Thai J. For. 27 : 92-106 (2008) **วารสารวนศาสตร์ 27 : 92-106 (2551)**

Original article

Investigation on Social Capital Charecteristics for Community-Based Watershed and Environmental Management: A Case Study of Romphothong Community Thatakieb District Chachoengsao Province

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Received: December 17, 2007 Accepted: April 23, 2008

ABSTRACT

The objectives of this research were to investigate the characteristics of social capital towards watershed and environmental management of Romphothong Community, which is the best practice on community-based watershed and environmental management. This study is Ex-post Facto Research in combination with qualitative research and quantitative research. The using Sampling scheme was divided into two parts, qualitative research using snowball sampling, and quantitative research using stratified sampling. The qualitative data was carried out by using content analysis, and quantitative data was analyzed out by descriptive statistics.

The results of the study indicated that the characteristics of social capital towards watershed and environmental management were divided into two categories: 1) cognitive social capital: trust, solidarity, norms of conservation, and reciprocity: human and nature, and 2) structural social capital: civil society, engagement in public affairs, groups and networks, participation, empowerment, community organization, establishment of the administrative committee, and information/communication.

Keywords: Community-based watershed and environmental management (CBM), Social capital, Watershed, Environment.

INTRODUCTION

Social capital has been considered critical potential for the community to be able to manage itself independently. Since the economic crisis in 1997, social capital has started to get on the public agenda and been greatly recognized in Thailand, which can be acknowledged by two factors. The first factor, the establishment of Social Investment Fund or SIF, is aimed at increasing social capital in communities under the purposes of fostering strength and learning process for self-independence. In addition, it is aimed to find solutions and protections for problems of the public including with establishing new society that possesses reciprocity, strength, stability, effectiveness, and quality. Moreover, the importance of social capital has been stated for its ability to aid grass-rooted communities and social residents. Secondly, social capital plays a critical role as a key strategy for the

national development. This is determined by the National Economic & Social Development Board, which also pays attention to the development of strategies to promote social capital (The National Economic & Social Development Board 2003). As having been previously mentioned, this can be regarded as "reproduction" which encourages the importance of social capital as effective equipment for the national development.

This research focused on the best practice community that received the Green Globe Award and other awards. The research team strongly believed that the best learning could be employed as a guideline for encouraging other communities to learn by doing and to deeply understand the managing process of distinguished community. The objectives of this research were to investigate the characteristics of social capital towards watershed and environmental management of Romphothong Community.

MATERIALS AND METHODS

Sampling

Part 1 Qualitative research, snowball sampling was used.

Part 2 Quantitative research, stratified sampling was applied. Stratums and sampling were (1) Key informants (sampling 100%) and (2) Community member (sampling 10%).

Word Definition

Social capital

The concept of social capital is currently receiving a lot of attention from development agencies and research institutions. In this research, Social capital is characterized by two categories: (1) cognitive social capital: Trust, norms, trust and adherence to norm, reciprocity, and solidarity, and (2) structural social capital: Corporation, collective action, social cohesion and Inclusion, engagement in public affairs, civil society, Participation, empowerment and political action, informal sociability, groups and networks, local associations and networks, community organization, community volunteerism, and information and communication.

Community based watershed and environmental management is the concept that watershed can be function by managing headwater forest of community.

Data Collection

This phase is time consuming due to the embedding to closely observe the characteristics of social capital and watershed and environment management of the community, particularly in the forest. The stages are stated below.

General study stage: The stage involves with investigating the community socio-economically, the process of watershed and environmental management on community-based, and characteristics of ecological system of headwater forest of community. This stage using the documentary, participatory mapping, in-dept interview, and forest survey.

Social capital characteristics study stage

Definition Searching: This is to fine the most suitable definition of social capital and watershed and environmental management to set a side shared meaning between the researcher and the community. This stage using focus group discussion.

Characteristics: This stage concerns with the characteristic information underpinning the watershed and environment in the community and investigate the characteristics of social capital towards watershed and environmental management. This stage using the in-dept interview, focus group discussion and questionnaire.

Social Capital Organization: This part is resulted from the previous stage, which the researcher has identified the preliminary key works according to the framework to investigate two categories of (1) cognitive social capital and (2) structural social capital.

Verifying stage: this stage using the workshop technique to considered that social capital characteristics be accepted by community.

Data Analysis

The qualitative data collected through the field study was analyzed and verified accordingly with shared meaning and interpretation of the community. This was to prevent the researcher's bias. This research was analyzed by using content analysis technique, and concluded inductively. The data collected from field studies was not considered as empirical data, therefore, the analysis was interpreted and related to the meaning of the existing behavior. (Chantawanich, 1993) Data analysis operated in five steps: 1) Theoretical framework; 2) Verification; 3) Note taking and indexing; 4) Working hypothesis and reduction; 5) Conclusion and verification. The quantitative data was analyzed with descriptive statistic: percentage method.

RESULT AND AND DISCUSSION

Community Topography, Location and Socio-economic Data

Romphothong community, Klongtakraw sub-district, Tathakieb district, Chachoengsao province located at the South of Pracheenburi watershed. The community was established as forest villages in 1991 under the project to restore the national reserved forest Kwairabob-Seeyad.

Geographical characteristic of Klongtakraw Watershed: area 201.72 km^2 with UTM section at the standard WGS 84, horizontal standard No. 789500 E to 808500 E and vertical standard No. 1458500 N to 1477500 N. The watershed represented as various angles shapes. The elevation is between 65-750 meters above the sea level with the average slope angle of 14.63%. Most areas slope towards the North. The water flow path starts from the South to the North having one major water flow e.g. Klongtakraw.

