The relationship between the meaning of water and sense of place: a grounded theory study from northern Thailand

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The Relationship between the Meaning of Water and Sense of Place: a Grounded Theory Study from Northern Thailand

Katesuda Sitthisuntikul

Environmental Management

This thesis is presented in fulfilment of the requirements for the award of the Degree of Doctor of Philosophy

4 June 2013

Faculty of Computing, Health and Science

Edith Cowan University
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ABSTRACT

The literature suggests that a subtle relationship exists for communities between the meaning of water and sense of place, making fertile ground for systematic investigation. The relationship has obvious importance in today’s world, where people’s reliance on water, and the need for reliable supplies, form part of a common discourse in natural resource management. Yet, there has been much less discussion of what water means to people, how it connects with peoples’ sense of place, and what that might mean for the way people interact with their surroundings. The methodology of constructivist grounded theory was therefore appropriate to investigate this issue, and to derive a conceptual framework from the perspectives, the feelings, the experiences, and the actions of local insiders to water and to a place in which they lived. A systematic application of this methodology allowed me to constantly interact with data, create descriptions, and build conceptual frameworks from the ground.

This process was conducted in particular settings: at Pok and Pang Jum Pee Villages near Chiang Mai City in the north of Thailand, where people interacted and relied on forests and the Mae Lai Noi stream in that forested mountain area. Two explanatory frameworks were derived from these settings. One sought to understand the constant features of the relationship between water, forests and livelihoods of community members during historical periods, driven by external and internal changes. Another examined the role of Buddhist rituals during, and as a consequence of, these changes, and how the rituals stimulated attitudes to, and actions of, forest and water conservation.

The explanatory frameworks enabled the construction of a conceptual framework, proposed to explain the dynamic relationship between meaning of water and sense of place. The conceptual framework shows how a local reciprocity found in this relationship is consistent with the interaction between people, water, and place in the context of local communities. This relationship appears in particular settings and local contexts: in this case, where forest was meaningful as the pivotal physical setting and water was a part of forest. Additionally, economic well-being of local communities relied on both the forest and water, and people’s interaction influenced the nature of both water and forest. Together, sense of place or belongingness to a physical setting (forest) and the recognition of the meaning of water are vulnerable to loss. This responds to changing economic needs in local communities which themselves rely upon ecological conditions and connect with cultural and socio-political circumstances. Leadership plays an essential role, when such vulnerabilities are present, to
evoke a sense of place and make explicit the meaning of water, driving the collective requirement for, and actions to protect and manage, water and place.

Overall, the conceptual framework presented in this study provides a holistic and systematic perspective for investigating the relationship between the meaning of water and sense of place and may contribute to academic discourse and to natural resource management. This framework, however, requires verification and theoretical saturation in further research to be applicable when explaining the relationship between the meaning of water and sense of place in other settings or situations.
DECLARATION

I certify that this thesis does not, to the best of my knowledge and belief:

(i) incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher degree.

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I would like to express my gratitude to several people who have helped and supported me to make this thesis possible. First, I am deeply grateful to my principal supervisor, Professor Pierre Horwitz from the School of Natural Sciences, for his kindness, constant support and advice throughout the course of research program. Pierre Horwitz inspired me to initiate this study, persist with my passion, and complete my writing. A special thanks for all their comments and suggestions also goes to my co-supervisors, Dr Andrew Guilfoil from the School of Psychology and Associate Professor Avorn Opatpanakit from Chiang Mai University, Thailand. Without their encouragement, this thesis would not have been as productive. Next, I wish to thank the village leaders who permitted me to conduct fieldwork in their villages, all the villagers who participated in this study, and all the staff members at the Thailand Research Fund [TRF] who provided valuable information to guide this study; their help provided the study material, leading to the completion of this thesis. In addition, I would like to take this opportunity to show my greatest appreciation to an academic writing consultant and a helpful proof-reader for their work in editing my thesis. Finally, I wish to express a deep sense of gratitude and love to my friends and parents for their mental support and help, which encouraged my succeeding with this study and thesis.
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CHAPTER 1
Introduction

Peoples’ perceptions about water and the notion of sense of place are sceptical. There has been common agreement that water is an important element for human lives, and for everything on earth, and is summed up in the expression: “the bloodstream of the biosphere” (Ripl, 2003, p. 1). There is much less discussion, however, about the meaning of water itself, and in particular the way it interconnects with such dimensions of humanity like economy, ecology, society, culture, and spirituality (Almond, 1995). Sense of place is also a vague and elusive concept which involves a study of individual relationships with physical settings or emotional feelings towards a place people live in (Bricker & Kerstetter, 2000). This concept has been of interest among social scientists, geographers, architects, and environmental psychologists (Warzecha & Lime, 2001). Moreover, since people are recognised as an integral part of physical settings, it has become an important part of natural resource management (Cantrill, 1998; Warzecha & Lime, 2001; D. R. Williams & Stewart, 1998). For example, it has been applied to the development of strategies and policies to conserve land, water, and biodiversity (Horwitz, Lindsay, & O’Connor, 2001).

The topic explored in this thesis is the relationship between two deep and abstract notions of the meaning of water and sense of place. Where these two notions have been examined together, previous research suggests that the connection between the meaning of water and sense of place tends to be subtle and complex. Are water and the place in which people live linked with each other and how do people think about and act with respect to water and the place in which they live? To answer these questions, this chapter discusses why an examination of the relationship between the meaning of water and sense of place is important. It first gives a brief review of the perception of the meaning of water and then continues to explain how sense of place is a vague concept. To set up the essence of this study, the next section will critically examine the connection between these two notions: the meaning of water and sense of place. Subsequently, the research design to address the aim of this study will be determined and described. In the final section, the organisation of this thesis will be introduced.
1.1 The Special Meaning of Water

What people ‘know’ about water is often based upon scientific and instrumental perceptions. Most scientists agree that pure water has special physical and chemical characteristics: it is without odour, colour, or taste; and boils and freezes at 100°C (212°F) and 0°C (32°F), respectively (P. M. B. Walker, 1988). Its density is about 1 g/cm³ (Brovchenko & Oleinikova, 2007) and the pH is 7 (Polevoy, 1996). Water, chemically known as H₂O, is the only chemical substance that can form itself in three states: liquid, solid, and vapour (Franks, 2000). It is the ‘universal solvent’ (Polevoy, 1996, p. 22). Seventy percent or approximately two-thirds of the earth’s surface is covered by water (Herd, 2001) which means that it is intricately involved in chemical and biological interactions. The important examples of those interactions are the hydrological and geomorphic cycles, key aspects of the planet. The former is “the complete cycle through which water passes, from the oceans, through the atmosphere, to the land and back to the ocean” (Parker, 1994, p. 970) and is critical in determining the earth’s climate (Pigram, 2007). The latter is “the cycle of change in the surface configuration of the earth or cycle of erosion and geography” (Parker, 1994, p. 846). These influence the change of landforms or the forms of the land surface: river, stream, cliffs, mountains, and volcanoes (Taylor, 2006). In short, from this scientific perspective, water is an integral part of creation, climate change, and landscape development on earth because of its ubiquitous distribution and special properties.

From an instrumental perspective, the most significant aspect about water is its function in life support: physical needs, biological needs, and psychological needs. Humans require water for balancing physical functions, fifty to seventy per cent of human body weight being water (Sawka, Cheuvront, & Carter III, 2005). In terms of biological needs, water is required for photosynthesis and is a by-product of aerobic respiration. Water serves as an integral element of ecological systems upon which humans depend for basic needs; food, drink, water, medicine, and accommodation (Levin, 1998; Schweithelm, 2005). It also plays a role in psychological support by serving as the natural setting for recreation and aesthetics such as swimming, canoeing, rafting, camping, boating, and sightseeing (Syme, Porter, Goeft, & Kington, 2008). Therefore, “water has long been recognised as a common, fundamental for the health -and survival- of both humans and nature” (Parkes, Morrison, Bunch, & Venema, 2008, p. 3).

Research suggests that other perceptions of water are relevant: engaging with people and/or the place in which they live. Tilley (2006) believed that water influences people’s movements, relationships and socialisation, mediated by its ability to change constantly. Simultaneously, life experience, and sensory perceptions of people create social identity, legend, memory, and meaning.
through their mobility on water and land. Water is involved in notions of landscape, nature, culture, and society, and different societies commonly express different meanings for water (Russell, 1999; Strang, 2004, 2005). Historically, water engages with settlement, civilisations, development, and urbanisation mainly expanding along the rivers: the Yantze and Yellow Rivers in China; the Tigris and Euphrates Rivers in Mesopotamia (Altman, 2002); and the Nile Valley in Egypt (Postel & Richter, 2003) being good examples among many. Moreover, water is able to evoke the meaning of spirituality and symbolism through histories, experiences, beliefs, rituals, and religions. For example, Indian people continue the rituals of bathing in the Ganges River because they believe these rituals can purify a sin (Postel & Richter, 2003). Schelwaldvan der Kley and Reijerkerk (2009) assume that water is important in the expression of political power and social activities or cooperation, particularly in conflict situations.

It is clear that the meaning of water is not just scientific and instrumental; it is multidimensional: water has meaning in historical, economic, societal, cultural, political, and spiritual contexts. A major interest here is how water has meaning and the way water may engage with the concept of sense of place within a selected research site. According to Syme, Porter, Goeft, and Kington (2008, p. 329), “water gives a place a distinct setting and identity and features prominently in the sense of place”.

1.2 The Concept of Sense of Place

Place is a fundamental concept which has its origin in the discipline of geography and has been expanded in the multidiscipline of social sciences. Low and Altman (1992, p. 5) defined place as “space that has been given meaning through personal, group, and cultural processes”. However, it does not mean that every space is place. According to Tuan (1977), space becomes place when people express or perceive a value in it, gained through their experience; it incorporates physical space and connects with people and societies. For example, people have experiences, memories, and feelings concerned with a place which creates social and cultural expression. The elements of place are thus “physical attributes, activities, and conceptions” (Canter, 1977, p. 158). In other words, “People are natural beings, social beings, and intellectual beings. How these are connected by the self depends on how they are connected by the places the person occupies” (Sack, 1993, p. 329). Not only do people depend on place but also “place depends on people who construct and organize it” (Sack, 1993, pp. 328-329). Politics is therefore another element of place. Cheng, Kruger, and Daniels (2003) suggested that place is not only a static setting with biophysical attributes, but also a constructed
process, through society and politics, that create social and cultural meaning. In brief, the concept of place is based on a holistic perspective relating to its inhabitants.

The term ‘sense of place’ cannot be precisely defined. There are different perspectives to explain this term (Shamai, 1991). For example, Jorgenson and Stedman (2001, p. 1) defined sense of place as “an attitude towards a spatial setting”, while Steele (1981, p. 12) identified it as “the pattern of reactions (product of physical and social settings) that a setting stimulates for a person”. Stedman (2002) and Williams and Stewart (1998) agreed that sense of place is the collection of symbolic meanings, beliefs, values, feelings, attachments, and satisfactions that involves a particular setting of individuals or groups. Galliano and Loeffler (1999, p. 2), likewise, believed that this term has four essential elements as described by Ryden (1993): “personal memory, community history, physical landscape appearance, and emotional attachment”.

In addition to disagreements with definition, sense of place is associated with a variety of similar terms in the literature such as place attachment, sense of belonging, sense of community, place identity, and place dependence. Whether these terms represent the same or different concepts is elusive (Hidalgo & Hernandez, 2001). Sense of place, place attachment, and place identity are often substituted for discussing the term of belongingness or sense of belonging to place (Giuliani, 2003; Gustafson, 2006). Low and Altman (1992, p. 4) considered place attachment as complex bonding between people and place, its core concept being “affect, emotion, and feeling”, with emotion sometimes considered as the most important element (Lewicka, 2008). Sense of community or community attachment is the concept of community experiences and relationships that are developed by social cohesion and identity processes (G. M. H. Pretty, 2002). Place identity is the expression of personal self which relates to personal factors, physical environment, and social context (Proshansky, 1978). Finally, place dependence is the perceived strong association between the individual and a specific place (Stokols & Shumaker, 1981).

Moreover, the connection between these terms is vague and overlapping even though they are important concepts for exploring the relationship between people and places (Manzo, 2003). For example, Hay (1998) believed that sense of place is broader than place attachment because it includes personal meaning and social contexts. An individual’s life experience, influenced by economy, society, and culture, may be able to develop into a sense of place (Rose, 1995; Vorkinn & Riese, 2001) which may contribute to form a sense of self or place identity. Some research has also indicated that place identity and place dependence are elements of place attachment (Bricker & Kerstetter, 2000) especially attachment to recreational or natural settings.
However, sense of place emerges in several disciplines of geography and social sciences: anthropology, sociology, environmental psychology, and natural resource management (Antonsich, 2010; Yung, Freimund, & Belsky, 2003). Previous research involving sense of place has revealed its diverse perspectives and approaches. Both quantitative and qualitative research have provided an extensive knowledge of place meaning, attachment, and identity according to different topics such as positive or negative bonding, outdoor or indoor experiences, and individual or collective attachment.

For example, Low (1992, p. 166) proposed six processes of place attachment:

1) genealogical linkage to the land through history or family lineage;

2) linkage through loss of land or destruction of community;

3) economic linkage to land through ownership, inheritance, and politics;

4) cosmological linkage through religious, spiritual, or mythological relationships;

5) linkage through both religious and secular pilgrimages, celebratory and cultural events; and

6) narrative linkage through story-telling and place naming.

Shamai (1991, pp. 349-350) also provided a measurement for sense of place that has seven levels:

level 0: “not having any sense of place” (people have no sense of place);

level 1: “knowledge of being located in place” (people have knowledge or awareness of place but no special bonding with place and place is no more than an address or location);

level 2: “belonging to a place” (people have the feeling of belonging to a place and respect place symbols);

level 3: “attachment to a place” (people involve an emotional attachment to a place at a higher level, combining meaning of place, personal experience, symbol, and identity);

level 4: “identifying with the place goals” (people are deeply attached to place: having devotion, loyalty, and allegiance to a place);

level 5: “involvement in a place” (people take an active environmental role in a place because of their commitment to place: investing resources and taking action for place); and
Level 6: “sacrifice for a place” (people invest their deepest commitment to a place and are ready to sacrifice individual interest and/or collective interests to protect the place);

Therefore, sense of place is a complex, multidimensional, fluid and changeable concept (Smaldone, Harris, & Sanyal, 2008; Stokowski, 2002). In particular, within the different contexts and pressures of space and time, sense of place becomes of interest as a point of theoretical enquiry (Massey, 1994). This study explores the concept of sense of place relating to the meaning of water in a specific setting and its context.

1.3 A Challenge for Novel Inquiry

One approach to an inquiry that seeks to relate two broad but not traditionally connected concepts is to postulate how they might be expressed in terms of one another. Tables 1 and 2 provide an analysis of the relationship when one focuses or foregrounds one or other of the concepts of ‘meaning of water’ or ‘sense of place’ in the context of the other. The left column provides details about the conceptual setting, the area of research attention, while the right column is descriptive of the way another conceptual domain is expressed as a contribution to this theoretical understanding. Table 1 emphasises the meaning of water and how sense of place may relate to it; Table 2 emphasises sense of place and how the meaning of water may relate to it.

