeholders are used to support decision making.
	2.3 Deliberative democracy and inclusive decision-making on public sphere/freedom of opinions expression.	Doable through small group discussion.
	2.4 None dominated decision-making process/ free from opinion control.	Sometimes group of local people who lose their benefits express their thoughts in the meeting.
3. Outcome validity	3.1 Ability to solve conflict.	Process can help solve conflict in the watershed area.
	3.2 Results meet the needs of community.	Need of community to solve land use conflicts in watershed area.
	3.3 Compatible to government policy.	Government policy supported people participation in sustainable natural resources.
	3.4 Result of sustainable natural resources management in watershed area.	The formation of land use zone in watershed area and long-term and short-term implementation plan.
4. Catalytic validity	4.1 Stakeholders gain knowledge on dispute resolution.	Facilitator and researcher provide participants knowledge on participatory decision making system development process for dispute resolution.
	4.2 Watershed natural resources conservation awareness of stakeholders raised.	Level of awareness is varied because of different background of stakeholders e.g. economic and social status, education, and culture.
	4.3 Community cooperation empowered.	Community cooperation in the project is hugely empowered.
5. Dialogic validity	5.1 Possibility of implementation in Kon watershed area.	Watershed dispute resolution is going well.
	5.2 Magnification to other watershed areas.	Can be magnified to other watershed areas, based upon support from government policy.

CONCLUSION AND RECOMMENDATION

Conclusion

The principal function of ACP model is the development of CPT. However, this is a major mechanism that operates at different levels and may be difficult for some stakeholder groups to grasp. The ACP model contributes to building cooperation among diverse levels including CPT at a provincial level, CPT at a district level, and CPT at a sub-watershed level. Also CPT should have its role to: promote the participation process; to analyze problems; identify vision; goals; objectives; land use zoning; guideline management; and the project framework. It can also provide for practical action and an action plan that targets the project site. This leads to community capacity enhancement for project implementation and acceptance that enables the community to administrate the project plan by themselves.

The evaluation of model validity of ACP throughout the process is based on differing techniques e.g., focus group meeting, in-depth interview and lesson learning from the CPT and PP. The researcher has indicated and assessed the ACP accuracy by adopting Mills's Theory (2000). The results show that according to the CPT and PP discussion, the ACP model is an efficient mechanism to support conflict resolution in the Kon watershed because the approach helps organizations, including governmental agencies at each level, local administrative organizations, and community leaders to work closely together. Furthermore, the ACP model can contribute deliberative consensus by researchers.

In addition, the effectiveness of the ACP process achievement is dependent on the long term. It is noted that the ACP research study in Kon watershed spent almost three years to make the community comprehend the significance of conflict resolution in the watershed region to create harmony with the pilot project. These

activities undertaken with the action plan suit were suited to SWOT analysis. The ACP model is therefore a guideline that can adjust to other watershed case studies. The actual usage should start off at a small watershed, and the geographic as well as socio-economic characteristics should be taken into the consideration for a primary database in the project procedure. Most importantly, a clear government policy should be added in the ACP application in order to resolve conflicts in the watershed regions. The research results have been listed as followings:

1. The pattern of the ACP model to resolve conflicts in Kon watershed can be accomplished. In particular, the results show that stakeholders of the Kon watershed region understand the concept of conservation and natural resource management in the watershed region. As a result, land use zoning can be allocated to protected and preservation zones, and utilization zones. In addition, an action plan of watershed resolution can be created. Consequently, the communities located in up stream and down stream have not faced any conflict in cultivating the upper areas.

2. The stakeholders identified as the CPT and PP in the Kon watershed have realized the necessity of the preservation of natural resources in the watershed and the relevance of a sustainable development philosophy and ecological system management.

3. It is possible for a natural resource database and a socio-economic profile of the Kon watershed to take place. Database related to natural resources, socio-economic in the Kon watershed can be obtained. This data would make use in planning strategic management taken for community development by local administrative organization.

4. The CPT for the Kon watershed is constructed by Nan provincial governor and the CPT of Chiang Klang. The CPT is a key actor of presenting action plan and bring it toward to actual practice to fit in an appropriate situation, as well as cooperate with various organizations and sectors in

Kon watershed to establishing the watershed management network.

5. Guideline of ACPP management is a part of decentralization process transformations of top-down administration controlled by governmental authority agency moving toward to promote co-management and participation process among several stakeholders. As a result, cooperation emerges different solution guidelines and forms the stakeholder acceptance.

Recommendations

1. ACPP should be flexible in magnifying this process in other watershed areas. The appropriate community participation process must be compatible with geographical factors and socio-economic in each area (Jongwuttwej, 1984; Wuthimatee, 1983; Daoweerakul, 1996; Preeyakorn, 1992). Flexibility should also be provided timeframe for implementation, problem topics in areas, diversity of working group members, interest of people to this process. (Walaisathien, 2000; Jantwanij, 2002; Strategic Institute, 2001)

2. Land use criteria in each watershed class should be improved and set in line with geographical and social factors in each area. Different set of data is required.