Most of Klongtakraw Watershed is tropical evergreen forest of 167.53 km^2 (or 83.05% of total area), located in the South of watershed area. Agricultural area were 22.32 km^2 (or 11.06% of total area), located in the north of watershed area. The National Park, Wildlife and Plant Conservation Department has reported that most of Klontakraw Watershed area is reserved forest of 179.15 km^2 (or 88.81% of total area) In addition, there was economic forest area. The quality of watershed was appointed by the Office of Policy and Plan of National Resources and Environment, reported that most of Klongtakraw Watershed area, having 13.88 km^2 (or 61.42% of total area), was classified as watershed class 4 suitable for agricultural convention. However, it is necessary for the area to establish the policy on soil and water conservation.

At present, the total population is 324 household or 1,269 people comprised of 655 males and 614 females. The majority migrated from the Northeast of Thailand and some from the North and East. Major culture practical are therefore northeastern. Most of populations are Buddhist. Their major occupation is agriculture (90%) and daily wage laboring. (Figure 1, 2, 3 and 4).

Watershed and Environmental Management History

Watershed and environmental management history was divided into 3 periods:

Period 1 - "Before" forest village allocation taken place (1973-1981)

During 1973, after the area had completed the forest concession, there were approximately 4 families relocated to this settlement through the concession area. At that moment, this area was rainforest with a variety of plants and animals and with great difficulties to connect to the outside area. Throughout this area was a habitat of former residents who lived in Koh-Kae as they lived before the forest concession taken place. Main occupation was making rubber fluid and trading to the new people who were relocated to this habitat. This new people were known as "Forest On Sale", which was done by horizontal section of land. Hence settlement located along Klongtakraw watershed (the South of residential area), which recognized as little group of housing on forest namely "Bann-Soi-Si".

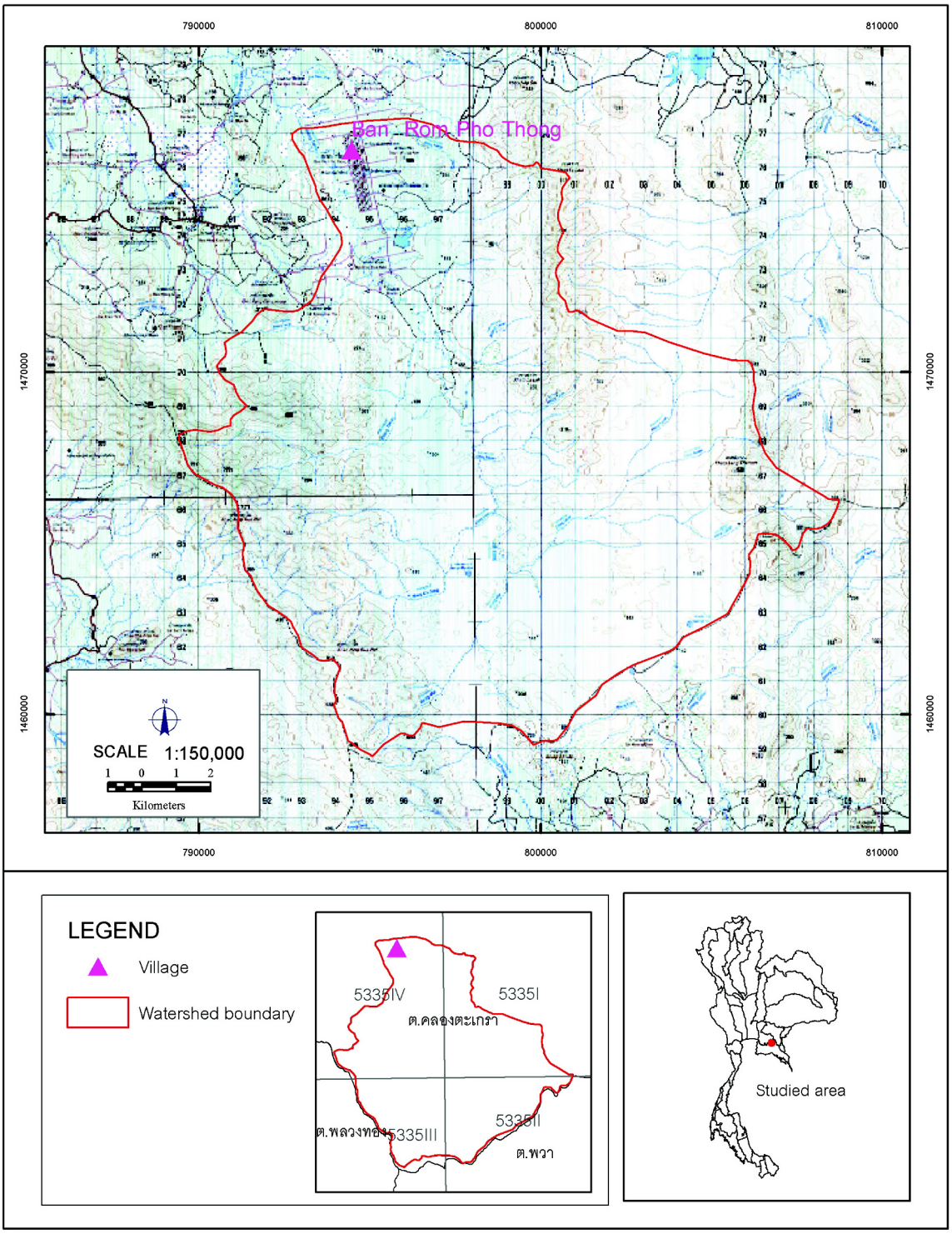

Figure 1. Boundary of Klongtakraw Watershed.