Table 1 The way sense of place is expressed when the meaning of water is the focus of attention, or the theory setting

<table>
<thead>
<tr>
<th>Focus of Attention: Meaning of Water</th>
<th>The Way ‘Sense of Place’ Is Expressed In this Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Humans require water for balancing physiological functions: fifty to seventy per cent of human body weight is water (Sawka et al., 2005).  2. Water serves as an integral element of ecological systems upon which humans depend for basic needs (Levin, 1998).</td>
<td>1. If water is for drinking, place is expressed implicitly as being important for access to water.  2. If water is for ecosystem provisioning services, place is where goods and services are obtained.</td>
</tr>
</tbody>
</table>
**Table 2** The meaning of water as expressed when sense of place is either the focus of attention, or the theory setting

<table>
<thead>
<tr>
<th>Focus of attention: Sense of Place</th>
<th>The Way ‘Meaning of Water’ Is Expressed In This Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Space becomes place as people value it through lived experience (Tuan, 1977).</td>
<td>1. Water is expressed as only one part of a space, and its contribution to sense of place or landscape and lived experience is downplayed.</td>
</tr>
<tr>
<td>Focus of attention: Sense of Place</td>
<td>The Way ‘Meaning of Water’ Is Expressed In This Context</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>2. Place is “a space that has been given meaning through individual, group and cultural processes” (Low &amp; Altman, 1992, p. 5).</td>
<td>2. The meaning of water is lost among an investigation of human interactions.</td>
</tr>
<tr>
<td>3. Not only do people depend on place but also “place depends on people who construct and organize it” (Sack, 1993, p. 329).</td>
<td>3. Water is the part of place that is often taken for granted, and sufficiently valuable for people to protect it.</td>
</tr>
<tr>
<td>4. The elements of place are “physical attributes, activities, and conceptions” (Canter, 1977, p. 158).</td>
<td>4. Water shapes the physical features, provides for activities (and the question of whether it constructs people’s conception is part of this thesis!).</td>
</tr>
<tr>
<td>5. Place is not only a static setting for biophysical attributes, but also a constructed process, through society and politics, that assigns social and cultural meaning (Cheng et al., 2003).</td>
<td>5. The meaning of water is dynamic and implicitly involved in constructions of society and culture.</td>
</tr>
<tr>
<td>6. The elements of attachment to place are emotion, cognition, and behaviour and the most important is emotion (Lewicka, 2008).</td>
<td>6. The meaning of water can be emotional, cognitive, or behavioural.</td>
</tr>
<tr>
<td>7. Six processes of attachment (Low, 1992, p. 166) are: 1) genealogical linkage; 2) linkage through loss or destruction of community; 3) economic linkage; 4) cosmological linkage; 5) linkage through religious or secular pilgrimages, celebratory, and cultural events; and 6) narrative linkage.</td>
<td>7. Water is linked with each and any of these processes; water is synonymous with ‘land’; water is part of any story (whether expressed or not).</td>
</tr>
<tr>
<td>8. Levels of sense of place (Shamai, 1991, pp. 349-350) are: 0) no sense of place; 1) having awareness of place but no special bonding; 2) feeling belonging to place; 3) having emotional attachment to place; 4) identifying with the place goals; 5) involvement in place; and 6) sacrifice for place.</td>
<td>8. The meaning of water is expressed differently (individually, in groups, in societies) and it might underlie, or be expressed differently, in any of these levels.</td>
</tr>
</tbody>
</table>
Based on the analysis presented in Table 1 and Table 2, the meaning of water and the concept of sense of place are related in subtle ways. It implies, however, that if water and place are a part of each other, an engagement between them is overlapping, tacit, and complex. The meaning of water and sense of place may also disappear, or at least become embedded and only implicit, through the process of human interaction in a particular space and time. They may have the same function and involve multiple dimensions: histories, experiences, emotions, cognitions, behaviours, beliefs, rituals, religions, society, cultures, and politics. They may also contribute to each other: water may affect the development of the sense of place; and the sense of place may evoke the meaning of water.

Some previous research has explained what water means to people in different places and situations, and they are suggestive of some sort of the relationship between the two. For example, water can change a pattern of settlement or an interaction between people and people or people and places (Barber, 2005). Strang (2008a) asserted that the interaction between people and water appears through direct sensory experiences such as drinking water, using water for washing or cooking, and touching water flows. These experiences engage with place and engender power for the meaning of water through spirituality and social identity. She (2008b) also encoded cultural meanings of water to examine water management in Queensland, Australia, concluding that the performance of strong ritual or activity performance is able to create social interaction with water. This involves the importance of ritual behaviour, sensory expression, and acceptance of cultural or sub-cultural values.

O’Brian (2008) assumed that water relates to religious issues and place identity, such as the tradition of holy wells and mass stones in Southwest Ireland wherein place identity is shared by people from different nations who engage in this tradition. Memory of settlement and ritual practice of water are an integral part of a dynamic process of place attachment in Tamanambondro villagers living along the lower rivers of Manambondro, Isandra, and Lavibola in Southeast Madagascar (Thomas, 1997). According to Toussaint (2008), when they found themselves in a difficult situation, people of the Fitzroy river, northern Australia, became explicit about a sense of place based on culture. They socially, politically, and emotionally expressed their cooperation to protect the river as a part of environment and ecosystem.

These examples point to another aspect of the relationship expressed in environmental psychology (Lewicka, 2008, p. 211), and the study of people and place figures strongly in natural resource management (Kaltenborn & Williams, 2002). Social scientists, especially environmental psychologists and geographers, have developed several conceptual frameworks or models to explain the complex inter-relationship between people, place, and the physical environment. These are discussed below.
The first model (see Figure 1) proposed by Williams and Patterson (1996) is a theoretical framework to integrate theory and practice in ecosystem management which is adapted from “the relational geographic framework” developed by Sack (1992, p. 97). Nature, social relations, and meaning as social forces, which are able to construct a daily experience of place, are depicted in the domain of modern social science. In this sense, citing Sack, they described nature as the physical, chemical, and biological aspects of phenomena and how these forces affect human life. An emerging ecosystem paradigm pays new attention to the systemic aspects of nature and spatio-temporal distributions. However, humans are products of both nature and culture: the latter consists of the realm of social relations (social, economic, and political forces) and the realm of meaning (ideas, values, and beliefs that give meaning to the world) (D. R. Williams & Patterson, 1996, p. 515). Even though this framework focuses on theoretical integration to support natural resource management, the success of this integration requires further research to seek perspectives of places between somewhere and nowhere in vertical axis (see Figure 1).

![Figure 1](https://example.com/image1.png)

*Figure 1* Natural resource perspectives within relational geographic framework adapted from Sack (D. R. Williams & Patterson, 1996, p. 214)

The second model (see Figure 2), developed by Gustafson (2001), named the three-pole triangular model, is for mapping place meaning. He conceptualised the meaning of place after interviewing respondents living in Western Sweden. The first pole is self which gives a personal meaning to place. This meaning is associated with life path, emotion, activity, and self-identification. The second pole
refers to others’ meaning of place being constructed through the influence of perceived characteristics, traits, and behaviours of other people. The third pole represents the environment in which a large number of people explain their meaning of place through the physical environment (both natural and artificial), distinctive features or events (including symbols and history), institutions, type of place, and localisation (distance to other places). In addition, the meaning of place involves the relationship between poles: self and environment, self and others, and environment and others. This model may be applied generally for mapping the meaning of place and comparing the meaning in different groups and social contexts. However, Gustafson indicated that further empirical research is required for discussing sense of place in controversial situations, particularly those where conflict exists between globalisation and localisation.

Figure 2 Three-pole triangular model of place meaning attributed by the respondents (Gustafson, 2001, p. 10)
The third model is described by Stedman (2003) who believed that the meaning-mediated model is the most suitable for integrating environmental factors with sense of place. This was verified by a mail survey and statistical analysis among the respondents in the Northern Highlands Lake District of Northern Wisconsin. The meaning-mediated model suggested that the characteristics of an environment determine the meaning of places but that development of landscape or physical environment may change the feeling of place. However, physical features indirectly develop a sense of place. Specifically, the physical environment influences symbolic meaning that helps construct the feeling of place attachment. Stedman (2003) then suggested further study to consider other factors such as cognition and behaviour which may influence the construction of place meaning.

Briefly, these three sample models are developed from different approaches with different research focus and purpose. Each model provides a specific aim requiring further improvement and clarification. In reality, there are various theoretical frameworks to explain the meaning of place but the complexity of the concept of place can be explained in different ways. This explanation depends upon particular context since people construct the meaning of their places differently (Smaldone, Harris, & Sanyal, 2005).

To this point, the ambiguity and inconsistency of identifying the relationship between the meaning of water and sense of place signal a challenge (see Figure 3): is there a relationship between these two deep and abstract notions in human development, one that might help explore complex societal matters facing humanity? Understanding this relationship may challenge academic disciplines and engender environmental planners to recognise multidimensionality in water management. From it, local people may benefit, gaining insight about special meaning of water, in the context of the biophysical environment, their lives, culture, and society.

![Diagram](image)

*Figure 3 A challenged inquiry about the meaning of water and sense of place*

This inquiry requires systematic study to develop a conceptual framework for understanding the interconnection between the physical environment, human behaviour, symbolic meaning, and sense of place in different contexts (Stedman, 2003). Basso (1996) would agree: that such a study may be able to clarify explanations about the complex relationship between water, people, and place. The
inquiry demands qualitative research: designed for investigating and understanding the meaning, human action, and social phenomena in real contexts rather than in rigid circumstances suited to testing preformed hypotheses by quantitative research (Avis, 2003; S. M. Carter & Little, 2007).

Specifically, an appropriate methodology in qualitative research is the constructivist approach of grounded theory considering that it is flexible for the purposes of social science research (Charmaz, 2006). It allows an investigation of the relationship between the meaning of water and sense of place from people’s feelings and social interaction, both relating to its context (Charmaz, 2003a; Corbin & Holt, 2005; Corbin & Strauss, 2008). The concept and justification of this methodology for this study will be discussed in the next chapter.

1.4 Research Design

This study aims to examine the relationship between the two deep and abstract concepts about the meaning of water and sense of place through a systematic research process conducted in a localised environment. This examination requires perspectives and actions of local insiders since these two concepts engage with: 1) meanings that people give to water and the place they live in; 2) experiences of people with water and place; and 3) social interaction or process between people, water, and place. These meanings, experiences, and actions of local people have been explored and described in depth to discover how the meaning of water connects with sense of place. The outcomes are described and substantiated with a conceptual framework indicative of this relationship. To address this purpose, grounded theory methodology, based on a social constructionist epistemology (Charmaz, 2003a, 2006), was used for the research design to explore one local context. Pok and Pang Jum Pee Villages located on the Mae Lai Noi stream in Northern Thailand have been chosen as the context for data collection and analysis.

The reason why this methodology has been chosen and how fieldwork was to be conducted will be described and discussed in the next chapter. As asserted by Charmaz (2006), to construct a conceptual framework indicating relationships, it is essential to be specific about a study area that provides the background stories of people, water, and place, and whatever makes this relationship remarkable or special. That justification, for selecting the areas of study to address the purpose of this study, is provided here.
Firstly, a particular context is essential for seeking the meanings, experiences, and social interaction connecting with water, people, and place. The areas of study must thus provide unique or remarkable circumstances: physical settings, livelihoods, experiences, social actions, political issues, and whatever background that relates to water in the place in which people live. Pok and Pang Jum Pee Villages provided these circumstances.

These two small villages are located in the Huay Kaew Sub District, Mae-on District, Chiang Mai Province, Thailand, both being connected to the same stream named the ‘Mae Lai Noi’ (see Map 1 Page 194 and Map 3 Page 197 both in Appendix A). This stream meanders about 20 kilometres from Pok Village on the upper reaches of the stream to Pang Jum Pee Village downstream.

Employing grounded theory methodology, the geographic variations provide an interesting diversity of viewpoints and data which will be explored using descriptive stories for the construction of local, contextual, and conceptual framework. Villagers in Pok and Pang Jum Pee Villages rely on water flowing in the Mae Lai Noi stream. Most Pang Jum Pee Villagers believe in a supernatural power that protects water and natural resources in the stream, including the forests in surrounding areas.

Villagers participate in natural resource conservation and management. Traditional ecological knowledge is expressed in different circumstances, and the methods villagers use to engage with forest and water is a significant political issue. External organisations of recent times are involved in the management of the Mae Lai Noi stream and its tributaries, and the forests. For example, the Thailand Research Fund (TRF), Community-Based Research Division and the Local Authority of Huay Kaew Sub-District have contributed to the development of Pok and Pang Jum Pee villages because villagers obtain food and income from the stream and the forest. Overall, it is clear that the setting of these two villages will allow for this exploration, where attitudes, beliefs, and behaviours, livelihoods and lifestyles, and community organisation and structure, appeared to be, at the time of commencing the study, associated with the Mae Lai Noi stream.

Secondly, Pok and Pang Jum Pee Villages were accessible and I was familiar with the leaders of both villages, especially Pang Jum Pee Village. In 2004, Pok and Pang Jum Pee villages cooperated to revive and conserve the Mae Lai Noi stream through a research project supported by the Thailand Research Fund (TRF), Community-Based Research Division. At that time, I was the program officer at TRF and had the responsibility of monitoring the research project in these villages. The background stories of these villages was thus understood and experienced through conversation having been conducted with village leaders, visits to Pang Jum Pee village, and participation in village activities as well as regional and national conferences.
The familiarity made it easier for me to enter Pok and Pang Jum Pee villages for data collection in being consistent with the methodology of constructivist grounded theory. Understanding background stories, experiences, and events also helped create suitable questions in the research process to explore the feelings and reaction of the villagers to water and place which encouraged data quality and descriptions to construct conceptual frameworks. Such familiar is closely relevant to the principle of grounded theory, which states that, in order for a conceptual framework to be developed, data must be derived from the perspectives of local insiders.

In conclusion, Pok and Pang Jum Pee villages appeared suitable areas for fieldwork and provided a unique opportunity for this type of study. They offered various stories for further investigating the relationship between villagers, stream, and villages: traditional societies, local knowledge, water conservation, and importance of water in the Mae Lai Noi stream. The conduct of this study had a practical dimension since I understood the background information about these villages, and was familiar and trusted by the village leaders.

1.5 Thesis Structure

This thesis has been organised according to the outline as follows. Chapter 2 reviews and justifies the concept of employing constructivist grounded theory methodology that seeks to address the purpose of this study. The fieldwork to be experienced will be delineated and shown to be based upon a systematic process: the repetition and interrelation of themes in the data collection and subsequent data analysis so as to conceptualise categories and create descriptions leading to an emergence of a conceptual framework. This experience includes ethical considerations and practices to protect the right of participants and communities. In addition, reference to potential participants whose interviews support the results recorded in Chapters 3 and 4 will be made.

Chapters 3 and 4 outline the results of this study; each chapter has an introduction to the descriptive stories, discussion, and an explanatory framework derived, based upon the data collected. In chapter 3, the emerging of a co-dependence relationship between water, people, and place is described. This relationship will be revealed to be vulnerable to change by conceptions and actions relating to factors both inside and outside communities. Chapter 4 suggests the role of rituals for forest and water in stimulating sense of place. This role engages with spiritual beliefs and socio-cultural interaction based on the doctrine of Buddhism. However, there are some factors, especially leaders, that may affect the maintaining of function of these rituals in the future.
Chapter 5 focuses on conceptualisation and reflection. The two explanatory frameworks in Chapter 3 and 4 emerged from data collection and analysis will be combined and synthesised to propose a conceptual framework that may contribute to explain the relationship between the meaning of water and sense of place in general settings or situations. The mode for generalising this framework is also suggested so that this further application can be validated. In epilogue, I draw my attention to self reflection on this study.

Appendices provide important detail relevant to these chapters for the sake of understanding and interpreting. Appendix A introduces the villages, drawing attention to contextual and background information on the physical environment, the way of life, socio-culture, and politics. Appendix B and C show ethics documents including informed consent, and the list of participants involving Chapter 2, respectively. In Appendix D and E, additional details are provided for the Muang Fai system (which appears in Chapter 3) and collective action in forest and water ceremonies (which appears in chapter 4) respectively.
CHAPTER 2
Methodology

This chapter highlights the research methodology of constructivist grounded theory used to address the purpose of this study, primarily to explore the relationship between the meaning of water and sense of place, with the ultimate aim of helping an attempt to construct a conceptual framework which represents the feelings, viewpoints, experiences, and actions of local people. The first section provides the concept and elements of constructivist grounded theory followed by discussion of the justification for using this methodology including its applicability, the research process, and the necessary particular skill set. The succeeding section explains the fieldwork experiences in the process of data collection and analysis to create the essence of, and construct, a conceptual framework. Research ethics is then emphasised in the recruitment of participants, the collection of field data, and the manner of referring to key informants in this thesis. Finally, the participants who provided the information are introduced.

2.1 Constructivist Grounded Theory

Grounded theory is a qualitative research methodology developed by Glaser and Strauss in 1967 (Corbin & Strauss, 2008). It seeks to generate a relevant theory (Corbin & Holt, 2005; Corbin & Strauss, 2008) or a theoretical framework from participants. According to Mills, Bonner, and Francis (2006b, p. 27), “depending on the researcher’s ontological and epistemological beliefs, there are several points of departure along a spiral of methodological development”. Different versions of grounded theory have been developed along the lines of positivism, objectivism, postmodernism, and constructionism.

In this study, the form of constructivist grounded theory supported by Charmaz (2006) has been followed. She indicates that this focuses on social phenomena and the generation of data through the shared experiences and the relationships with participants. Furthermore, this approach is different from the traditional or objectivist grounded theory developed by Glaser and Strauss. Traditional grounded theory proponents emphasise a positivist perspective where data are ready to be discovered in the real world and are separate from the social context and relationship between the researcher and participants. According to Charmaz (2008, p. 397), a social constructionist approach to grounded theory allows us to address why questions while preserving the complexity of social life.
Grounded theory not only is a method for understanding research participants’ social constructions but also is a method that researchers construct throughout inquiry. Therefore, “constructivist grounded theory retains the fluidity and opened-ended character of pragmatism” (Charmaz, 2006, p. 184). Atkinson and Delamont (2008) agreed it to be appropriate in the real world of studying participants as it attempts to avoid the process being driven by an objective view of the researcher.