3. This appropriate community participation process is specifically for Kon watershed area where its major area is headwater and falls within forest regulations and national watershed classification and quality management. Hence, the area is mainly protected area, although in fact the area has been used by communities for a long time. Therefore, land use zoning must also be considered. If this process is magnified in other areas, it is suggested that present land possession and concession should be taken into consideration. For example, if major of the land is private own, appropriate management must be adopted.

(Department of Environmental Quality Promotion, 2003).

4. To set plan for Kon watershed management, forest restoration, soil conservation and land, water conservation and other resources, that benefit local people should also be taken into consideration. Particularly, forest restoration should be compatible with the Master Plan on Natural Resource Rehabilitation which is designed by Ministry of Natural Resources and Environment. This master plan provides guideline for dispute resolution in forest area. If the area is suitable for agricultural practices, it must be undertaken in accordance with governmental land reform policy. Otherwise, local people are allowed to take participatory action for its management. Additional protected areas must be implemented based upon the ministerial decision on actual geographical context (Ministry of Natural Resource and Environment, 2003). Therefore, forest restoration in watershed areas should also include forest restoration in protected areas, economic forest and community forest.

REFERENCES

- Boonyawat, S. 1996. **Applied Watershed Management**. Department of Conservation. Faculty of Forestry, Kasetsart University, Bangkok.
- Chinsukjaiprasert, T. 1997. **Implementation of Watershed Management Concept and Principle**, pages 76-80. In the meeting workshop of "Strategies and Organization Forms in Managing Natural Resources and Environment in Watershed Areas." Office of Environmental Policy and Planning with CIDA and DANCED, Bangkok.

- Chunkao, K. 1983. **Principles of Watershed Management**. Faculty of Conservation, Kasetsart University, Bangkok.
- _____. 1996. **Principles of Watershed Management**. 2nd Edition. Faculty of Conservation, Kasetsart University, Bangkok.
- Daoweerakul, S. 1996. **Factors Affecting Community Participation in the Village Development Project: The Case Study of the Winning Villages in the Province's Outstanding Village Contest of 1996**. Master's Degree Thesis, Thammasart University.
- Department of Environmental Quality Promotion. 2003. **One Year: Ministry of Natural Resources and Environment for Sustainable Development**. Ministry of Natural Resources and Environment, Bangkok.
- Dulyakasem, U. 1993. **Participatory Research. Institute for the Education and Development of Local Areas**. Aksorn Thai Publishing, Bangkok.
- Filley C. A. 1975. **Interpersonal Conflict Resolution..** Scott, Foresman and Company. Glenview, Illinois.
- Jantwanij, S. 2002. **Methods for Qualitative Research**. Chulalongkorn University Publishing Press, Bangkok.
- Jongwuttwej, N. 1984. **Strategies for Promoting Community Participation in Community Development**. Institute for Studying Public Health Policies, Mahidol University, Bangkok.
- Kae K. C. and L. C. Megginson. 1981. **Organizational Behavior: Developing Managerial Skills**. Harper and Row, New York.
- Mills, G. E. 2000. **Action Research: A Guide for the Teacher Researcher**. Ohio: Prentice-Hall.
- Ministry of Natural Resource and Environment. 2003. **The Master Plan on National Forest Resource Rehabilitation** (B E.2004-2013), Bangkok.
- Niyom, W. and K. Rattana. 2004. **The Integrated Management of Natural Resources and Environment**. Department of Conservation. Faculty of Forestry, Kasetsart University, Bangkok.
- Praputnitisarn, S. 2003. **Participatory Action Research: Theories and Implementation**. Academic Projects for Children and Communities, Faculty of Social Studies, Chiang Mai University.
- Preeyakorn, K. 1992. **Theories, Frameworks, and Strategies for Development**. Faculty of Political Science, National Institute of Development Administration (NIDA), Bangkok.
- Strategic Institute. 2001. **Peace: National Strategies for Security**. Office of the National Security Council (NSC), Bangkok.
- Teewakul, B. 2000. **Thai Rural Areas: Development Toward Civil Society**. Faculty of Education, Silpakorn University.

- Thangtham, N. 1997. **Watershed Management in Thailand: Principles and Practices** pages 57-74. In the meeting minutes of "Strategies and Organization Forms in Managing Natural Resources and Environment in Watershed Areas." Office of Environmental Policy and Planning with CIDA and DANCED, Bangkok.
- Whyte, F. W. 1991. Participatory Action Research. Sag Publication, London.
- Wuthimatee, Y. 1983. **Strategies for Community and Rural Development.** The Secretariat of the Prime Minister, Bangkok
- Walaisathien, P. 2000. **Processes and Techniques for the Developer.** Thailand Research Fund Institute, Bangkok.
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