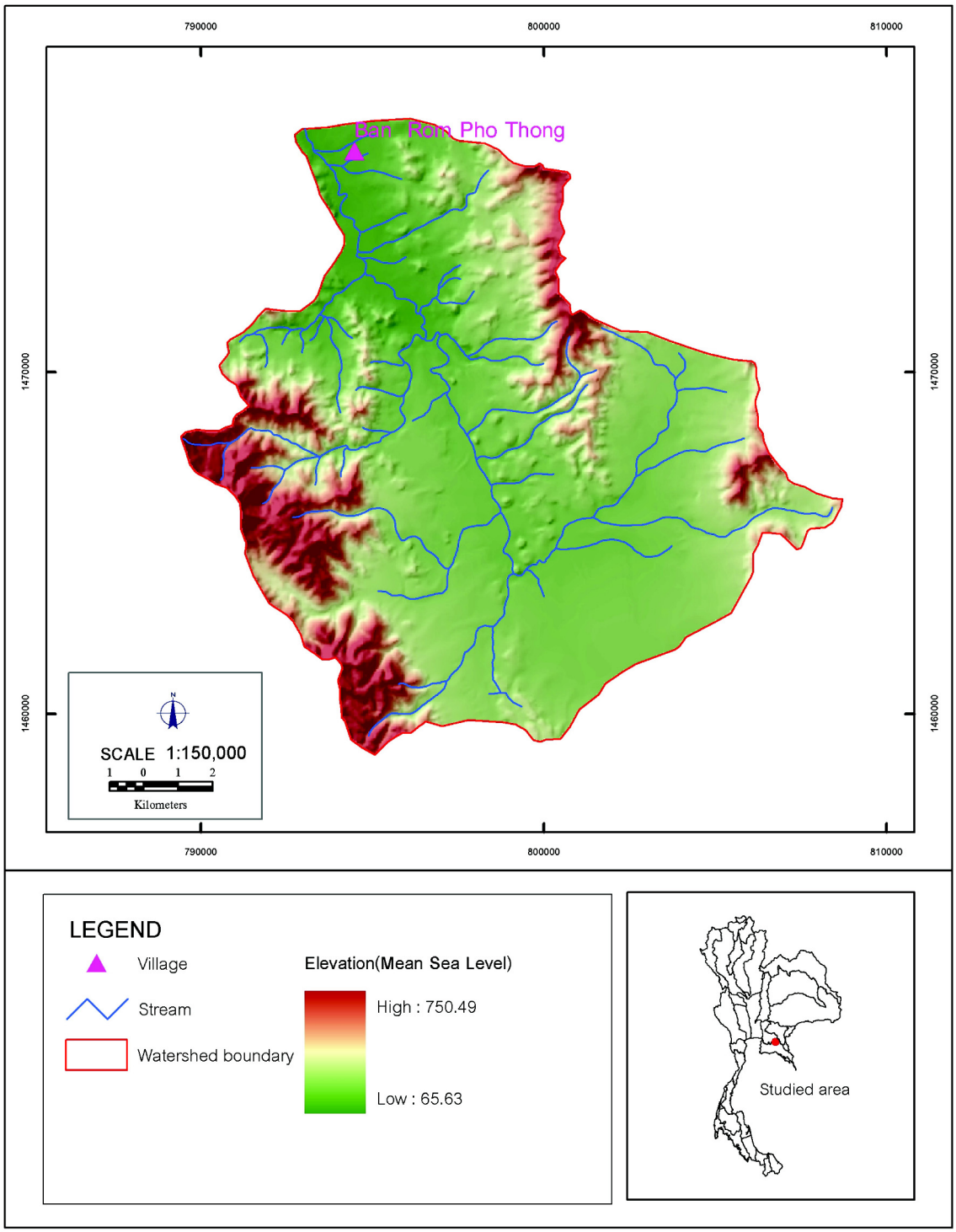

Figure 2. Geographical map of Klongtakraw Watershed.