There are three research process elements in a constructivist grounded theory methodology (see Figure 4). The first is epistemological as it is concerned with the nature of knowledge that is constructionism (Avis, 2003). Epistemology claims that knowledge and meaning are constructed by the interaction and engagement with the world of human beings, including their transmission within the social context (Crotty, 1998). The second element is a theoretical perspective: symbolic interactionism. This suggests that human relationships are the dynamic processes of society, including constructing and sharing meaning. The most influential ideas in symbolic interactionism are those of Blumer (Kendall, 1999), where three simple premises are given (Blumer, 1969; Robrecht, 1995; Schwandt, 2007): human action in relation to something depends on the meaning people give to it, for example, people protect water because it provides a food source; meaning originating from social interaction such as the river ceremony influencing people who value the sanctity of water; and the interpretive processes of the individual to establish and modify meaning, for example, each person gives meaning to water and place differently. The third element is a set of methods which follow this epistemology and the theoretical framework of grounded theory. It emphasises a systematic process or repetition of data collection and analysis for constructing and conceptualising from grounded data or facts (Glaser, 2002). Through this process, the researcher must persistently engage with participants and interact with data (Mills, Bonner, & Francis, 2006a).

![Figure 4 The elements of constructivist grounded theory adapted from Crotty (1998, p. 5)]
2.2 Justification of the Study

This section discusses the justification for the employment of this research methodology in this study. Constructivist grounded theory provided a practical fit for the proposed study. As demonstrated in Table 3, it allowed for the development of a conceptual framework, from data related to the exploration of the feelings of people and their interactions, and the broad and open research question to be addressed.

Table 3 Indication of constructivist grounded theory used to address the purpose of this study

<table>
<thead>
<tr>
<th>Constructivist Grounded Theory</th>
<th>The Purpose of This Study</th>
</tr>
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<tbody>
<tr>
<td>1. Aim to develop theory or theoretical analysis through a process of social construction (Charmaz, 2003a; Corbin &amp; Holt, 2005; Corbin &amp; Strauss, 2008).</td>
<td>1. To construct a new conceptual framework for explaining the relationship between the meaning of water and the sense of place in two villages.</td>
</tr>
<tr>
<td>2. Constructionism and symbolic interactionism, which focus on insiders’ views, and human interaction, and support the study of process, phenomena, interaction, behaviour, meaning, and experience (Charmaz, 1990, 2003a), including building theory from the point of view of the insiders.</td>
<td>2. To study the relationship between the meaning of water and sense of place in the villages by understanding the meaning that people give to the stream and its water, and the place people live in, including the interaction between people, the stream and its water, and place.</td>
</tr>
<tr>
<td>3. Grounded theory is appropriate for studying elusive research problems, or problems that are difficult to explain by any ideas (Glaser, 1992).</td>
<td>3. The meaning of water and sense of place are subtle or ambiguous themes that are locally negotiated. The conceptual framework seeks higher levels of understanding the relationship between the meaning of water and the sense of place.</td>
</tr>
</tbody>
</table>

The strength of grounded theory, which is a point of difference from other methodologies in qualitative research, is the diligence of its research method. Grounded theory is a highly systematic research process for generating theory (Chenitz & Swanson, 1986; Glaser, 1978) or constructing conceptual frameworks from data (Charmaz, 2006). In this process, there are three unique characteristics (Elliott & Lazenbatt, 2005; Lingard, Albert, & Levinson, 2008): iterative study, theoretical sampling, and the method of analysis.
Iterative study involves a cycle of data collection and data analysis (Lingard et al., 2008). The researcher must focus on the degree of repetition in data collection and analysis: how to take notes in the field, how to compare data, how to develop categories, how to write memoranda, and how to develop theories. In addition, the researcher must analyse data via theoretical sampling or repeated data collection by purposive sampling until the theoretical concept emerges (Lingard et al., 2008; Weed, 2009). The constant comparison and memo-writing in data analysis also make an accuracy of data possible (Elliott & Lazenbatt, 2005). Furthermore, this systematic process embodied in the research method, in itself, provides the advantage of rigour (Glaser, 1978; Liamputtong, 2009) and leads to several methods for data collection (Corbin & Strauss, 1990) and conceptualisation (Charmaz, 2003a). The aforementioned citations, therefore, asserts the propose of this study; the construction of descriptions and a conceptual framework.

According to Glaser (1992), the quality of grounded theory relies on the researcher whose ability to conceptualise is equivalent to the analysis of data and development of a conceptual framework. The skill of the researcher is pivotal to support a systematic research process of constructivist grounded theory which also assumes that “the social world is always in process, and the lives of the researcher’s subjects shift and change as their circumstances and they themselves change (Charmaz, 2000, p. 522).” Along these lines, I am equipped with skills in data collection, analysis, and conceptualisation taking into consideration my previous experience in qualitative research and research publication for seven years in community-based research as the program officer at the Thailand Research Fund (TRF), Community-Based Research Division, prior to commencing this study. Hence, the purpose of this study was addressed by 1) engaging with local communities, and adapting to an uncertain actual situation in my fieldwork; 2) collecting data using several methods such as in-depth interview, participatory observation, focus groups, visual collection, and diaries (for all of which I had prior experience); 3) analysing and categorising data; and 4) producing a descriptive, conceptualised model.

2.3 Fieldwork Experience with Systematic Process

Fieldwork at Pok and Pang Jum Pee Village commenced in October 2010, after the proposal for this research had been reviewed and accepted by the Faculty at Edith Cowan University. Through a systematic process of constructivist grounded theory, the connection between the meaning of water and sense of place was explored and conceptual frameworks were developed between October 2010
and November 2012. Figure 5 depicts this systematic process which allows a conceptual framework to emerge. Notably, “data analysis and data collection are interrelated processes” (Corbin & Strauss, 1990, p. 6). These processes occur concurrently and shape each other (Bryant & Charmaz, 2007). As soon as data collection starts, collected data are analysed (Charmaz, 2003a). Through data analysis, conceptual categories are constructed and developed to provide a conceptual framework. Importantly, when conceptual categories are appearing, theoretical sampling is the next step (Draucker, Martolf, Ross, & Rusk, 2007). This means “seeking and collecting pertinent data to elaborate and refine categories in your emerging theory”, and it is conducted by “sampling to develop the properties of your categories until no new properties emerge” (Charmaz, 2006, p. 96). Thus, the research process has been systematically carried out until a conceptual framework emerged. To be more specific and for the sake of clearer understanding, each stage in the process is explained.

2.3.1 Data Collection

Since constructivist grounded theory allows the combined or triangulated use of several qualitative methods to collect data (Liamputtong, 2009), a range of methods was used: in-depth interview, participatory observation, informal focus group, visual collection, and diaries. Table 4 demonstrates justifications for the use of each method, and how they were used in this study. During data
collection, an open mind was kept to actual information or situations (Glaser, 1992) for formation of new points of view (Charmaz, 2003a); this was necessary to obtain rich data for developing detailed descriptions and conceptual frameworks.

Table 4 The purposes and uses of several methods for data collection

<table>
<thead>
<tr>
<th>Methods</th>
<th>Known Purposes/Advantages</th>
<th>Techniques/Tools used</th>
</tr>
</thead>
<tbody>
<tr>
<td>*In-depth interview</td>
<td>* To direct conversation, to explore deep insiders’ viewpoints; experiences, ideas, thoughts, feelings, and perceptions (Charmaz, 2003b; Liamputtong, 2009). *Allows researcher to understand hidden meaning (Liamputtong, 2009). *Is a flexible method.</td>
<td>*One to one conversation of about 30 to 60 minutes. *Open ended questions and unstructured interview. *Observe body language during interview. *Digital tape recording, notebook.</td>
</tr>
<tr>
<td>*Informal focus group (group interview or conversation)</td>
<td>*Aim to provide a discussion for assessing similar and different ideas among homogenous group of participants (Dalton, Elias, &amp; Wandersman, 2007). *Provide cumulative and elaborative data (Fontana &amp; Frey, 2008) *Is a flexible method.</td>
<td>*Around 5 to 10 people in a group I met by chance. *Opened questions to motivate discussion in the same topics. *Digital tape recording, notebook.</td>
</tr>
<tr>
<td>*Diaries</td>
<td>*Daily record of the varieties of data in the field: observation, interviews, focus group, visual collection, ideas, analysis, and suggestion. *Be a personal document for the researcher and provide data for the conceptual framework (Altrichter &amp; Holly, 2005) providing opportunities for reflection and synthesis.</td>
<td>*Notebook.</td>
</tr>
</tbody>
</table>
The primary methods used in this study, however, were in-depth interview and participatory observation. The in-depth interview provides direct conversation, open-ended questions, and flexibility in exploring peoples’ experiences and ideas (Charmaz, 2003b) which then enables elaborate detailed descriptions. To explore the viewpoints of participants, purposively sampled participants were interviewed; they were able to provide information or stories and to express their feelings or opinions that involved the meaning of water and sense of place. In engaging with Pok and Pang Jum Pee villagers during fieldwork, ethnographic methods were combined with an emphasis on participatory observation. This observation requires the researcher to live in communities or study areas and interact with communities members or participants (Monaghan & Just, 2000; O'reilly, 2005) and this “method of participation is a way to collect data in natural settings by ethnographers who observe and/or take part in the common and uncommon activities of the people being studied” (DeWalt & DeWalt, 2011, p. 2). Data from genuine participatory observation was also sought to describe the study areas, the activities, and the behaviours (Patton, 1990). In this study, observational data were also essential for understanding the meanings that people gave to water and understanding the direct and indirect actions of individuals and society in general towards water and place. Verbal and non-verbal expressions of individuals and groups were also observed, such as earning a living and showing respect for water and forest.

The first phase of fieldwork, from October 2010 to July 2011, focused on engaging with villagers and general exploration to ground primary descriptions that involved people, water, and place. Prior to fieldwork, community access and building rapport with villagers were the first priorities for obtaining quality data (Creswell, 2007). Informal visits and discussions were held with villagers regarding the details of this study in October 15, 2010 at Pang Jum Pee Village and in October 18, 2011 at Pok Village. Subsequent to these first visits, permission to conduct this study in both villages was granted. Through the local address public system, I was introduced to villagers as a PhD student and requested for cooperation in response to any related inquiry. The villagers and other key informants were greeted: assistant village leaders and members of the Community Committee who were the legitimate authorities to manage villages (see details about society and politics in Appendix A). Rotational home stays of at least ten days a month were negotiated in each village to build and maintain good relationships with these people. Several techniques were used to be acquainted with the villagers, particularly during the months of October, November, and December 2010: walking around the villages; talking with people about general topics; buying food at the grocery store; filling the vehicle’s petrol tank at a small station; and having dinner with home stay families so as to become more familiar with them. Occasionally, participation in village events or activities occurred, such as
funeral ceremonies, water ceremonies and cleaning. These events provided a positive opportunity to build trust and relationship with the villagers since most of them usually gathered to help one another.

Simultaneously, to create detailed description from natural settings and actual situations, I continuously observed, recorded, and mapped physical features, important places, information about the people, daily activities and livelihoods, and the dynamics associated with the Mae Lai Noi stream itself. Visual materials were also collected such as past and present pictures and photographs, previous letters, and old documents. Importantly, informal interviews and informal group conversation were conducted at participants’ houses or in public spaces like the grocery store and temple with the use of open-ended questions (see Box 1). These questions, however, were flexible, depending upon answers given by respondents, for example, a short conversation with Mr Tong Yingyoach progressed in the manner shown in Box 2.

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**Box 1 Examples of open-questions**

- Were you born here? How long have you lived here?
- Why did you and your family decide to live here?
- Could you tell me about your village?
- Are you happy to live in this village?
- What do you like/dislike most about this village?
- Do you have good/bad experiences/feelings/memories?
- What is a special place/symbol in the village? Why is it important?
- Can you tell me about any legends or village stories?
- Have you lead or participated in any activities/networks for this village?
- What things should be improved in this village? What are your expectations?
- Do you want to move to somewhere else? Why?
- How would your life be if you did not live in this village?
- Could you tell me about the Mae Lai Noi stream?
- What is your experience with the Mae Lai Noi stream?
- What are the special events of the Mae Lai Noi stream that affect your life?
Box 2 An example of flexible conversation with a participant

Q: How long have you lived here?
A: I have been in the village since I was young. My father moved to grow rice here. Most people here did not want to go out. They usually went to gather plants in the forest.

Q: Could you tell me more about your life at that time?
A: In the past, people grew rice on the mountain and felled many trees. Some people grew rice but needed to stop because of poor production. I also needed to sell land for rice farming because of that.

Q: Why did people cut down trees?
A: They cut them down to prepare land for growing rice to eat every year. Later they cut them down to earn income until there were no big trees in the forest. At that time, they had no choice. They needed to grow rice and plants to feed their family. Everybody depended on the stream and the forest because no one was able to use cars. There was only a walkway. Life was not the same as today.

Q: So what did you mean by a dependence on stream and forest?
A: It was difficult to go out and buy food. So, rice farming was established and undertaken. They used water from the Mae Lai Noi stream nearby. I always went hunting and my wife had to gather plants for cooking. Thick forest was everywhere. This made for cooler weather and nicer surrounding. I liked it. Mae Lai Noi had a lot of water for everybody to use and drink.

All data collected from individual and group conversation, along with notes participatory observation and visual collections, were transcribed, recorded, and analysed in the Thai version every month. After the process of data analysis, memo-writing or detailed descriptions were translated into English version. The same methods of data collection were repeated through a systematic process of data collection and analysis until a description was completed and a conceptual framework emerged. The complete and thorough way in which a conceptualisation emerged, will be described next.
2.3.2 Data Analysis

Data analysis consists of coding, constant comparative methods, and memo-writing. These procedures are very important for the accuracy and completion of descriptive data. Coding is the major process in data analysis (Dey, 2007). Constant comparative methods and memo-writing are the tools used in the analytic process. The example of data analysis with these methods from fieldwork is demonstrated in Table 5.

Coding is a controversial process. Walker and Myrick (2006) illustrated the argument between the procedures of Glaser and Strauss, and Strauss and Corbin. Glaser and Strauss suggested two procedures of coding: substantive coding (open coding) or selective coding, and theoretical coding or conceptual coding. In contrast, Strauss and Corbin suggested three types of coding: open coding, axial coding, and selective coding. Axial coding which remains controversial is the linking process of all categories and subcategories after substantive coding (Creswell, 2007; Kendall, 1999). Charmaz (2006, p. 61), however, argued that it “provides a frame for researchers to apply. The frame may extend or limit your visions, depending on your subject matter and ability to tolerate ambiguity. Students who prefer to work with a preset structure will welcome having a frame.”

In this flexible study, the procedure of coding excluded axial coding and mainly followed the practical guidelines of Charmaz (2006) to allow a conceptual framework to emerge from the data. Coding is defined as “categorizing segments of data with a short name that simultaneously summarises and accounts for each piece of data” (Charmaz, 2006, p. 43). It is an important connection between data collection and emergent theory. Two main procedures of coding are suggested (Charmaz, 2003a): the initial code and the selective code. The former is the naming of data in each line by using short and clear words. The latter is sorting, organising, and synthesising from significant data in the initial phase to categorise the data. The product of coding is categories and sub-categories to be used for conceptualising categories in the next stage.

During the coding process, a constant comparative method was employed to distinguish the similarities and differences between: data and data, data and codes, and codes and categories. In addition, memo writing or simple note taking were continuously developed and improved when categories were constructed. In memo writing, each category was named and a record was kept for its definition, while jotting or free writing was constantly done to record interesting ideas from the data and categories. Memo writing helped to explore major and minor categories, and directed further action. For example, collection of data was repeated to improve or conceptualise categories.
Moreover, memo writing served as a draft for thesis writing or descriptions. Such activities were in accordance with Charmaz (2006) who avowed that forcing data into codes or categories should be avoided. Addition of personal ideas to the shape data was also avoided, coded data from an interviewee’s transcription being paramount rather than that from diaries. Generating a conceptual framework requires data to be grounded from the rich data of the viewpoints of participants or insiders.