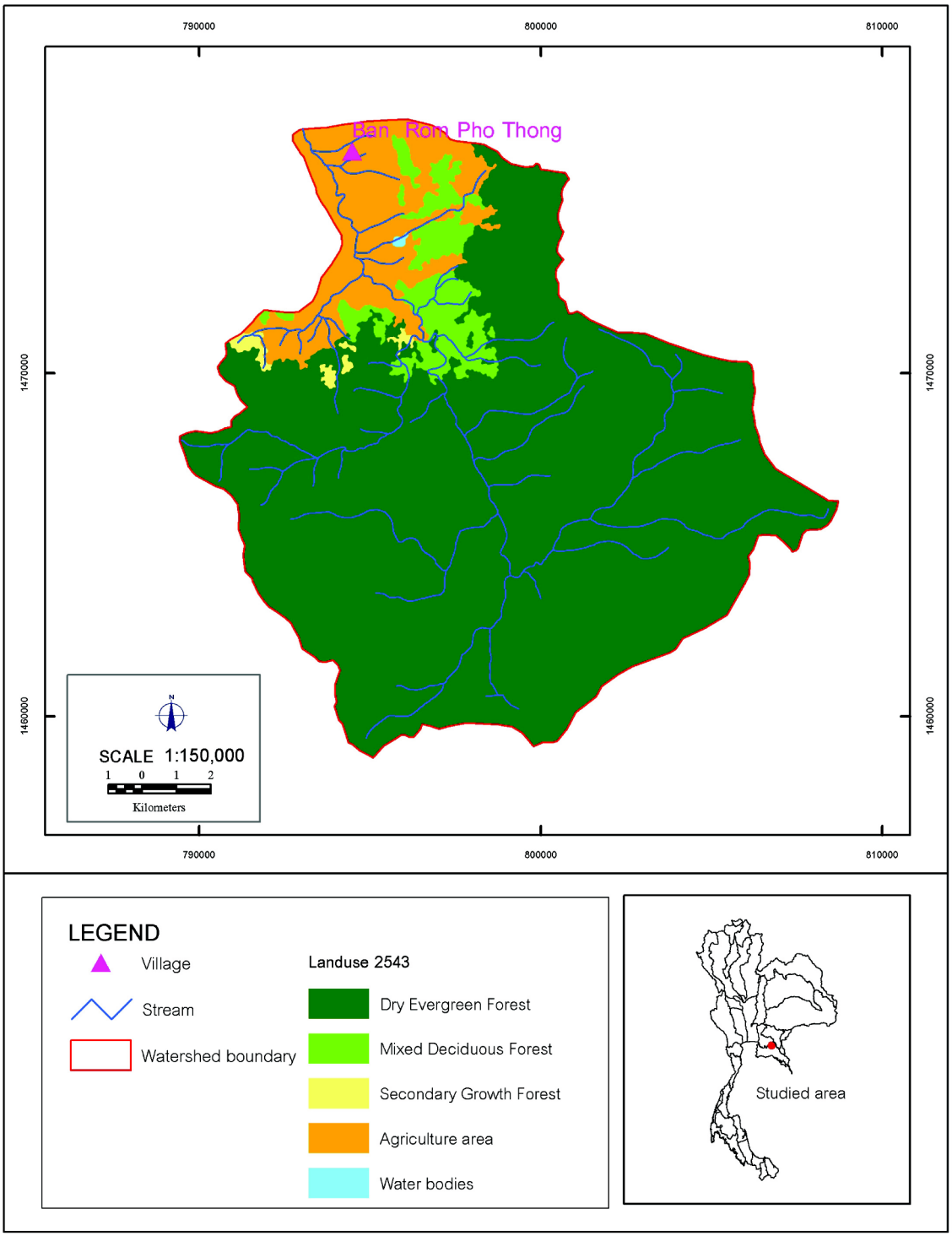

Figure 3. Land use map of Klongtakraw Watershed.

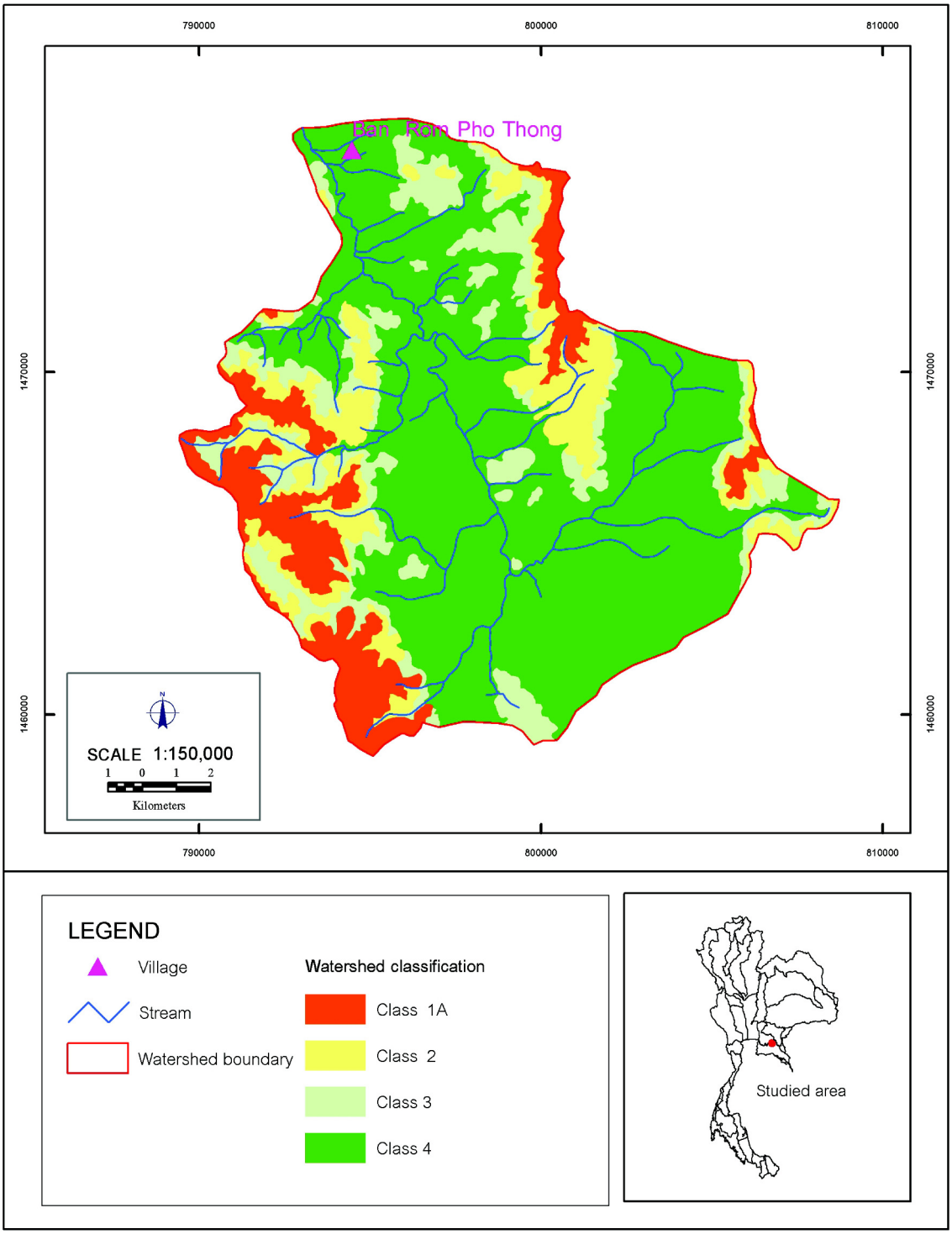

Figure 4. Watershed classification map of Klongtakraw Watershed.

Most people who were relocated to this new habitat came from the Northeastern region, formerly working in upland field crops area in Chonburi and Rayong province. At the same time, these people also extended their habitats by creating their new settlement in forest area. The cultivated cash crops were rice, corn, vegetables mostly practiced by household consumption. Most food were collected from natural forest including wild animal, fruits and vegetables. Some foods need to be purchased outside community such as salt, sugar, medicine. Most of their income was earned from hunting wildlife for sale e.g. Indian pig, wild deer, Tragulus and porcupine.

From the year 1975-1981, the government reinforced on economic plantation such as potato, sugar cane, corn for export purpose. Consequently, many people were highly interested to reserve their land for trading and more agricultural area was expanded into forestry territory.

Period 2 - "During" forest village allocation (1982-1992)

In 1982, the 1st Army Region announced this forest land to be restricted and prohibited for residential settlement by claiming that it was the area base of communist alliance. Later in the year 1987, Ministry of Agriculture and Cooperatives established the task force to protect and preserve the forest border line of 5 provinces in the East (Chachoengsao, Sakaew, Chonburi, Rayong, Chonburi).

In 1982, there was legal announcement permitting the project to preserve natural resources and wildlife in the area of 5 provinces. In 1991, the 1st Army Region assigned both military force and vehicle for the Royal Forest Department to relocated people from the area that will be settles as wildlife preservation territory to the forest village allocation. In 1992, Kao Angleunai was announced to be wildlife preservation area.

Romphothong residence was established under the project to restore the national forest reserve to be forest village Kaew-Seeyad by resettlement 94 families consitsted of 33 Puthai families, 12 Bann Nong Ka Yang families, 13 families from Bann More Sai, Bann Tabag and Bann Soi Hok, 30 families from other residentces. It was rainy season during resettled period caused great difficulties for transportation. There was no public facilities and some people were unable to start their own living in the alloted land because of gangsters who mostly were the former land owners requesting damage land fees. It was not cultivating season, therefore, people could not start any cropping activities. When people were resettled to this new habitat, there were seriously quarrel among communities because they came from different settlements and did not have many relatives residing in the same community.

Period 3 - Restoring community and forest resources (1983-2006)

During the period, the Government assembled the public facilition which were more convenience than the past. Unfortunately, the standard of living of many families was not so good as most of them were on debt. Some of them had to sell all their lands and migrated to other settlements. However most people were still resided in this community, they recognized that it was too risky to move to the new habitat. Fortunately, the Government had the policies to develop communities that settled near the forest border especially the Project of Natural Resources and Wildlife Conservation in 1994 under the Royal-initiated project of Queen Sirikit, that strongly emphasized on mixing plantation method, building local pond and supporting on soya bean cropping.

Until the year of 1996, the community received many sustainable development policies from various studies including taking a trip to Ta-Wang-Sai temple in Nakornrajchasema province. The topics were included community-based natural resources management. After this concept had been widely accepted by the community, the leader created allies with the government sector to initiate on the project of forest management, which considered to be greatly success until these days.

Community- Based Watershed and Environmental Management Practices

In 1996, Regional Community Forest Training Center For Asia and The Pacific (RECOFTC) conducted the research on community-based forest management aimed to study on the involving factor of Thempratan community, Chachoengsao province, which located in the South of Khoangleunai. The study started by taking people to learn on community development. At that time, representatives from Romphothong community also participated in this trip. The studied topic was concentrated on the forest of Tawangsai community, Nakornrajchasrima province. As a result, many local people from Romphothong community were highly interested in this study because many of their forest territory were damaged. This was the beginning of how Romphothong community started off its forest management.

In the beginning of headwater forest community-based activities, it was the time for community to share tremendous experiences because they were new residents who had been resettled from the forest. They were many different group of people that lead to numerous controversies among the former and new land owners. The most important thing was to build better understanding among local people regarding on the community-based forestry management, starting from the leader of individual families. Even though most people were afraid of having argument in the beginning, they were later created a good team work due to the fact that this activity encouraged each leader to share ideas and experiences with trustful manner. Consequently, this gave the signal to the others in community to have faith and to hold positive attitudes towards this activity.

The first activity was to restore headwater forest condition and earn back the natural balance. The activity focused on forest fire management, which cooperated with the Forest Fire Control Station. As a result, the community managed to control damages caused by the forest fire by decreasing 40% of total area. The forest started to restore in better condition. (Rawee and Sarinya, 2001).

The community defined the term of "Community-based Watershed and Environmental Management" to be organizing community-based water production sources management to reach the optimum level. Forest resources are recognized as the major production because it is an excellent source for water and food supply, which are necessary for all living. The policy of watershed and environmental management were of (1) no destroy, (2) to increase number of plants in forest, (3) to create awareness maintain the natural balance of forestry, and (4) to create positive consciousness on forest conservation from generation to generation.

Characteristics of Social Capital for Watershed and Environmental Management

Romphothong community is the new community, which people removed to this new resettlement site and grouping from different social and culture backgrounds. However, they were able to adjust themselves and able to contend with numerous controversies among different group of people. Additional problems include environmental degradation, debt and public utility issues. One interesting thing on this community is that all people devoted themselves to share ideas and experiences with trustful manner to successfully cooperate on headwater forest community management.

The community explained the term of “Social capital for community-based watershed and environmental management” means “the things that can be used for community to manage on water sources.” So, The characteristics of social capital for watershed and environmental management are shown below.

1) Trust: Community's leaders strongly created positive awareness and better understanding on organizing forest community management. Since leaders were the most trustworthy representatives whom chosen by each group, therefore, there were no suspicious nor mistrust among different groups in the community. 92.7 % of sample indicated that trust can be used as a tool

to managing headwater forest of community.

2) Norm of conservation: After the community had been given the full support from external organization to take an on-site trip to study on the ecological system of Wat Ta-Wang-Sai, Nakornrajchaseema province, many people had ideas to preserve and to reforest its community for sustainable development. After discussion forum took place among leaders and local people in the community, all agreed to cooperate in organizing forest community management program because they were used to live in the forest which encouraged them to deeply understand the philosophy of reforestation project. 98.7 % of sample indicated that norm of conservation can be used as a tool to managing headwater forest of community.