Table 5 An example of coding, constant comparative method, and memo-writing

<table>
<thead>
<tr>
<th>Texts</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Text 1: Transcription of Mrs Kao Jaima</strong></td>
<td><strong>Initial Code</strong></td>
</tr>
<tr>
<td>Q: What do you think about your life in the past and the present?</td>
<td><em>Difficult life in the past: not good transport, low economy, and limited trade</em></td>
</tr>
<tr>
<td>A: Good in a different way. Today I can buy food easily but have lots of expenses. In the past, I needed to walk to buy rice at Huay Kaew Sub-District. Sometimes, without money, without rice, I ate banana, pumpkin. Had to be patient with hunger sometimes.</td>
<td><em>Used to have a lot of water</em></td>
</tr>
<tr>
<td>Q: What about water in the past?</td>
<td><em>Water as the source of food.</em></td>
</tr>
<tr>
<td>A: Water was abundant; in summer, the least water level was about knee depth. People always went to catch fish, shrimp, crab, and shell. Used my hand to catch crab and shrimp under a stone in water because they were in the hole. Often, a big crab gripped me and it bled. Today, there is not so much water. The highest level was only about ankle depth. People showered in the Mae Lai Noi stream but did not use it to drink. They usually drank water from other streams which had not passed any houses. Pok villagers threw everything in the Mae Lai Noi stream: trash, tea leaves basket, clothes, dead dog, tearing buttress. But today, they don’t do that because of development.</td>
<td><em>Decrease of water level</em></td>
</tr>
<tr>
<td>Q: Do you worship the village shrine?</td>
<td><em>Action of villagers to water in the stream</em></td>
</tr>
<tr>
<td>A: Sure. It is our norm, we cannot leave it. Guardian spirit will protect me. We have never seen him but he sees us. Need to respect and worship him on Buddhist day. Also, tell him what we do; wedding, building new house, and moving. I usually pray for health and happiness. Sometimes, I feel sick but feel better after I worship the shrine. I used to asked for magic water; worship and left the bottle of water at shrine in the morning. Then got it back in the evening. This water relieves headache and dizziness.</td>
<td><em>Belief in guardian spirit</em></td>
</tr>
</tbody>
</table>

| | **Selective Code** |
| | Change in the village |
| | *Transport* |
| | *Economy* |
| | *Trade* |
| | Experience of change about water |
| | *Water volume* |
| | *The use of water* |
| | *Action of villagers to water in the stream* |
| | Spiritual beliefs |
| | *Guardian spirit had sacred power to recover sickness* |
### Texts

**Text 2: Transcription of Mr Kumpun Leuklab**

Q: What about your life in the past?

A: No road. It is horse and cow way; had to walk. At that time, I felt difficulty to use cow and horse as carriage on narrow way. When it rained, ground became mud and big hole with big stones in there. Road construction came into the village about 1976 (Time of development?), Prime minister was Kuek Rit Pramot. The first fund was about three hundred thousand baht which aimed to construct road from Royal Project, TienTok, to Pok village. Life is more convenient; don’t have to step on the mud.

Q: How about water in the past?

A: In the past, water level was always high but it never exceeded the road. Today, there is only much water in the rainy season. In summer (March and April), water level is lowest. However, there has never been a water shortage in Pok village.

Q: What about water in the Mae Lai Noi stream?

A: Yes, we used to connect pipeline on upper stream for household use. Now, some people use plastic rope for their coffee cropping. There are two water tanks in the village; at upper stream, and temple.

Q: What did people respect and worship?

A: Sua Bann (village shrine) and temple are the centre of the village. Each Pok has their own shrine and villagers usually bring snack and dessert to worship them on Buddhist days. Apart from this, they make a wish for; getting a new job, entering school, being healthy during building houses. People always go to the temple on Buddhist day for making merit and listening to sermon. We need to follow our norm.

<table>
<thead>
<tr>
<th><strong>Texts</strong></th>
<th><strong>Coding</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Text 2: Transcription of Mr Kumpun Leuklab</strong></td>
<td><strong>Initial Code</strong></td>
</tr>
<tr>
<td>Q: What about your life in the past?</td>
<td><em>Difficult transport in the past</em></td>
</tr>
<tr>
<td>A: No road. It is horse and cow way; had to walk. At that time, I felt difficulty to use cow and horse as carriage on narrow way. When it rained, ground became mud and big hole with big stones in there. Road construction came into the village about 1976 (Time of development?), Prime minister was Kuek Rit Pramot. The first fund was about three hundred thousand baht which aimed to construct road from Royal Project, TienTok, to Pok village. Life is more convenient; don’t have to step on the mud.</td>
<td><em>Origin of developing transport</em></td>
</tr>
<tr>
<td>Q: How about water in the past?</td>
<td><em>Used to have a lot of water</em></td>
</tr>
<tr>
<td>A: In the past, water level was always high but it never exceeded the road. Today, there is only much water in the rainy season. In summer (March and April), water level is lowest. However, there has never been a water shortage in Pok village.</td>
<td><em>The use of water and water supply</em></td>
</tr>
<tr>
<td>Q: What about water in the Mae Lai Noi stream?</td>
<td><em>Major beliefs in the village</em></td>
</tr>
<tr>
<td>A: Yes, we used to connect pipeline on upper stream for household use. Now, some people use plastic rope for their coffee cropping. There are two water tanks in the village; at upper stream, and temple.</td>
<td><em>How and why is respect shown to Sua Bann</em></td>
</tr>
<tr>
<td>Q: What did people respect and worship?</td>
<td><em>Why and how do people go to the temple</em></td>
</tr>
<tr>
<td>A: Sua Bann (village shrine) and temple are the centre of the village. Each Pok has their own shrine and villagers usually bring snack and dessert to worship them on Buddhist days. Apart from this, they make a wish for; getting a new job, entering school, being healthy during building houses. People always go to the temple on Buddhist day for making merit and listening to sermon. We need to follow our norm.</td>
<td></td>
</tr>
</tbody>
</table>

### Texts

**Text 3: Transcriptions of Mr Prasit Matha**

Q: Did people use water from wells in the past?

A: No. The only thing was using bamboo pipeline. Villagers leaned bamboo on the water in the stream passing the valley to the village. The water level had to be higher than village. This method let water flow from higher to lower area. Each household needed a lot of bamboo to make pipeline. These bamboos were sliced into two pieces. We needed to estimate the distance from house in order to prepare bamboos. After the bamboo was sliced, the join for each half piece was cut. Also, need to find prong wood to support bamboo pipeline.

<table>
<thead>
<tr>
<th><strong>Texts</strong></th>
<th><strong>Coding</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Text 3: Transcriptions of Mr Prasit Matha</strong></td>
<td><strong>Initial Code</strong></td>
</tr>
<tr>
<td>Q: Did people use water from wells in the past?</td>
<td><em>The use of bamboo pipelines to supply water for household in the past</em></td>
</tr>
<tr>
<td>A: No. The only thing was using bamboo pipeline. Villagers leaned bamboo on the water in the stream passing the valley to the village. The water level had to be higher than village. This method let water flow from higher to lower area. Each household needed a lot of bamboo to make pipeline. These bamboos were sliced into two pieces. We needed to estimate the distance from house in order to prepare bamboos. After the bamboo was sliced, the join for each half piece was cut. Also, need to find prong wood to support bamboo pipeline.</td>
<td><em>How to build bamboo pipelines</em></td>
</tr>
</tbody>
</table>
Q: how long did it take to build a pipeline?

A: It took about 5-6 days because people helped each other. Each household needed water and it had been done together.

Q: Did anybody not come to help?

A: Normally, we could ask people for help. Just told them “help me on this day, that day”. Most people came because they needed water. In the past, expenses are low. We didn’t have to be worried about earning money on the day we came to help people. Usually, we took a chance. For example, there were many workers to harvest tea leaves during the tea leaves season. During leisure time, employers asked their workers to slice bamboo and paid them something for it. Contrast to present, money is important. People usually think of their income. If they come to help people, they cannot get money; will lose wage, 100-200 baht. The way of thinking changes and affects life style. There is less support for each other.

<table>
<thead>
<tr>
<th>Change in the village</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Economy</em></td>
</tr>
<tr>
<td><em>Society</em></td>
</tr>
</tbody>
</table>

Constant Comparative Method (between three texts)

What are the similarities?
1. Three transcriptions and coding agree with the change in the village, water use and volume. Transport may affect this change.
2. Each participant mentioned village shrine and temple which may involve spiritual beliefs.

What are the differences?
1. Mr Kao mentioned that traditional villagers used to badly behave to the Mae Lai Noi stream and development may affect villagers to change this behavior.
2. Mr Prasit mentioned the change of social relationship relating to economic well-being.
3. Temple and village shrine may have a different role.
4. The use of water in the past is different from the present and the use of water at Pok Village may be different from Pang Jum Pee Village.

Memo-writing (between three texts)

What about free note?
1. History and change: transportation; in the past, people had to walk but today road has been constructed. Economic essentials may affect social change today.
2. Water experience
   *Quantity of water in the past is much more than today.
   *Water use in the past: catching fish in the stream, showering, drinking, coffee cropping, household.
   *Water supply in the past: people help each other to do bamboo pipelines
   *Action of villagers: threw everything into stream but today they have changed their behaviour.
3. Belief: There are two centre of beliefs; temple and village shrine to follow ancestor norm.

What data needs to be repeated?
1. Why did transport change, including change of something else; life style, economy, society, and culture (what, when, where, why, how)?
2. What are the differences of the use of water and action of villagers to water between the past and the present?
3. When, where, why, and how people show respect to the village shrine and go to temple?
4. Do villagers have any spiritual beliefs relating to water?
## 2.3.3 Conceptual Categories

In this stage, data and categories from previous stages were constantly assessed, analysed, and reorganised to develop conceptual categories for generating a conceptual framework. A constant comparative method and memo-writing were employed to assess significant data: themes, events, ideas, and meanings. This method was instrumental to distinguish the similarities and differences between categories and sub-categories, and categories and concepts. Memo writing also helped to condense the important themes in each category and to consider whether each category was saturated. Saturated categories means there is no new data that provides any extra information to support the conceptual categories or a new conceptual framework (Wiener, 2007). Theoretical sampling, which is the purposive repetition of data collection (Corbin & Strauss, 2008), was required to saturate categories before a conceptual framework was developed. All together, memo writing became advanced and focused on the intricate data analysis.

Based on fieldwork experience, detailed descriptions emerged from the first phase of the research, from October 2010 to July 2011; these were structured according to the following categories and sub-categories:

a. History and change
   - Naming villages and streams
   - Village settlement and movement
   - Traditional lives in the forest before development
   - Change in the era of development
   - Deforestation and recovery at Pang Jum Pee Village

b. Spirituality
   - Temple as a centre of religious ceremonies and social interaction
   - Worshipping of guardian spirit of the village
   - Showing respect to guardian spirit of land and forest
   - Beliefs in mysterious places protected by supernatural beings
   - Collective ceremony of Seub Cha Ta Rum Num or longer life ritual for stream or river at Pang Jum Pee Village

c. Streams and livelihoods
   - Physical map of the Mae Lai Noi stream and its tributaries, including names and meanings of them
• Water uses in households and agriculture from the past to present
• Earning a living in the forest: hunting, fishing, gathering plants, and using herbs
• The Local Learning Centre at Pang Jum Pee Village as the centre of recreation and local education and conservation
• Management of water power plant at Pok Village

d. Expressions of sense of place
• Local definition of sense of place
• Silent conflict at a border between Pok and Pang Jum Pee Village
• Cooperation in social activities: cleaning villages and protecting forest fire
• Developing and dissolving of young generation for village development
• Beehive and forest conservation

Along the above mentioned categories and sub-categories, data collection and analysis were continuously repeated in order to allow the emergence of conceptual categories leading to the creation of a conceptual framework. However, memo-writing (detailed descriptions) based on these categories and sub-categories was found to be saturated, whereby, the repetition of data collection did not provide any new information. In contrast, conceptual categories were not obvious, instead, questions arose on what consequences or insinuations, and to what categories, did the connection between people, water, and place imply. Such questions needed to be addressed; otherwise, a conceptual framework could not be developed. Hence, the second phase of fieldwork from January 2012 to July 2012 was conducted using the same systematic process of data collection and analysis as well as conceptualisation of categories. This phase began by re-examining all categories and descriptions gained from the first phase. A workshop with two supervisors was arranged to identify higher level themes from which conceptual categories might emerge. They and I agreed to exclude themes that did not imply a relationship between the villagers and water in the Mae Lai Noi stream of Pok and Pang Jum Pee Villages. In this respect, two main themes were focused to be pursued: 1) the history and change of villages, villagers, forest, and water; and 2) the ceremony of longer life rituals for the Mae Lai Noi stream at Pang Jum Pee Village. These categories, or themes, also directed the open-ended questions and facilitated key informants or participants in order to seek greater details during data collection and analysis. These questions were:
Theme 1: the history and change

1. What were traditional livelihoods? (Interview Pok and Pang Jum Pee villagers who were more than 40 years old and grew up there.)
2. Why did these livelihoods change and how? (Interview Pok and Pang Jum Pee villagers who were more than 40 years old and grew up there.)
3. What were the causes and consequences of deforestation at Pang Jum Pee Village? (Interview Pang Jum Pee Village who were there at that time, especially any who used to be loggers or timber merchants.)
4. Who led forest and water conservation to recover from deforestation, how, and why? (Interview the leaders especially the Community Committee at Pang Jum Pee Village and the leaders at Pok Village who were involved.)
5. Did leaders get any support from external agencies and from whom? (Interview the leaders especially the Community Committee at Pang Jum Pee Village and the leaders at Pok Village who were involved.)
6. What were the consequences of conservation? (Interview the leaders and villagers at Pang Jum Pee Village or Pok village who were involved.)
7. What did people think about the future of conservation? (Interview the leaders and villagers at Pang Jum Pee Village or Pok village who were involved.)

Theme 2: ceremonies for forest and water

1. Why did Pang Jum Pee Village need ceremonies for water? (Interview the villagers and the leaders especially the Community Committee at Pang Jum Pee Village.)
2. Who led these ceremonies and how? (Interview the villagers and the leaders especially the Community Committee at Pang Jum Pee Village.)
3. What were the meanings and consequences of these ceremonial performances? (Interview the villagers and the leaders at Pang Jum Pee Village.)
4. How did people feel about them and why? (Interview the villagers at Pang Jum Pee Village.)
5. What did people think about the future of them? (Interview the villagers at Pang Jum Pee Village.)
The themes and questions as stated above were explored using the same and as previously systematic process of data collection and analysis which suggested conceptual categories and subcategories identifying a relationship between water, people, and place:

Theme 1: the history and change

1. Traditional livelihoods (Before development in 1975)
   1.1 Isolated villages (difficult transport and communication)
   1.2 Living in the forest to survive; building houses, finding food and herbs, and using water in the Mae Lai Noi stream and its tributaries
   1.3 Sharing water, food, and labour in communities
   1.4 Having spiritual beliefs that helped to protect water, land, and forest

   2.1 Changing to the era of development (convenient transport, easier access goods and service)
   2.2 Cutting down a large amount of trees to earn income
   2.3 Effects of deforestation to livelihoods (drought and conflict with national law)

3. Transition to forest and water conservation
   3.1 Recognitions of effects and problem solving
   3.2 Participating in collective learning process for forest and water conservation
   3.3 Consequences of conservation action
   3.4 The future of conservation

Theme 2: ceremonies for forest and water

1. The origin of ceremonies
2. Spiritual beliefs in ceremonies and sense of forest and water conservation
   2.1 Worshipping supernatural beings to protect forest and water
   2.2 Sacred places

3. Socio-cultural base in ceremonies and sense of forest and water conservation
   3.1 Building cooperation in ceremonial performances
   3.2 Building social network of conservation

4. The future of ceremonies

Within the conceptual categories, theoretical sampling was continuously conducted to replicate data collection and analysis. The research process was finished when new categories did not emerge or in
the absence of new detailed descriptions for the same questions with different people, at different
times, and in different situations. Eventually, the conceptual categories were saturated with two
detailed descriptions (see Chapters 3 and 4) that indicated the relationship between the meaning of
water and sense of place: 1) the change of water, forest, and livelihoods; and 2) the role of rituals for
forest and water in this change. These categories were also evaluated in preparation the next step.

2.3.4 Emergence of Conceptual Framework

This final stage overlapped with the literature review to pose a conceptual framework. According to
Charmaz (2006, p. 163), the literature review and theoretical frameworks are ideological sites in
which you claim, locate, evaluate, and defend your position that show why you favour certain
arguments, what evidence you accept and reject, and how you arrived at considered decisions. In this
study, a literature review on concepts, phenomena, and situations appeared in the descriptions and
conceptual categories from the second research phase. This confluence of concepts was then used to
examine, analyse, organise, interpret, discuss, and synthesise conceptual categories and detailed
descriptions. Subsequently, two explanatory frameworks were shaped and finalised with descriptions
as discussed above and as delineated in Chapters 3 and 4. These were 1) the pattern of change in the
relationship between forest, water and livelihoods; and 2) the roles of Buddhist rituals as a strategy
for stimulating a sense of conservation. These contexts also suggested a conceptual framework that
may be applied to explain the interconnected and dynamic relationship of the meaning of water and
sense of place in general settings or situations (see Chapter 5). However, this framework was the
most applicable in understanding this relationship in the specific settings where it was derived. Thus,
to be more appropriate, it requires further research to validate the theoretical framework using the
systematic research process.

2.4 Obligation to Research Ethics

This study emphasised an ethical approach to the involvement of human participants, one approved
by Edith Cowan University’s Human Research Ethics Committee (HREC). Considering my employment
background and connections to the area, the necessary moral responsibility and the obligation to
protect individual rights and communities were recognised during the conduct of this study. This
applied particularly to access in Pok and Pang Jum Pee Villages, recruitment of participants, data
collection in the field, and reference to participants’ names in publication.
2.4.1 Access and Recruitment

Prior to the conduct of this study, invitation and information letters and informed consent forms were translated into Thai language and proof-read by the Thai co-supervisor (see appendix B). The invitation letters were then sent to the village leaders in Pok and Pang Jum Pee Villages requesting formal permission to enter Pok and Pang Jum Pee Village. These leaders were visited for formal introductory purposes and to explain the research process and the benefits of this study for the villages. After being granted access to conducting this study in the villages, I purposively recruited potential participants who could provide information and express feelings or opinions during in-depth interviews or focus groups (group conversation). Recruitment of literate participants was done with the use of information letters to introduce the researcher and explain the study particularly with regards to activities, benefits, publication, the right to withdraw, and contact details (see appendix B). Each participant was asked to sign a consent form (see appendix B) after they decided to participate in the study. After this, copies of the information letter and the consent form were returned to each participant. A digital recording tape was also used for illiterate participants to explain the same information regarding the study, and those participants who were willing enough agreed to participate in this said study.

The method of interview for recruitment, however, changed from the use of official documents to employing a digital tape recording for all participants. This changed approach was due to obvious reasons that nearly all villagers preferred the informal talk or explanation rather than the formal document. The information letter and consent form tended to distort conversation with participants. Every time the documentation with an explanation was presented, participants manifested feelings of discomfort by frowning, ceasing their conversation, and looking at something else. In contrast, with the absence of the official document, engagement with participants and explanation of this study was much better and effective considering that participants were given a chance to have a longer conversation about the aim, activities, benefits of the study, and their rights as identified in the information letter. Subsequently, most of them understood and volunteered to participate in this study. I, however, respected the rights of participants who did not want to discuss or volunteer to participate in this study. These participants usually expressed indirect rejection by verbal and non-verbal communication as: walking away after they were greeted; talking with someone else while I was giving an explanation; and/or avoiding a conversation by giving an alibi (saying that they needed to work or went somewhere else).
2.4.2 Data Collection

As described above, this study used several methods of data collection: in-depth interview, focus groups (group conversation), visual collection, and participatory observation. All methods showed relevant respect to participants’ rights and to not causing them to feel any personal discomfort. In addition to asking for permission to undertake and explain details of this study, the following ethical actions were thus emphasised:

- Deliberate establishment of close relationships with villagers and maintaining trust throughout the process and duration of data collection. Living arrangements in Pok and Pang Jum Pee Village were based on respect for the social and cultural base, for example, observance and participation in social events or activities such as fishing, food offerings to monks, and the water ceremony. At the same time, villagers were assisted with their jobs or activities such as washing, serving food, and preparing offerings.

- Before commencing any activities, explanation was given and permission sought for any activity which may involve participants such as storytelling, audio-visual record, daily notes, and the repetition of data collected.

- During in-depth interviews, all participants were given the privilege to select a specific time and place that was convenient for them, and were given the freedom to disengage in a conversation at any time. The technique of moving backward and forward was taken into consideration to avoid redundant, forceful, sensitive, or negative questions that may irritate the participants.

- Old documents such as letters, pictures, and poems were of interest, in which case permission was politely sought to examine, make copies, or to take pictures.

- Individual or group conversations were conducted in a friendly manner, using simple vocabulary or open, uncritical questions.

- Body language and facial expression were also observed to assess participants' feelings so as to immediately manage any problems. There were times when a conversation had to be terminated particularly when it was noticed that some participants were hesitant to talk.

- In group conversation, strong argumentative situations were avoided to prevent participants from any feeling of irritation or embarrassment.

- Bias was controlled by the asking of open questions to allow diverse information to emerge. The same questions were repeated in each interview.
• Being discrete with information from participants was very important, especially negative attitudes or statements about people or situations in the village. Mentioning of such information was likely to break trust because gossip was a popular means of communication in the village. Indiscretions would be quickly relayed from mouth to mouth and rumors might have created an impression among the participants to doubt me.

2.4.3 References to Informants

Authentic names of informants and places have been identified throughout this thesis. Correspondingly, the permission on this reference was completely voluntary before publication as stated in a portion of the information letter and consent form (see Appendix B):

> Your viewpoints and information will be transformed into the transcriptions and you may be asked to recheck them. The confidentiality of your involvement will be ensured by secure storage and all information will be discarded five years after the thesis has been published. However, your viewpoints, stories, and statement with name may be reported as the result of this research project. This result will be presented at appropriate conferences and will be published in the thesis and other official document such as journal articles and conference paper.

This statement was explained verbally to all participants who agreed to participate in this study. The signatures of participants on the informed consent form, and the words of each participant’s agreement on the digital tape recording provided evidence of the promise to protect the rights of each key informant.

In December 2012, however, when the process of asking for permission to publish sensitive information from the village leader and three key informants at Pang Jum Pee Village was reiterated, they expressed concern in relation to the sensitivity of information they had given about events concerning the national law of banning logging business in the era of deforestation. Each participant was then asked two questions: 1) what did they think about publication of details of these events; and 2) are they willing to identify their real name as a part of these events in this publication? All the same, each participant agreed to the former permission, asserting that the conflict with staff officials was in the past when villagers cut down trees for timber business. Pang Jum Pee Village, since that time, had reformed to protect and conserve forest and water and thereby complied with the law. In so doing, they permitted me to report the events in this thesis to make this clear. When asked about giving authentic names, one of them did not wish to be identified. Others were more ambivalent and
had no particular thoughts or ideas about it, allowing me to decide. To protect their rights of providing sensitive information, in that way, that aspect of the account guarded the anonymity of persons implicated in the events associated with the national law on banning the logging business (see 3.3.2.1 in Chapter 3).

2.5 Record of Participants

A total of one hundred and ten (110) participants composed of sixty eight (68) males and forty two (42) females were involved in this study (see Appendix C), including a non-official staff member who attended a meeting by chance at the village leaders’ house, Pang Jump Pee Village (see no.20 table 6). Forty one (41) were residents in Pok Village and sixty three (63) resided in Pang Jum Pee Village. Five (5) other participants did not give their permission for personal details to be published. Some of the participants were either formal or informal leaders. Formal leaders were nominated to hold positions in the administrative structures such as village leaders, assistant village leaders, and members of the Community Committee, while, informal leaders were representatives of villagers who were respected for their informal roles in the village such as monks; knowledgeable people about herbs; and those who performed other leadership roles. Most of the participants were above forty years old and had lived in the village for more than thirty (30) years. They came from several occupational groups such as orchardist, harvester, hunter, gatherer, worker, and business.

Conversation with them occurred several times, especially those participants who were able to provide additional information and support to create the descriptions and development of the conceptual framework needed in this study. The conversation topics with each participant were flexible depending on the focus of data collection and analysis for developing conceptual frameworks. The topics mainly involved water, people, and place being about history and settlement of the villages; livelihoods relating to forest and water in the Mae Lai Noi stream; beliefs in supernatural beings and/or worship particular places; change of the village and/or experience of change in livelihoods; knowledge of social events or activities; ceremonies for forest and water; and participatory conservation. Questions on the role of leaders and how it is associated with a sense of place was the focus of conversation, for example building participation in village events or activities, managing ceremonies for forest and water, and conservation of forest and water.

Quotes and information from thirty (30) participants or key informants were selected for publication in Chapters 3 and 4 to support interpretation and the literature review for basic data or descriptions.
from all participants. The profile of the participants who provided quotes or information is presented in Table 6 so as to understand the reference made to their names in Chapters 3 and 4. The numerical list of participants is shown in the order of in-text references; the first, second, third, ..., and thirtieth participant I mentioned are introduced respectively.

Table 6 Profile of participants in the order in which they appear as in-text references in Chapters 3 and 4

<table>
<thead>
<tr>
<th>Name of Participants</th>
<th>Descriptions</th>
<th>Supporting Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mr Prasit Matha (An assistant village leader at Pok Village)</td>
<td>59 years old who grew up in the village and believed in spiritual beings.</td>
<td>Settlement of Pok village and showing a sacred cliff since 1975 prior to development (subsection 3.2).</td>
</tr>
<tr>
<td>2. Mr Tong Yingyoach (A member of the Community Committee at Pang Jum Pee Village)</td>
<td>54 years old who used to be a farmer and logger at Pang Jum Pee Village. He cooperated with the village leader and other members of the Community Committee to continue forest and water conservation.</td>
<td>Settlement of Pang Jum Pee Village, experience of sharing water for rice farming before development in 1975 (subsection 3.2), and events in the era of deforestation due to timber business from 1976 to 2002 (subsection 3.3). The origin of ceremonies for forest and water as a strategy for forest and water conservation (subsection 4.2), spiritual beliefs in the ceremonies for forest and water to recover, protect, and conserve forest and water (subsection 4.3), and building social cooperation in these ceremonies (subsection 4.4).</td>
</tr>
<tr>
<td>3. Mrs Luksameemeekul (a Pang Jum Pee villager)</td>
<td>42 years old, a gatherer who experienced traditional livelihoods in the forest at her youthfulness, recognised effect of cutting tree for timber business, and realised change after forest and water conservation.</td>
<td>Past context, traditional and subsistence livelihood, traditional society, and spiritual beliefs before development in 1975 (subsection 3.2), effect of drought and difficult livelihoods in the era of deforestation from 1976 to 2002 (subsection 3.3), and showing awareness of conservation (subsection 3.4).</td>
</tr>
<tr>
<td>Name of Participants</td>
<td>Descriptions</td>
<td>Supporting Evidence</td>
</tr>
<tr>
<td>----------------------</td>
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<td>---------------------</td>
</tr>
<tr>
<td><strong>Chapter 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Mrs Vilai Yingyoach (a Pang Jum Pee villager)</td>
<td>56 years old, a gatherer who used to be a farmer, maintained spiritual beliefs, experienced a dependence on forest and timber business (used to be a log carrier), and realised changes after forest and water conservation.</td>
<td>Traditional livelihoods connecting with forest and water before development in 1975, and giving an example of water ceremony for rice farming before development in 1975 (subsection 3.2), livelihoods, effects, and events in the era of deforestation (subsection 3.3), and awareness and benefits of conservation (subsection 3.4).</td>
</tr>
<tr>
<td>5. Mr Dang Thaboonyoung (A Pang Jum Pee villager)</td>
<td>71 years old who grew up in the village and was a gatherer.</td>
<td>Traditional livelihood relating to land use before development in 1975 (subsection 3.2).</td>
</tr>
<tr>
<td>6. Mrs Buakum Jaima (a Pang Jum Pee villager)</td>
<td>69 years old who grew up in the village and used to be a gatherer to survive.</td>
<td>Finding food in the forest before development in 1975 (Subsection 3.2).</td>
</tr>
<tr>
<td>7. Mr Tha Sukuntho (a Pang Jum Pee villager)</td>
<td>74 years old who used to be a hunter and gatherer to survive in the village before development in 1975.</td>
<td>Finding food in the forest before development in 1975 (Subsection 3.2).</td>
</tr>
<tr>
<td>8. Mrs Aree Katiya (a Pang Jum Pee villager)</td>
<td>49 years old who was knowledgeable about how to use herbs to remain healthy and to cure basic illness or injury.</td>
<td>Using herbs in the forest before 1975 (subsection 3.2).</td>
</tr>
<tr>
<td>9. Mr Boon Auiwai (A Pang Jum Pee villager)</td>
<td>58 years old who was knowledgeable about how to remain healthy and use herbs to cure basic illness or injury. He also agreed with forest and water conservation after deforestation.</td>
<td>Using herbs in the forest before 1975 (subsection 3.2) and showing awareness of conservation after 2002 (subsection 3.4).</td>
</tr>
<tr>
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<tr>
<td><strong>10. Mrs Patra Yingyoach (A Pang Jum Pee villager)</strong></td>
<td>45 years old who grew up in the village, and experienced traditional livelihoods and dependence on timber business (used to be a log carrier). She also agreed with forest and water conservation after the era of deforestation.</td>
<td>Subsistence livelihood before development in 1975 (subsection 3.2), event and change to depend on timber business from 1976 to 2002 (subsection 3.3), and showing awareness of conservation (subsection 3.4).</td>
</tr>
<tr>
<td><strong>11. Mr Chamnan Udcome (A Pang Jum Pee villager)</strong></td>
<td>46 years old, a hunter and a gatherer, who experienced traditional livelihoods before development in 1975 and change after forest and water conservation.</td>
<td>Social dependence before development in 1975 (subsection 3.2), benefits and showing awareness of conservation (subsection 3.4).</td>
</tr>
<tr>
<td><strong>12. Mr Thanakorn Katiya (A member of the Community Committee at Pang Jum Pee Village)</strong></td>
<td>45 years old who grew up in Pang Jump Pee Village and used to be a farmer and a logger at Pang Jum Pee Village. He also cooperated with the village leader to recover and conserve forest and water after the era of deforestation.</td>
<td>Helping one another of farmers to grow rice and giving an example of traditional belief in ghosts before development in 1975 (subsection 3.2), a dependence on timber business from 1976 to 2002 (subsection 3.3), and participating in collective learning process supported by the Thailand Research Fund (TRF), Community-Based Research Division for community-based conservation (subsection 3.4).</td>
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Chapter 3 |

Chapter 4 |

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Awareness, spiritual beliefs, and moral action after the ceremonies for forest and water (subsection 4.3), social cooperation in these ceremonies (subsection 4.4), and opinion about the future of these ceremonies (subsection 4.5). |