3) Reciprocity: Expectation on the used of water sources of the community. The community had adapted their understanding of how to live in the new settlement that related to the natural resources by focused on "Human and nature" must live in harmony as this presented the mutual benefit. This concept led to the philosophy on organizing forestry community management. 88.7 % of sample indicated that reciprocity can be used as a tool to managing headwater forest of community.

4) Engagement in Public Affairs: Community's leaders strongly organizing forest community management without hidden agenda. Objective to reforest. This activity led to local people participated on organizing forestry community management. 91.9% of sample indicated that engagement in public affairs can be used as a tool to managing headwater forest of community.

5) Solidarity: The beginning of Romphothong community derived from many people having different backgrounds and cultures, which were the main obstacles of community development. There were two temples located in the community; one was "Wat Paenimit" and "Wat Romphothong Bann Pa Sai Kham". These temples were highly important for the community as they were the spiritual centre where people were encouraged to exchange ideas and finally harmonized to reach the mutual benefit. 89.5% of sample indicated that solidarity can be used as a tool to manage headwater forest of community.

6) Information and communication: After all agreed to cooperate in organizing forest community management program, they were discussion widely, which led to Information flow. 89.5% of sample indicated that information and communication can be used as a tool to managing headwater forest of community.

7) Civil society: The community had organized various forum discussions regularly for people to exchange their ideas and sharing experiences among different group members. In addition, many authorities and officers from the Royal Forest Department and schools represented as consultant and support this activity. Forum discussion were taken place in schools on the 5th of every month. This activity led to create a knowledge centre among community, which led to develop action plans efficiently. 96.8% of sample indicated that civil society can be used as a tool to managing headwater forest of community.

8) Empowerment: The Royal Forest Department empowered the community to organizing forest community management, which led to develop the forest community management program efficiently. 91.9% of sample indicated that empowerment can be used as a tool to managing headwater forest of community.

9) Community Organization: After the local community had established the forestry community scheme, namely "Administrative Committee of Forestry Community of Romphothong. There were many seminars and meeting among group leaders and community members as each individual to exchange ideas on how to successfully collaborate on reforestation project. 96.0% of sample indicated that community organization can be used as a tool to managing headwater forest of community.

10) Participation /Collective Action: After having a final resolution to organize forestry community management, the community

performed religious activities to encourage all families to participate including authorities of the Royal Forest Department, scouts, schools and other environmental groups. However, all the action must be accomplished by local people in the community as other authorities were represented as consultant only. 97.2% of sample indicated that participation can be used as a tool to managing headwater forest of community.

11) Group and Network: The community was given the full learning support and knowledge from other communities networking which focused on reforestation. Authorities were included Royal Forest Department, a village headman - Mr. Wiboon Kaemchaloem and Regional Community Forest Training Center For Asia and The Pacific (RECOFTC). 97.6% of sample indicated that group and network can be used as a tool to managing headwater forest of community.

Result of the Watershed and Environmental Management by Using Social Capital

The results from watershed and environmental management by using social capital can be explained by the characteristic of ecological system of "Headwater Forest of Community".

Before 1997, the headwater forest was characterized as degraded from the concession. It was damaged by forest fire which occurred annually. They were no any shrubs, not even perennial plants. But at present, by conducting on-site survey of 240 hectares found that there were more than 73 species of plants. The forest is characterized as "Mixed Deciduous Forest" (Table 1).

Most of woods found in Romphothong forest community were considered to have medium to low quality, mostly used for fuels. None of them were used for construction purpose (Table 2).

Table 1. Average wood volume classified by tree quality

Forest	average wood volume(m^3/ hectare)			
	Level 1: timber quality 1.1 and 1.2	Level 2: timber quality 2	Level 3: timber quality 1.3 and 3	Total
The headwater forest of Romphothong community	41.1344	7.5395	7.5186	56.1925

Table 2. Density of trees, saplings, seedlings and bamboos

Forest	Tree density (tree/ hectare)						
	classified of trees: dbh (cm)				sapling	seedling	Bamboo (trunk/hectare)
	10-30	30-60	> 60	Total			
The headwater forest of Romphothong community	225	23	4	252	5,067	45,625	20

The saplings and seedlings showed higher density than larger trees. It was indicated that there were small amount of large trees as in the past. The area was degraded forest creating environmental degradation (Table 3).

Table 3. Relative density, relative frequency, relative dominance and importance value index of trees