Building social cooperation and connecting social network for conservation through the ceremonies for forest and water (subsection 4.4). |
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<tr>
<th>Name of Participants</th>
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<tbody>
<tr>
<td>13. Mr Roj Nochai (A Pok villager)</td>
<td>60 years old who grew up in the village and was a leader in the performance of showing respect to the guardian spirit of Pok village.</td>
<td>Spiritual beliefs in guardian spirits of the village since 1975 prior to development (subsection 3.2).</td>
</tr>
<tr>
<td>14. Mrs Upin Udyuang (A Pang Jum Pee villager)</td>
<td>56 years old, a gatherer who grew up in the village and experienced spiritual beliefs. She also agreed with forest and conservation after the era of deforestation.</td>
<td>Explaining belief in ghost, soul, and sacred site since 1975 prior to development (subsection 3.2), and advantage of conservation after 2002 (subsection 3.4).</td>
</tr>
<tr>
<td>15. Mr Sawas Katiya (A member of the Community Committee at Pok Village)</td>
<td>50 years old who grew up at Pang Jum Pee Village, and moved to Pok Village after getting married. He recognised change at Pang Jum Pee Village in the era of deforestation and led the Community Committee at Pang Jum Pee Village by his personal relationship with them to learn collective learning process and succeed in community-based forest and water conservation.</td>
<td>Change of villagers, livelihoods, water, and forest in the era of deforestation relating to development and modernisation from 1976 to 2002 (subsection 3.3), and participating in collective learning process through community-based research project supported by TRF, Community-Based Research Division (subsection 3.4).</td>
</tr>
<tr>
<td>16. Mr Sujit Jaima (The village leader and head of the Community Committee at Pang Jum Pee Village)</td>
<td>A formal leader who realised drought and livelihood problems due to deforestation at Pang Jum Pee Village and endeavoured to recover and conserve forest and water through cooperation with external agencies and the Community Committee.</td>
<td>Problem solving to stop cutting down trees and forest and water recovery from 1976 to 2002 (subsection 3.3), participating in collective learning process and continuing community-based forest and water conservation since 2002 (subsection 3.4). Building social cooperation and connecting social network for conservation through the ceremonies for forest and water (subsection 4.4), and opinion about the future of these ceremonies (subsection 4.5).</td>
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<tr>
<td>17. Mr Somyod Reaunkaew (A Pang Jum Pee villager)</td>
<td>51 years old who used to be a logger and relied on timber business. He also agreed with ceremonies for forest and water conservation.</td>
<td>Chapter 3: Livelihoods in the era of timber business from 1976 to 2002 (subsection 3.3). Chapter 4: Spiritual beliefs in the ceremonies for forest and water (subsection 4.3) and connecting social conservation network through these ceremonies (subsection 4.4).</td>
</tr>
<tr>
<td>18. Mr Surin Tornfoo (A Pang Jum Pee villager)</td>
<td>42 years old who used to be a logger and relied on timber business.</td>
<td>Chapter 3: Livelihoods in the era of timber business from 1976 to 2002 (subsection 3.3).</td>
</tr>
<tr>
<td>19. Mr Prasert Jomekun (An assistant village leader, a member of the Community Committee at Pang Jum Pee Village, and the head of Local Learning Centre at Pang Jum Pee Village)</td>
<td>A formal leader who realised the importance of forest and water and cooperated with the village leader and the Community Committee to continuously recover and conserve forest and water at Pang Jum Pee Village.</td>
<td>Chapter 3: Awareness of conservation, participating in collective learning process, and continuing community-based forest and water conservation since 2002 (subsection 3.4). Chapter 4: The origin of ceremonies for forest and water as a strategy for forest and water conservation (subsection 4.2), building social cooperation and connecting social network for conservation through these ceremonies (subsection 4.4), opinion about the future of these ceremonies (subsection 4.5).</td>
</tr>
<tr>
<td>20. Mr Panittee Boonsa</td>
<td>A non-official staff who used to be a research counselor or facilitator to encourage the success of collective learning process at Pang Jum Pee Village supported by TRF.</td>
<td>Chapter 3: The role of research counselor to facilitate collective learning process through community-based research project supported by TRF, Community-Based Research Division (subsection 3.4).</td>
</tr>
<tr>
<td>21. Mrs Sureeporn Thosungneun (A Pang Jum Pee villager)</td>
<td>Agreed with forest and water conservation after there was drought due to deforestation.</td>
<td>Chapter 3: Awareness and advantage of conservation after 2002 (subsection 3.4).</td>
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<tr>
<th>Name of Participants</th>
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<tr>
<td><strong>22. Mr Prasong Thosungneun (A Pang Jum Pee villager)</strong></td>
<td>Agreed with forest and water conservation after the era of deforestation.</td>
<td>Advantage of conservation after 2002 (subsection 3.4).</td>
</tr>
<tr>
<td><strong>23. Mr Sompet Thosungneun (A member of the Community Committee at Pang Jum Pee Village)</strong></td>
<td>A formal leader who agreed and cooperated with the village leader and other members of the Community Committee to continue forest and water conservation.</td>
<td>Actions and benefits of community-based conservation after 2002 (subsection 3.4).</td>
</tr>
<tr>
<td><strong>24. Mr Nongluk Udcome (A Pang Jum Pee villager)</strong></td>
<td>Agreed with forest and water conservation after the era of deforestation.</td>
<td>Showing awareness of conservation after 2002 (subsection 3.4).</td>
</tr>
<tr>
<td><strong>25. Mr Inthorn Daowadwong (A member of the Community Committee at Pang Jum Pee Village)</strong></td>
<td>A formal leader who cooperated with the village leader and other members of the community to continue forest and water conservation.</td>
<td>The origin of ceremonies for forest and water as a strategy for conservation (subsection 4.2), spiritual beliefs in these ceremonies (subsection 4.3) building social cooperation and connecting a social network for conservation through these ceremonies (subsection 4.4), opinion about the future of these ceremonies (subsection 4.5).</td>
</tr>
<tr>
<td><strong>26. Pra Suthepjanatharo (Buddhist Priest or monk)</strong></td>
<td>The abbot of the Aramkunthavivek Temple at Pang Jum Pee Village.</td>
<td>-</td>
</tr>
<tr>
<td><strong>27. Mr Thavorn Jina (A member of the Community Committee at Pang Jum Pee Village)</strong></td>
<td>A performance leader of religious ceremonies and the ceremonies for forest and water at Pang Jum Pee Village.</td>
<td>Explaining spiritual beliefs and showing ceremonial performances on the ceremony day, 28 May 12 (subsection 4.3).</td>
</tr>
<tr>
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<tr>
<td><strong>28. Mr Song Jaima (A Pang Jum Pee villager)</strong></td>
<td>A hunter who believed in supernatural beings and who protected conservation zone after the ceremonial performances for forest and water.</td>
<td>-</td>
</tr>
<tr>
<td><strong>29. Mrs Pen Sangtha (A Pang Jum Pee villager)</strong></td>
<td>55 years old who was Buddhist and believed in spiritual beliefs.</td>
<td>-</td>
</tr>
<tr>
<td><strong>30. Mr Chalerm Mantan (A member of the Community Committee at Pang Jum Pee Village)</strong></td>
<td>A formal leader who cooperated with the village leader and the Community Committee to continue forest and water conservation.</td>
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CHAPTER 3
The Need for Change, Sense of Belonging, and Action

3.1 Introduction

During the twentieth century, modernisation, capitalism, materialism and commercialism separate people from their physical settings, stimulating unlimited consumption in several societies or countries (Brockington, Duffy, & Igoe, 2008; Payutto, 2011; Pyle, 2003). To satisfy demand and convenience, the way of life has been changed from a dependence on natural settings to one connecting technology and artificial settings such as cars, buildings, and stores (Schultz, 2002; Suzuki, 1997). This change has diminished the sense of belonging to, and love and respect for, physical settings which encourages an attitude and behaviour that controls and threatens natural resources (Leopold, 1949). Subsequently, there has been a global acceleration of depletion and deterioration of ecological systems in an era distinguished by rapid growth of population, capitalism, industrialisation, and consumerism (Barrow, 1999; Boyden, 1993; Fransson & Garling, 1999; Hardin, 1998; Meadows, Meadows, Randers, & Behrens III, 1998; Turner II & Meyer, 1993). Sand and desert areas have replaced planted areas, and water to drink passes through pipes instead of from flows of natural water courses (Murray, 1989). Water shortages have led to conflict among several countries in the Middle East which need water from the Nile, the Jordan, and the Tigris-Euphrates Basins (Miller & Spoolman, 2009). Farming and industry continue to pollute the atmosphere in a manner that becomes difficult to be managed (Marsh, 2003). These environmental transformations continuously increase by time, tending to become problematic globally and locally in environmental crises concerning and affecting communities over continents and countries (Barthelmus, 1986; Goudie, 1993, 2000; Kates, Turner II, & Clark, 1990; Urbanska, Webb, & Edwards, 1997). Ultimately, continuing unlimited consumption has been projected to damage and collapse ecosystems thereby impeding human survival, development, and economic growth (Hardin, 1998; Meadows et al., 1998).

However, people have been able to influence this one way loss of ecological integrity and concern about environmental impact when they show a new sense of connection to their physical settings or reciprocate positive action to their settings (Gupta & Asher, 1998). There has been a global and local awareness in response to environmental changes and destruction (Beckmann, 1994; Dodge, 1998) since the United States protected and conserved natural resources in the late 1800s, and improved pollution from industrialisation in the 1960s (Marshall, Picou, & Bevc, 2005). In 1972, the global
environmental movement was started at the Stockholm Conference in Sweden which suggested “the Stockholm Declaration in Human Environment and the Action Plan” to recover the natural environment (Grubb, Koch, Munson, Sullivan, & Thomson, 1995, p. 5). Since then, to seek appropriate solutions for a healthy environment, United Nations has sponsored conferences and commissions have been continuously conducted (Ericksen, Berke, Crawford, & Dixon, 2004). In 1984, the conference of the Brundtland commission in Switzerland or as it was formally named, the World Commission on Environment and Development, focused on sustaining the natural environments which lead to human survival and sustainable development (The World Commission on Environment and Development, 1987). The concept of sustainable development has extensively challenged national policies and practical interventions based on Agenda 21 or local action plans after the United Nations Conference on Environment and Development (UNCED). This perspective was confirmed at the conference held in Rio De Janeiro, Brazil, 1992 (Carew-Reid, Prescott-Allen, Bass, & Dalal-Clayton, 1994).

To balance human needs, consumption, development, and natural resource preservation on earth, Agenda 21 or local action plans highlighted: managing natural resources and pollution; alleviating poverty and health problems; maintaining economic growth; and strengthening participation in action plans (United Nations Conference on Environment and Development, 1994). Basic to these efforts, Ghai (1994) assumed there to be three main local interventions: 1) enforcing national policy to conserve forests, parks, and plants; 2) undertaking a national policy to address the deterioration of natural resources and providing support for rice cultivation, animal farms, and food supplies; and 3) supporting participation programs in local communities which have self-management programs requiring social activation, and political support from international, national, and local organisations. The third intervention is expected to provide the most flexible and successful mechanism since local communities can now consider their needs in terms of conservation.

In this context, research has emerged about the concept of sense of place within communities which are related to their actions for sustaining a healthy ecology, human life, and development. Some researchers go as far as to say that understanding the relationship between human communities and ecosystems or natural environments is the key for success in environmental intervention and management (Brockington et al., 2008; Dearden, 1995; Lowenthal, 2003). Since ecological communities on earth are dynamic, and they have interdependent relationships with human communities (Eckersley, 1998; Foreman, 1998), recovery from any ecological crisis will depend upon the beliefs and actions of human communities (Beckmann, 1994). Plye (2003) highlighted the sense of connection relating to environmental change as loss or weakness of a sense of belonging with physical settings thereby threatening ecological systems. Some studies on natural resource
management in light of the concept of ‘sense of place’, also suggest that “changes to the biophysical environment would have impacts for both place identity and place attachment” (Rogan, O’Connor, & Horwitz, 2005, p. 148). Ultimately, practical natural resource management and conservation require an examination of the processes and meanings that is able to form sense of place in humanity (D. R. Williams & Stewart, 1998). In my research, I am interested in this application within a Thai context.

In Thailand, environment and ecosystems have been rapidly damaged in similar fashion to other countries in the region of South-East Asia Pacific: Myanmar, Philippines, Indonesia, Malaysia, Singapore, Cambodia, Laos, and Vietnam (Hirsch, 1997; Hirsch et al., 1991; Trebil, 1995). Since the late nineteenth century when global trade, economic growth, and development have expanded, enormous amounts of natural resources have been exported to European countries and used as raw materials in production process (R. L. Bryant & M. J. G. Parnwell, 1996; Trebil, 1995). Subsequently, scarce natural resources have replaced prosperity (Rigg, 1995). The national export policy of timbers, forest products, and agricultural products has reduced a large area of forests; “about 600,000 hectares of forest were felled annually in the 1960s, more than a million in the following decade, and in the 1980s the rate of deforestation still amounted to some 250,000 hectares a year (Trebil, 1995, p. 69)”. Hirsch (1997) also indicated that chemical and toxic substances from industry and households have polluted air, water, and soil which in turn affects ecological and human health. In some areas, conflicts occur over natural resource use, for example, encroaching on forested areas for agriculture and business purposes. However, both government and non-government institutions have made conscientious efforts in response to emerging environmental issues (Sukphan, Suwannatachote, & Masae, 2008). For example, the Thai government nationally prohibited illegal timber businesses in 1989 and enacted the 1992 National Environmental Quality Protection and Enhancement Act (Hirsch, 1997, p. 181). Addressing environmental concerns to balance economy, environment, and society has been critically focused on the eighth to eleventh (from 1997 to 2016) National Economic and Social Plan (National Economic and Social Development Board, 2012). It is important to note, in addition, to balance ecology and society, the Buddhist movement has been growing in the relevant and related areas of environmental ethics and moral ecology. The Thai Buddhist culture has an intimate and interconnected relationship with forest preservation (Sponsel & Natadecha-Sponsel, 1995). Non-government organisations also encouraged the participation of local communities in natural resource management (Sukphan et al., 2008).

This chapter, therefore, aimed to explore how a sense of connection with forest and water has changed over time which will help to understand the relationship between the meaning of water and
sense of place. To address the purpose of this study, focus was made in Pok and Pang Jum Pee Villages in Chiang Mai Province, the north of Thailand (see Appendix A). In these villages, livelihood and timeless use of water and forest had changed, and the people had reacted to these changes. By applying a methodology based in grounded theory, I designed open questions for collecting initial data about how forest and water in the Mae Lai Noi stream were used in the past; and how villagers lived then, especially when, why, and how they changed. I also wanted to know the villagers’ thinking during these times of change: how did they feel and how did they act to these changes and in what circumstances. The results revealed how the relationship between water, forest, and people had changed across three eras: pre-1975; 1976 – 2002; and post-2003.

Such changes that have occurred in, and between, the three eras: a harmonised livelihood of KhonYoo Pa¹; tension in the era of deforestation; and a community-based forest and water conservation, will be defined. These patterns of change will then be synthesised and conceptualized to propose a relationship model between people, water, and place.

3.2 Before 1975: Harmonised Livelihood of ‘Khon Yoo Pa’

Humans have constantly interacted with natural resources or ecosystems since the settlement of primitive societies (Bennett, 2005; Stoffle, Toupal, & Zedeno, 2003); it is a truism to consider it in such a way. Historically, human settlement must have engaged with water sources in some way, arguably it (water) is the key natural resource for human survival (Drew, 1983). The evidence for this claim is extensive: Morris (2000, p. 20) reported that “the earliest civilizations arose in river valleys in Africa and Asia”. The primary cities in the world appeared between the Tigris and Euphrates Rivers in western Asia before trade and urban civilisation expanded to the Nile Valley in Africa, the Yellow River in China and the Indus Valley in northern India and Pakistan. Native Americans settled in the lake and river areas of northern Wisconsin and have used them for fishing, hunting, and travelling (Schnaiberg, Riera, Turner, & Voss, 2002). Some of these areas such as the St.Croix River have then been developed to serve tourism and urbanisation (Andersen, Crow, Lietz, & Stearns, 1996). In Thailand, watershed areas were the main origin of the ancient kingdom and development of modern communities: the Ping River in the north and the Chee and Moon Rivers in the northeast (Lertvicha, 2003). The Chao Phraya River in the central region was also the centre of the Autthaya Kingdom before the capital city was moved to Bangkok (Darling & Darling, 1971). Primary settlers

¹ Khon Yoo Pa is ‘forest people’ or people who live in the forest.
mainly occupied large plain areas along this river and its tributaries for rice farming, plant cultivation, and fishing (Kaida, 1974; Sternstein, 1976). However, the majority of early northern, ethnic people moved in forests on the highland for hunting, gathering, and growing rice and vegetable to support families (Rerkasem & Rerkasem, 1994).

Similarly, the history of Pok and Pang Jum Pee Villages indicates that traditional villagers, who lived in these villages before 1975, have been connected with forests and water since they settled in the villages. The pattern of settlement depended upon the use of natural resources, similar to the rural areas in Thailand and other developing countries (Douglas, 1994). Over one hundred years ago, early settlers sought to occupy land for household survival beside and nearby the Mae Lai Noi stream in the forest where water, food, and land for rice cultivation and tea leaves business were provided in abundance. It was assumed that the need for survival influenced the growth of residential areas nearest the water sources in the Mae Lai Noi stream.

In Pok village, Mr Prasit Matha and some senior residents agreed that their ancestors mainly moved in to conduct their tea leaves business since there were large areas of natural tea leaf orchards in the forests. Perhaps Pok Nai was the initial settlement because it was at the upper source of the Mae Lai Noi stream. From there, people moved to live in the areas of Pok Klang and Pok Nok nearby with a few tributaries of the Mae Lai Noi stream, such as Huay Kao Dok Boonnak, Huay Son Poa Ka, and Huay Ubosod (see Figure 6). In Pang Jum Pee Village, Mr Tong Yingyoach and other senior residents informed me that pioneers occupied this land for rice cultivation. They chose flat-land areas along the sides of the Mae Lai Noi stream and its tributaries in order to obtain adequate water supply. Since Pok Lai Num, Pok Jum Pee, and Pok Ta Sai provided large plain areas for paddy fields, dwellings were initiated in these areas before being extended to Pok Ban Pao (see figure 6). Pok Ta Kien Tong was derived from Pok Jum Pee for administrative purposes as a result of increase in houses.

2 Early settlers or primary settlers might be Khmu and Lua or ancient ethnics who had been scattered in the foothills area in the north of Thailand over a thousand years ago. They lived and extended their families in the villages before Khon Muang or local Northern Thai people replaced them as the majority group. The original Khon Muang in Pok and Pang Jum Pee villages came from neighboring districts: Doi Sa Ket, Sankampang, and Mae On (see Map 1 Page 194 in Appendix A). However, the majority was from the Doi Sa Ket District: Pa Ngeo Village, Pa Lan Village, Pa Fang Village, Pa Doo Village, Pa Pong Village, Mae Pong Village, Pang Hai Village, Pa Pai Village, and Pian Village. They also combined with a few groups of people from other provinces of Thailand: Pichit, Chiangrai, and Nakornrachasrima, and from other countries: Laos, Burma, and England.

3 Pok Village is divided into three groups of housing: Pok Nai, Pok Klang, and Pok Nok (see Map 5 page 199 in Appendix A).

4 Huay means stream and villagers use it as a prefix of the name of stream: Huay Kao Dok Boonnak, Huay Son Poa Ka, and Huay Ubosod.

5 Pang Jum Pee Village is divided into five groups of houses: Pok Ta Sai, Pok Lai Num, Pok Klang (Pok Jum Pee), Pok Ta Kien Tong, and Pok Ban Pao (see Map 7 page 202 in Appendix A).
In this era, forest and water were abundant with a small population about 40-50 households or 150 to 200 people in Pok and Pang Jum Pee Villages. However, the Pok and Pang Jum Pee Village were isolated from other villages and modern societies due to difficulties in transportation across the relatively mountainous terrain. The main transportation between villages was along a narrow footpath surrounded with thick forests which people needed to walk through with horse and cow for daily activities: gathering forest plants; hunting wildlife; visiting relatives and friends; buying food and...
belongings; carrying water; and herding animals. This form of travel limited the type of trade or commerce possible within a village or between other villages. Seemingly, the limited transport delayed social interaction between the villagers and other villages, providing less opportunity to have education and information network or knowledge from external societies. Within the context of isolated areas and abundant water and forest, some villagers called themselves ‘Khon Yoo Pa’ or people who lived in the forest since traditional villagers needed to rely on the abundant water and forest near to residential and agriculture areas. Khon Yoo Pa residents had learned how to survive by transmission of traditional knowledge from generation to generation. They followed their ancestors or parents, who were hunters, gatherers, cultivators, and herdsmen, so they served their basic needs by fishing, hunting, harvesting tea leaves, collecting forest food, farming rice, herding animals, and planting vegetables. As stated by Mrs Luksamee Meekul:

I never went out and no one sold any food. So, people hunted wildlife and caught frogs for meals. But I lived comfortably. I had never thought or had never been worried about having enough money because I could find food from the forest. I was not worried about paying tuition for my son and daughter. In the past, people did not have new ideas to improve their lives because they seldom went out to other villages. It was like we lived in our own world or we were Khon Yoo Pa.

Use of traditional ecological knowledge was common in pre-modern human societies (Kalland, 2003) where people learned and adapted themselves to survive in natural settings from generation to generation over thousands of years (Berkes, 1993; Stoffle et al., 2003). Traditional people everywhere were hunters, gatherers, cultivators, and herdsman; an ecological abundance allowed for small numbers of them to hunt and gather wild food, to raise animals, and to grow plants in the forests (D. D. Harris & Stehbens, 1993). Importantly, they had a sense of connection with natural settings; the functions of ecologically aware communities were recognised, and knowledge was accumulated to manage the natural ecological system with respect and morality (Gadgil, Berkes, & Folke, 1993). This awareness links with transmission of knowledge, attitudes, beliefs, values, norms, behaviours, and practices which are embedded in history, society, culture, politics, and religion (Berkes, 1999; Doubleday, 1993; Hunn, 1993; Pierotti & Wildcat, 2000; Ruddle, 1993).

Indigenous people provide strong evidence of maintaining traditional ecological knowledge since they are the primary settlers relying completely on the forests (Nepal, 2002). Stevens (1997, p. 1), likewise, avowed that “they have lived on and from their lands for many generations and have developed their own culture, history, way of life, and identity grounded in these places, inhabited vast areas of Asia,
Africa, the Americas, and the Pacific.” Historians also assumed that the lives of the tribes spread throughout the world harmonised with natural settings because: they have a long history without apparently disrupting ecosystems; they have used their knowledge to manage existing ecosystems; and they have maintained their religious and spiritual beliefs (Orlove & Brush, 1996, p. 335). Indigenous knowledge and practices thus contribute to maintenance of biological diversities in the forest areas where tribal or indigenous people have lived, particularly in the tropical forests of Asia, Africa, and Latin America (Brush, 1996; Charnley, Fischer, & Jones, 2007).

In Thailand, a way of life dependent on abundant natural resources from generation to generation has developed a connection between people, physical settings, and communities based on history and culture since the era of underdevelopment (Santasombat, 1999). Around one hundred years ago, the communities of three neighbouring large watersheds had social connections based on traditional knowledge and practices of forest and water dependence (Havanon, Jeeradechakul, Patthaisong, & Ratanarojsakul, 2002; Lertvicha, 2002a, 2002b). They were: Lum Num Khan or Khan Watershed in Chiang Mai Province (north of Thailand), Lum Num Chai Ya or Chai Ya Watershed in Suratthani Province (south of Thailand), and Lum Num Rum Pra Peung or Pra Peung Watershed in Nakon Sri Thammarat (south of Thailand). People who lived in these communities helped each other and shared natural resources for household consumption, such as wild food exchange and water allocation for rice cultivation. Traditional technology was employed mainly to serve individual basic needs; and beliefs in spiritual beings had been maintained demonstrating their awareness of moral action regarding all humans and everything in natural settings. Moreover, before development in 1975, Parnwell (2006) assumed that the three communities at Kut Chum District (Sokkumpun Village, Nasum Village, and Nong Kae Village) in the north-east of Thailand could maintain natural resources utilizing a strong tradition. Sharing, giving, and helping each other were means whereby they were able to help resolve any ecological concerns. Social sanction and spiritual belief imposed by leaders also functioned to control the use of natural resources. However, the limitations of development and economic growth were important factors that restricted demand for natural resources.

The findings in this study indicated that the livelihoods of traditional villagers in Pok and Pang Jum Pee Village prior to 1975 were based on traditional knowledge as they called themselves ‘Khon Yoo Pa’ or people who lived in forest. Results further revealed that the people are engaged with three interconnected basic elements: sufficient forest dependence; sharing in society; and mutual spiritual beliefs, which implied that ‘KhonYoo Pa’ were aware and conscious of the value related to forest and
water which led villagers’ livelihoods to connect with forest and water. These together contributed to the connection between people, forest, and water as being a part of each other (see Figure 7).

![Diagram of interconnected elements]

*Figure 7* Three basic interconnected elements of Khon Yoo Pa with forest and water in the era of pre-modernisation prior to 1975

In the first element, traditional villagers needed to depend on natural resources of the forest and water, similar to indigenous communities from which they descended and the present Thai local communities. This dependence intended to serve sufficient individual basic needs and encouraged villagers to avoid hurting animals and plants with traditional tools or methods. Secondly, there was a strong tradition of sharing natural resources that implied an inter-dependent society among the villagers. Sharing and exchanging food such as rice, fish, and meat were common practices among the people. The cooperation of farmers in cultivation processes and water allocation also highlighted a sense of community and sharing. The final element showed intense spiritual beliefs, which could indirectly protect the natural resources. These elements were instrumental in attaching the people to forest and water within the context of pre-modernisation before 1975 when Pok and Pang Jum Pee Villages had limited access to trade, education, and communication.

A more detailed discussion of the interconnection of the three basic elements is presented in the succeeding sections.
3.2.1 Sufficient Dependence on Forest

These following statements of Mrs Vilai Yingyoach implied a sense of connection between forest, water, and ‘Khon Yoo Pa’ or forest people.

*For Khon Yoo Pa, nothing was more important for earning a living than forest and water. Every generation had been in the forest and water and learned how to live with them. It was impossible for people not to think about the importance of water and forest. Forest and water gave me an independent life. I was confident to stand on my own feet in the forest. I had been happy, comfortable, and safe. Nothing had been damaged or changed. I could drink water in any streams I passed. In the past, the forest was our food market. People did not use money to buy food. Everybody had to find food in the forest; bird, wild fowl, wild boar, and deer. We could catch fish when we needed.*

This dependence was similar to other societies of more than two million people who lived and relied on natural resources in the forests as food sources, land use for cultivation, and medicinal plants (Pye-Smith, 2005). According to Kimmins (2004, p. 1), “forests were the habitat of our earliest evolutionary ancestors and have remained an important part of the environment of most branches of the human family tree.” They are able to produce and maintain ecological systems in balance; these were pivotal sources for supporting human lives (C. Li, Liu, Laforteza, & Chen, 2011). However, there was an awareness of forest dependence on forest and water to survive from generation to generation. While this dependence on forests before the era of pre-modernisation attached primary humans to their natural settings, it produced relatively little environmental change (Barrow, 1999; Schroeder, 2007).

One account of traditional societies prior to development depicts humans as living in caves or groves with some of them building huts with natural materials such as coconut trees (Boughey, 1975; Morgan, 1985; Starr, 1973). They survived on the traditional knowledge learning from parents to use water supply, such as wells, and foraging for natural products with traditional tools: spear, hooks, and nets (Boughey, 1975; Morgan, 1985). Hunters and gatherers of primary Aboriginal Australia followed seasonal experiences seeking out food: plants, vegetables, fruits, berries, and animals (Noorden, 1990). Primary American Indians were also interconnected with natural settings since “they were so completely dependent on land and their surroundings shape their lives” (Claiborne, 1973, p. 22), and probably more importantly, they were aware of this dependence. Before the growth of agriculture and urbanisation, they temporarily settled in a place to hunt large animals continuously and to adapt...
their lives to the new environment. Over one hundred years ago, primary indigenous communities of Saami in Norway, Sweden, Finland, and Russia relied on meat and fish natural to their habitats (Mulk, 1994). Raising animals on land such as sheep, cows, and reindeer then commenced for sale as commercial goods. Moreover, it was presumed that fresh forest food in ancient times provided essential rich sources of energy, nutrition, and other food supplements (Davidson, Hylands, Sharp, & Stahlhut, 1996). Traditional societies before development were also knowledgeable about using forest herbs to remedy sickness; for example, drinking or chewing tea leaves to sharpen consciousness; reducing fever by chewing cinchona bark; and relieving pain by swallowing the latex of young opium (Tyler, 1996).

Similarly, in Southeast Asia, primary dwellings were located in the middle of thick forests with local forest products used for house construction (Hall, 2011; Wolters, 1999). Food in the forests or streams was essential for ancient hunters and gatherers (Wyatt, 2003). Tools for hunting and fishing were made of wood and bamboo, such as blowpipes, fish traps, and baskets which were similar to those used by Khon Yoo Pa in the Nan and Prae Provinces of northern Thailand (Trier, 1981). This implied careful used of resources in forest and water since these tools could trap a small number of animals and fish, enough for feeding families. In addition to foraging for food, the rural Thai people based their lives on agriculture: rice and plant cultivation, and domesticated cattle (Wyatt, 2003). Modest houses were mostly located along rivers for survival being built from materials in the forest: wood, bamboo, dry leaves, and straw (Sternstein, 1976). Farmers also needed to occupy land close to a large water source for rice cultivation. Furthermore, medicinal herbs were generally accessed and used in addition to food and water (Office of Natural Resource and Environmental Policy and Planning Ministry of Natural Resources and Environment, 2007). For example, Pakakayor, the Karen ethnic people, at Nongluk Village in Lumphun District the north of Thailand, were able to use about 150 kinds of herbal plants to remedy basic physical problems (Chaichana, 2004).

This study indicated that traditional livelihoods, which meant the livelihoods of Pok and Pang Jum Pee villagers in the forest before 1975, were absolutely dependent on the forests, being aware to take only what was sufficient. To satisfy individual and household basic needs, they used four main natural resources: land, food, water, and herbs. Occupying land and changing land was individualistic - everybody had the rights to live off and occupy their own land without regulations, rules, or legal documents. In those times, majority of the villagers ‘owned’ a parcel of land in the forests with an
estimate of - around five to ten rai per person or 0.8 to 1.6 hectare\(^6\) per person. According to the information of Mr Dang Thaboonyoung:

*People could use any land they wanted. When they felt unhappy to live, they could move to another piece of land they preferred. There were a few people and land was plentiful.*

As to feed their families, they occupied land for rice cultivation called then “Na Khao” or rice farming and “Rai Khao”, “Rai Leaun Roi” or shifting cultivation\(^7\). Rice farming existed in Pang Jum Pee Village which covered a large area and utilised a large amount of water. To grow rice annually, farmers occupied permanent land near the water sources at the Mae Lai Noi stream and its tributaries. During the season of rice farming, paddy fields provided a source of food for villagers such as Phak Wan\(^8\), fish, shellfish, and crabs. For Rai Khao, Pok and Pang Jum Pee villagers temporarily occupied land on the mountain side to grow rice, vegetables, and other plants. To obtain products in sufficient quantities, they needed to shift to new land every year. In each new season of rice cultivation, growers usually surveyed and selected unused land on the mountain slopes. To prepare land for cultivation, they needed to cut numerous trees and dry them before burning. At the end of each cultivation season, used land was left to recover for five or ten years before the next crop was planted. The villagers also grew around their houses some vegetables and fruits such as lettuce, pumpkin, string bean, chilly, tamarind, and coconut, whereas, corn, cucumber, chilly, sesame, egg plant, and taro are planted in the area of “Rai Khao”. Alternatively, natural tea leaf orchards had provided a more permanent business on the land of Pok Village since its early establishment.

Subsequently, hunters and gatherers were able to find sufficient food anywhere in the thick forests surroundings their dwellings. Most men needed to hunt certain wild animals through the year like palm civet, porcupine, chamois, deer, wild boar, wild fowl, and Nok Pao\(^9\). In their hunting activities, they used various hunting methods, experienced different seasons, sought wildlife habitats and understood animal behaviour to acquire meat to be cooked by their families. For example, wild boar preferred to live in the thick forest but dug holes in the walkway making them easy to trace. Winter was the best season for hunting because wildlife usually came out from habitation to find food and breed. Gatherers could find plants, insects, and small animals close to their houses or in the Mae Lai

\(^6\) A hectare equals to 6.25 Rai.

\(^7\) Rai Khao was a form of agriculture in which growers had to rotate the land every year for better production of rice, vegetables, and plants. Non-local people usually called it Rai Reaun Roi or shifting cultivation.

\(^8\) Phak Wan or water clover belongs to the family of water fern which usually grows in a wet area. Its scientific name is *Marsilea crenata*.

\(^9\) Nok Pao is the name of bird – the Thick-billed Green-pigeon with the scientific name of *Treron curvirostra*. 
Noi stream and its tributaries. Collecting them required traditional knowledge of their kind, their lifestyle, and when was the best season to seek their kind. For example, there were plenty of wild bamboo shoots available from July to October; and honey could be extracted from hives found on tree tops from May to July. At some trees, gatherers could collect eggs from red ants for making local hot soup in March and May. Several kinds of local water plants such as Phak Good, Phak Nham, and Phak Pai\(^{10}\) grew throughout the year on the banks of streams, though, these plants are most abundant during the rainy season. The Mae Lai Noi stream and its tributaries also provided numerous insects and animals such as Mang E New\(^{11}\), tadpoles, frogs, and toads. As stated by Mrs Buakum Jaima, and Mr Tha Sukuntho:

*Formerly, there was no concrete road. Each house was surrounded with thick forest. I could walk around my house to get plants for cooking, such as mushroom, bamboo shoot, and banana. Sometimes, I got insects and bamboo worms.*

*I did not have to buy food. There were many shrimp, shell, crab, and fish. When I wanted to eat fish, I just went to the stream with a hook. In only a few minutes, I got what I needed.*

The Mae Lai Noi stream and its tributaries also provided abundant water supply for daily household use. The villagers, who lived nearby, could access the water directly. Some of them carried water back home for drinking, cooking, washing, bathing, and watering the plants. Others preferred to take a bath, and wash clothing or kitchenware in the streams. Some villagers played water games in the streams while they were bathing. Those who lived further from water sources devised water supply from the nearest streams to their households or supply water to cultivated areas by means of a Thoa Num Rin or bamboo pipeline (see Picture 1). In Pang Jum Pee Village, individual and common “Boa Num” or wells were usual (see Picture 2), to supply water for drinking and use in households. The villagers usually dug wells near the Mae Lai Noi stream or houses in which water seepage could be seen. Some households had individual wells and allowed their neighbours to fetch water. Others decided to build wells and used water collectively. Nowadays, the use of water from wells can be found in some households and orchards.

\(^{10}\)Phak Good is in the family of fern, called the Vegetable Fern, with the scientific name of *Diplazium esculentum*. Phak Nham is an annual plant from the family Araceae, often called Spiny Taro, scientific name *Lasia spinosa*. Phak Pai, a well known herb in the family Polygonaceae, scientifically named *Polygonum odoratum*. 

\(^{11}\)Mang E New is a type of insect which usually lives in stone niches or decayed leaves on the surface of streams.
Finally, traditional villagers needed to rely on local medicinal herbs due to the difficulty of transport and limited access to public health services from outside the villages. By chance, I conducted informal discussions with four villagers sitting in front of a villager’s house in one late afternoon at Pang Jum Pum Pee Village, whereby the villagers shared and demonstrated their knowledge about the importance and use of medicinal herbs from the forest to their health. The use of herbs was based on traditional knowledge as first aid for minor illnesses such as headache, abdominal pain, fever, back pain, food poisoning, or bleeding wounds. Accordingly, in order to remain healthy, some of them boiled and drank a herbal concoction as a vitamin supplement. This concoction had a flexible formula from one to more than thirty kinds of herbs. They assumed that drinking herbs could maintain body function, blood circulation, digestion, and the skeletal system; and that this drink could relieve bodily pain and prevent some diseases like kidney failure and heart diseases. As affirmed by Mrs Aree Katiya, and, Mr Boon Auiwai:

*Previously, I went to the forest. A piece of fallen wood cut my foot. When I started bleeding, I collected Ya Mueng Wai [Bitter Bush] and pounded it to apply on my wound. After that, the blood stopped immediately.*

*Drinking herbal decoction increased my appetite and made me sleep well. It also nourished my body and relieved side and back pain.*

Significantly, Khon Yoo Pa or forest people could independently access natural resources but their dependence on the forests was intended to provide sufficiency for household survival rather than trade expansion. Hunters and gatherers caught animals or collected plants for cooking. Rice

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\(^{12}\) Ya Muenag Wai is the name given to kinds of herbal plants which could stop bleeding.
cultivation was done mainly to supply adequate rice for household consumption and the yield beyond demand was sold or shared with neighbours. Houses were made of natural raw materials like bamboo trees for constructing the floor and the wall, and a piece of wood cut from a tree together with leaves for building the roof. In the house, there were materials from forest such as the bamboo torch, wooden pillows, clay pots, clay steamers, wooden dippers, wooden ladles, wooden spoons, and banana leaf containers. Moreover, the use of technological methods, or tools could help maintain natural resources; trap enough small animals so as to allow young animals to breed and grow continuously. Hunters usually used the wooden gun, cross bow or arrow for hunting wildlife animals, and used nets or blocking the natural flow of water for fishing.