NO.	Botanical name	Relative density %	Relative Frequency %	Relative Dominance %	IVI
1	*Erythrina subumbrans* (Hassk.) Merr	5.47	4.07	16.23	26.22
2	*Streblus asper* Lour.	9.06	4.07	13.08	25.77
3	*Lagerstroemia loudonii* Teijsm. & Binn.	4.22	3.62	7.49	14.37
4	*Pterocarpus macrocarpus* Kurz	4.53	4.07	7.00	13.98
5	*Terminalia dafeuillana* Pierre ex Laness	5.31	3.62	5.72	13.55
6	*Lagerstroemia calyculata* Kurz	2.50	3.62	5.14	13.38
7	*Dialium cochinchinense* Pierre	3.44	4.07	4.59	10.21
8	*Memecylon geddesianum* Craib	2.97	2.71	4.42	9.93
9	*Canarium subulatum* Guill.	2.97	3.17	3.92	9.88
10	*Diospyros variegata* Kurz	2.50	3.62	3.79	9.73
11	*Bauhinia malabarica* Roxb.	2.66	3.62	3.48	9.22
12	*Greenia wightiana* Wall. ex Wight & Arn.	1.56	2.26	2.80	7.98
13	*Grewia elatostemoides* Coll. et Hemsl.	2.34	0.90	1.81	6.64
14	*Lepisanthes rubiginosa* Leenh.	2.19	1.81	1.74	6.13
15	*Eupatorium odoratum* Linn	2.50	2.71	1.70	5.57
16	*Hymenodictyon excelsum* (Roxb.)Wall.	1.41	2.26	1.51	5.12
17	*Knema linifolia* Warb.	0.63	0.90	1.54	5.11
18	*Pterospermum diversifolium* Bl.	0.63	1.36	1.47	4.73
19	*Schoutenia hypoleuca* Pierre	2.34	2.26	1.11	4.48
20	*Adenanthera pavonina* Linn.	2.34	2.71	0.95	4.41
21	*Afzelia xylocarpa* Craib	0.94	0.90	0.93	4.37
22	*Cratoxylum formosum* Byer subsp. pruniflorum Gogel.	0.47	0.90	0.87	4.31
23	*Vitex canescens* Kurz	0.94	0.45	0.80	4.16
24	*Nauclea orientalis* Linn.	0.78	0.90	0.73	3.87
25	*Markhamia stipulata* Seem.	0.94	0.90	0.67	3.82
26	*Wrightia tomentosa* Roem. & Schult.	0.47	0.90	0.58	3.67
27	*Clausena guillauminii* Tanaka	0.47	0.45	0.52	3.37
28	*Diospyros castanea* Fletch.	0.47	0.45	0.52	3.37
29	*Hydnocarpus ilicifolius* King	2.03	2.26	0.51	3.29
30	*Sterculia pexa* Pierre	2.19	1.81	0.43	3.19
31	*Vitex pinnata* Linn.	3.75	1.36	0.41	3.09
32	*Murraya paniculata* Jack.	1.56	2.26	0.36	2.80
33	*Bombax anceps* Pierre.	1.41	1.81	0.34	2.77
34	*Albizia odoratissima* Benth.	0.47	0.45	0.31	2.51
35	*Pterospermum jackianum* Wall.	0.63	0.45	0.27	2.45
36	*Microcos tomentosa* Smith.	0.31	0.45	0.25	2.42

Table 3. (Cont.)

NO.	Botanical name	Relative density %	Relative Frequency %	Relative Dominance %	IVI
37	*Pterocymbium javanicum* R. Br.	0.47	0.45	0.22	2.31
38	*Croton oblongifolius* Roxb.	1.72	1.81	0.21	1.98
39	*Schleichera oleosa* Merr.	0.78	0.45	0.21	1.95
40	*Homalium tomentosum* Benth.	0.47	0.90	0.19	1.94
41	*Uvaria hahnii* Sincl.	0.31	0.45	0.18	1.88
42	*Tarenna collinsae* Craib	0.31	0.45	0.16	1.73
43	*Lagerstroemia duperreana* Pierre	2.66	1.36	0.16	1.58
44	*Cratoxylum formosum* Byer	1.25	1.36	0.16	1.51
45	*Bauhinia scandens* Linn. var. horsfieldii K. & S. Larsen	0.47	0.45	0.16	1.44
46	*Haldina cordifolia* Ridsd	0.31	0.45	0.16	1.39
47	*Hesperethusa crenulata* Roem	0.31	0.45	0.16	1.37
48	*Lannea coromandelica* Merr.	1.41	1.81	0.05	1.30
49	*Siphonodon celastrineus* Griff.	1.56	1.81	0.00	1.29
50	*Bauhinia glauca* Wall. ex Benth. subsp. tenuiflora K. & S. Larsen	0.78	1.36	0.00	1.22
51	*Millettia leucantha* Kurz	1.41	0.90	0.00	1.08
52	*Harrisonia perforata* Merr.	1.09	0.90	0.00	1.08
53	*Xylopia vielana* Pierre	0.94	0.90	0.00	1.08
54	*Dalbergia cochinchinensis* Pierre	0.63	0.90	0.00	0.92
55	*Spondias pinnata* Kurz	0.47	0.45	0.00	0.92
56	*Memecylon ovatum* J.E. Smith	0.47	0.45	0.00	0.92
57	*Pterocarpus indicus* Willd.	0.47	0.45	0.00	0.86
58	*Peltophorum dasyrachis* Kurz	0.31	0.45	0.00	0.79
59	*Cananga latifolia* Finet & Gagnep.	0.31	0.45	0.00	0.77
60	*Antidesma bunius* Spreng.	0.31	0.45	0.00	0.77
61	*Mallotus philippensis* Muell. Arg	0.31	0.45	0.00	0.77
62	*Litsea glutinosa* C.B. Robinson	0.16	0.45	0.00	0.76
63	*Canthium parvifolium* Roxb.	0.16	0.45	0.00	0.76
64	*Catunaregam spathulifolia* Tirveng.	0.16	0.45	0.00	0.76
65	*Morinda coreia* Ham.	0.16	0.45	0.00	0.76
66	*Mangifera caloneura* Kurz	0.16	0.45	0.00	0.76
67	*Oroxylum indicum* Vent.	0.16	0.45	0.00	0.61
68	*Phyllanthus elegans* Wall. ex Muell. Arg.	0.16	0.45	0.00	0.61
69	*Micromelum glanduliferum* B. Hansen	0.00	0.45	0.00	0.45
70	*Ficus pubigera* Wall.	0.00	0.45	0.00	0.45
71	*Solanum seaforthianum* Andr.	0.00	0.45	0.00	0.45
72	*Croton cascarilloides* Raeusch.	0.00	0.45	0.00	0.45
73	*Ichnocarpus frutescens* R. Br.	0.00	0.45	0.00	0.45
	Total	100.00	100.00	100.00	300.00

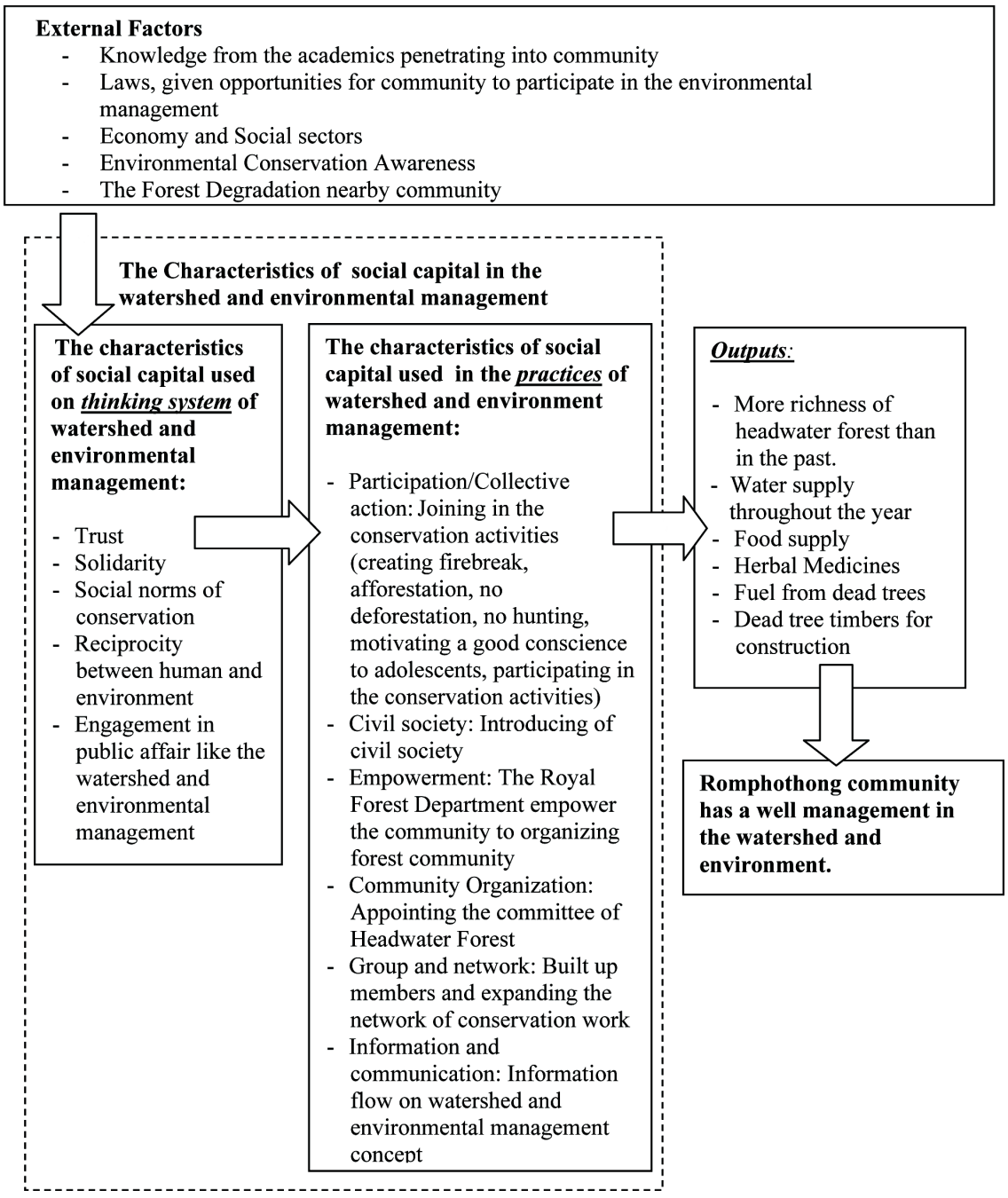

Figure 5. Characteristics of social capitals for watershed and environmental management.

Romphothong forest community is characterized as "Mixed Deciduous Forest" of which 73 species of plants were found, It was considered to be diverse forest resources. As a result, the study concluded that the area had the ecological system in the middle to high level. Most trees were the same species and similar ecological characteristics, which were a positive sign for good emission. Trees that had the highest uniqueness value considered to have low quality with less benefit such as *Erythrina subumbrans* (Hassk.) Merr, *Streblus asper* Lour. Trees that had the highest Importance value index (IVI) was *Erythrina subumbrans* (Hassk.) Merr with 26.22% After considering the analytical factors, headwater forest of community had the ecological system in the middle to high level.

At present, the community largely depends on the forest particular for water and food supply. Major benefit from headwater forest is water production source, which is necessary for all community members living. According to RECOFTC (2007) survey, 70% of income of the villagers came from agriculture, and 90% of agriculture areas depend on water. Food supply: the headwater forest supplies food for household consumption and for trade such as wild sweet vegetables, wild fruits, medicinal plants, wild animals, varieties of bamboo shoots, gum and resin. This is characterized as "The Green Supermarket" If the area can be controlled and preserved continuously, the ecological system in this area would have positive measurement. With highly quality of natural resources, the forest could be the major water and food production source for community in a sustainable manner.

According to the characteristics identified by community, social capital can be used as a tool for the watershed and environmental management process of Romphothong Community as follows (Figure 5).

CONCLUSION

The social capitals can be utilized as a tool to build the process of carrying out the watershed and environmental management in the community level. Beginning with social capitals in terms of thinking system and the practices related to the principles of watershed and environmental management, these capitals can be applied as proceeding tools.

The characteristics of social capital in watershed and environmental management on ***thinking system*** of watershed and environmental management are trust, solidarity, norms of conservation, reciprocity: human and environment, and engagement in watershed and environmental management. The characteristics of social capital in watershed and environmental management on ***practices*** of watershed and environmental management are participation/ collective action, civil society, empowerment, community organization: establish the administrative committee, groups and networks, and information and communication.

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