In terms of food, water, land, and herbs, there was self-sufficiency from the forest and the streams. As avowed by Mrs Luksamee Meekul, and, Mrs Patra Yingyoach:

> Our parents used anything in the forest but never damaged it. They had lived in a small house and built it with bamboo trees. They did what they needed to survive on a day to day basis only. It was a simple life. They did not expect to earn much money. There was no refrigerator to keep fish. When I got fresh fish, I immediately put it into a curry pot.

> At that time, I had never been worried about lack of food. Most people caught fish or crab and took a small amount of fish. I was satisfied with only half of bucket! I had never thought about going anywhere, I wanted to be here because I did not know how other places were.

### 3.2.2 Sharing Society

Khon Yoo Pa at Pok and Pang Jum Pee Villages had strong social connections maintained by the limitations of transport and trade. To serve the subsistence demands of families and neighbours, the villagers mainly shared or exchanged natural products and agriculture production with each other. In this sense, household food security relied on hunters and gatherers (Burnet, 1970). Hunting was a collective activity of men who shared the food caught, “as human ancestors co- operated, they also shared the spoils of hunt, as large antelopes or other beasts were divided and meat spread widely across social groups” (Barnard, 2011, p. 77). At the beginning of society, exchange of commodities implied inter-dependent societies to serve individual needs (Jain & Khanna, 2006; Prasad, 1977). For example, primary lowland people in Southeast Asia reciprocally traded salt and rice for forest products from highland hunters and gatherers (Hall, 2011). Sharing or exchange underlined sufficiency of consumption which was embedded in local Thai societies, rather than maximised for profit (Norat, 2003). Before connecting to commercialisation and consumerism, traditional villages...
had informal social connections for food exchange, for example, rice and vegetables or fish and fruit between highland and lowland people (Teerasartsawas, 2003). Thai traditional hunters and gatherers in the north also preferred to seek out food with a group in the forests and usually shared surplus meat or plants with relatives or neighbours (Satetakul, 2003). In the case of Pok and Pang Jum Pee Village, I experienced expressions of traditional livelihoods from villagers which indicated their will to satisfy individual and community demand for food. As stated by Mrs Luksamee Meekul, and, Mr Chamnan Udcome:

*People always gave fish or animals from the forests to other people. Some people exchanged food or goods with others in the same village. Some people exchanged them with other villagers. There were many things: rice for sesame, rice for sugar cane, rice for shrimp paste, rice for fish, rice for meat, pumpkin for string bean, and chilly for salt.*

I needed to find forest food to eat and to exchange with somebody else. I never sold any food. When I went to the forest with friends to help them hunt, meat was shared. For example, a wild pig of 40 kilograms was divided by 3 hunters. Even if I went alone, I gave some meat for my relatives or friends. Next time, other people would return the favour. I share with you, you share with me. There was no refrigerator to keep it. We never overhunted then: just hunted for eating. Often, people ate together.

In addition to sharing and exchanging of food in communities, cooperation in the process of rice production for survival of households and communities emerged. Farmers reciprocated labour for household rice production, this being regarded as the culture of Aoa Muae or the culture of labour reciprocity. For example, through the season of Na Khao or rice farming from May to November, the farmers managed to share tasks. They helped construct weirs and allocate water to serve the demand in each rice field. Everyone collectively cooperated by sowing rice sprouts into paddy fields and harvesting the product; they helped different farmers rotationally. Mr Thanakorn Katiya described:

*In May, the rainy season started and water levels in the Mae Lai Noi stream increased. Farmers talked together and made an appointment, ‘OK! For Saturday?’, to build a new bamboo weir, to dredge sediment or remove rubbish from irrigation channel for better water flow which was left since the previous year’s harvest of rice. Besides, after the buffalo ploughed rice field, farmers asked each other, ‘who was ready to sow rice sprouts?’. Then, each farmer helped the first person who was ready. After that, they asked about the next ready person and did the same until everybody finished sowing. When the harvesting season*
came, the rotation was the same. I was happy to meet other people because we had not seen each other for several months since the end of rice farming season. We talked about whatever we wanted! Kept doing jobs and talking at the same time! Normally, we could gather on a new coming season. It was the scene of generosity and unity. I miss this scene so much!

This labour reciprocity in rice production indicated the ways of a traditional Thai interdependent society that was similar to other countries in Southeast Asia (Hall, 2011; Tubpian, 2003). Thai farming society, before the expansion of the agriculture industry, emphasised sufficient production to support households and communities (Auiyanon, 2003). Scott (1976) also indicated that the principle of reciprocity had also appeared in the society of European farmers during the nineteenth century. To have food security in the need for survival, European farmers relied on social unity and collective management for equal sharing of benefits such as land, labour, paddy seed, and production. Agricultural land mainly produced food for owners and their families: grain, fruit, vegetables, and meat (Britnell, 2008).

Importantly, Muang Fai or the northern traditional irrigation system found in Pang Jum Pee Village provided a strong social unity or sense of community since a group of farmers required a large amount of water for rice farming. This system was established by traditional local northern Thai farmers in the era of Lanna Kingdom during the nineteenth century when the regulation of Muang Fai management was proclaimed as the law by King Mangrai13 (Ounvichit, 2005). Since then, Muang Fai has been in common use in several watershed areas because of its potential for water self-management in the paddy fields, for example, the Mae Sa watershed in Chiang Mai Province, Pai River in Mae Hong Son Province, and the lower reaches of the Ping River in Lum Phun Province (Arthan, 2005; Neef et al., 2004; Ounvichit, Satoh, Chantanusart, & Yamaoka, 2006). In general, the Muang Fai Committee had an important role in managing water for user members by: regulating water usage; maintaining systems; mobilising resources; and operating activities (Arthan, 2005; Neef et al., 2004). This Committee is composed of Kae Fai (a leader) and assistant leaders. Members of water users are the farmers from several villages who needed water from the same river. Kae Fai is selected by all user members, while, the leader’s assistants are representatives of each village.

In the Muang Fai of Pang Jum Pee Village, formal organisation for managing water did not appear since there was only a small group of users who needed water from the Mae Lai Noi stream. However, farmers were spontaneously engaged with collective water management for rice cultivation.

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13 Mangrai was the name of the first King of Chiangmai which was the capital of the Lanna Kingdom according to the history of Thailand. Nowadays, the north of Thailand replaces the Lanna Kingdom.
thereby providing a space for social interaction and entering into the spirit of sharing water. In terms of sense of community, the same need created a feeling of belonging to a group and an interdependent bond among community members so that individual expectations could be fulfilled (Dalton et al., 2007); this sense appears in a group of farmers who needed water for growing rice. Developing social unity in Muang Fai management accorded with four elements in a sense of community proposed by McMillan and Chavis (1986): a sense of membership; the resultant power in decision making; interdependence of members in the satisfaction of needs; and sharing in cultural events (Dalton et al., 2007; McMillan, 1996; McMillan & Chavis, 1986). Mr Tong Yingyoach exemplified this social unity:

Everybody needed water. So we needed to help each other. In other areas, Kae Fai was essential because there was a huge cultivation of land, from 10000 to 100000 rai14. Here, we could simply manage water together for a small piece of land. Only seven families had rice fields nearby the Mae Lai Noi stream from Pok Ta Sai to Pok Jum Pee. We could talk, help each other, and share how much water was needed by farmers. We got enough water to use. No one competed against each other for water.

The Muang Fai or traditional irrigation system was activated by the universal principle of gravity which harnessed water to flow from higher to lower land. There were two main components of this system: “Fai” or wooden weir and “Rong Meuang” or irrigation ditch (see Appendix D). The former served as main water supply by means of water pressure in high elevation, and the latter functioned as the hollow channel through which the water flowed into the rice fields. Developing and managing this system required collective decision making and action which implied an inter-dependent society to satisfy the need for having adequate water to grow rice in each paddy field. The farmers manifested their social connection as they shared tasks, resources, and experiences in building or repairing the Muang Fai system and managing water flow into paddy fields. Data from the interviews of four villagers who used to be farmers revealed that a group of farmers gathered and discussed Muang Fai each May or at the beginning of the rice farming season. Prior to plowing the paddy fields and sowing the rice sprouts, the farmers collaborated in building a new Fai (weir) in the first year and in repairing during the next. They also helped dredge Rong Meuang to allow water to flow well to ensure it supplied water into the paddy fields throughout the rice farming season. In the process, both time and resources like wood, bamboo, and labour were shared (see Appendix D).

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14 These convert to about 1600 to 16000 hectares (1 hectare = 6.5 rai).
3.2.3 Spiritual Beliefs

Since the history of human settlement, spiritual beliefs were an integral part of humans living within the context of abundant forest and underdevelopment; “spirituality is a vital part of people’s lives - their dreams, their deepest values, the stories they live by” (Pargament, 2008, p. 22). To secure feelings, hunters and gatherers worshipped supernatural beings to pray for blessing from any diseases or harm in daily activities (Thouless, 1979). Natural settings were also valued as being connected with God who made people fear; then, people needed to show respect and appeasement to their settings (Drew, 1983).

In early religion, spiritual beliefs encompassed good spirits, evil spirits, and souls (Hargrove, 1979). These beliefs implied the connection between people and the sacred power that influenced human action in the place where people lived (Hubert, 1994). For example, ancient Indian people believed that the meanings of everything in the universe were God-given: human well-being, gods, spirits, biosphere, ecosystem, and the galaxy. Thus they would rather respect and adapt to physical settings rather than control or disturb them (Bilimoria, 1998).

Similarly, Native Americans are said to have maintained ecological biodiversity because of their strong spiritual and sacred values (Charnley et al., 2007). They believed that they were part of God and everything was sacred, especially forests (Booth, 2003; Charnley et al., 2007). The Babukusu, the largest ethnic group in the Western Province of Kenya, also respected gods and “the supreme deity was known as Wele Khakaba (God the Giver), who was the creator of the world and all living creatures, including human beings” (Wandibba, 1994, p. 115). This belief led them to worship and appease guardian spirits at sacred sites or shrines. In addition, the Maori, the primary settlers in New Zealand, hold a reciprocal relationship with land by their belief systems in a family of environmental gods (Roberts, Norman, Minhinnick, Wihongi, & Kirkwood, 1995, p. 11). They worshipped major gods expecting reciprocation for their survival. There were two supreme gods: “Ranginui (sky father) and Papatuanuku (earth mother)” and six gods at the next inferior level: “Tumatauenga (warfare and human affairs), Tanemahuta (forests, birds, and insects), Rongomatane (cultivated foodstuffs), Haumiatiketike (wild foodstuffs), Tangaroa (sea and fishes) and Tawhirimatea (winds and storms)” (Roberts et al., 1995, p. 11).

Thailand was similar to other countries in Southeast Asia where traditional people have regarded physical settings as sacred places of good and evil spirits for over twenty centuries (Wyatt, 2003). These spirits needed to be worshipped in order to receive help and to avoid being punished since
they had lived in an unstable natural environment (Wyatt, 2003). For example, forest people in Nan and Phrae Province offered food to, and have spiritual practices for, forest spirits, ancestor spirits, and ghosts (Trier, 1981). The Lisu and Karen ethnic groups had the same belief that supernatural beings possessed and protected forest, water, and everything on earth (Leaungaramsri, 1996; Nuchniyom, 2003). Any activities in the forests thus required a ceremony asking for permission and protection from supernatural beings, such as felling trees, hunting animals, and growing rice and plants. Hmong and Karen restricted the use of natural resources in some areas of forests that were under the protection of sacred power. In the case of Pok and Pang Jum Pee Villages their spiritual beliefs resembled those of the Khon Muang or northern local people who believed in deities, guardian spirits, and ghosts (Darlington, 2003).

In addition, there was the ceremonial performance for the guardian spirits of the dam or Phee Fai in the village of Thailand. This ceremony is a common tradition of northern farmers to ask for dam protection from Phee Fai who responds to ordain adequate water for rice cultivation (Lando, 1983). Similarly, traditional Pok and Pang Jum Pee villagers prior to 1975 had followed spiritual beliefs to value and respect forests, water, animals, and plants through worship, rituals, and ceremonies for supernatural beings. This implied an attachment between supernatural beings, people, and ecosystems which was able to satisfy inhabitants’ need for survival and their reciprocation to maintain natural settings. The spiritual beliefs and worship of spiritual beings in Pok and Pang Jum Pee Village will be discussed in the next sections.

3.2.3.1 Guardian Spirits

**Sua Bann**

“Sua Bann” or shrine of the village guardian spirit is the holy place which villagers have respected and worshipped for a long time. Some people called it “Hoa Jao Nai” which has a similar meaning to “Master God’s house”. Most Pok and Pang Jum Pee villagers believed that “Pee Jao Nai”, the village guardian spirit, master god, or ancestor god - existed and protected their villages. This made them revere and fear this mysterious power. Significantly, the guardian spirits of villages were also regarded as forest protectors. This mystical power guarded trees in dense forests especially at the location of “Sua Bann”: remarkably shady, big trees such as mango, jackfruit, and Sai Yoi (banyan tree). Whoever intended to harm these trees was ordained to suffer an unfortunate fate. For example, Mr Roj Nochai affirmed when I was with him to visit the village shrine at Pok Village:
One man whose house was near the shrine did not respect Sua Bann. He climbed and cut a branch of a mango tree around the area of Sua Bann. Later, his child or grandchild got epilepsy. His body went rigid and he collapsed. After he worshipped Sua Bann, he recovered.

Jao Pa Jao Khao

Jao Pa Jao Khao or Jao Ti Pa was regarded as the guardian spirit of the forest or forest protector. Since village settlement, villagers believed in this spirit to have sacred power to protect them from any harm, or to punish those who showed disrespectful behaviour such as cutting down trees and hunting wildlife. Hence, hunters and gatherers regularly worshipped this spirit, praying for protection and permission to earn a living in the forest especially when entering unfamiliar areas. Showing respect to Jao Pa Jao Khao was an individual pursuit. Before having lunch, most hunters and gatherers put a mouthful of food, dessert, snack, and water on leaves and invited the spirit to dine, wherever they were in forest areas. Some of them worshipped this spirit with only one kind of food or without food. Mrs Luksamree Meekul, demonstrated to me her prayers as follows:

Today, I need to collect forest plants. I do not aim to hurt anything or show disrespectful behaviour. Please give me ample food and protected me from any harm so that I can go home safely.

3.2.3.2 Souls and Ghosts

Phee Ton Mai

Phee Ton Mai had two myths; some people regarded it as the ghosts of trees which could haunt them. Mostly, ghosts resided in big trees such as the Ta Kien Tong Tree, Jum Pa tree, and Song Nang tree. Fear of being haunted by ghosts led villagers to maintain these big trees and worshipped them asking for permission before cutting them down for building houses. Other people believed that each tree had a soul the same as humans. Hence, villagers would respect and preserve trees rather than overuse them. As Mrs Yupin Udyuang explained:

In the past, our parents taught me to love trees. Do not unnecessarily cut them. When I cut a tree, there was a sticky liquid flowing from it. That was blood of tree like a blood of people.

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15 Ta Kien Tong Tree is a large green tree with the scientific name of Hopea odorta.
16 Jum Pa Tree (Champak) is a large green tree, with the scientific name of Michelia champaca that provides strong fragrant yellow or white flowers.
17 Song Nang Tree is a nickname given by villagers to any big tree with a trunk having a v-shape. Villagers believe that the ghost of two ladies lives together in this type of tree.
Some trees provided bloody liquid after they were cut. So awful! Now, everybody seemed to forget about it and cut lots of trees.

Phee Tung Dong

“Tung Dong” was the name given to the old, large paddy fields in Pang Jum Pee Village which is located between Pok Jum Pee and Pok Ta Kien Tong around the area of village shrine (see Map 7 Page 202 Appendix A). The phrase meant a dense and cold jungle which had been changed to a plain area for rice farming since settlers moved in. Traditional Pang Jum Pee villagers prior to 1975 believed that several ghosts were dwelling there to haunt people as evidence by strange events that seemed to occur to villagers who were earning a living at the forest area of Tung Dong. Although ghosts had been frightening most villagers, they had mainly relied for a long time on Tung Dong for their livelihoods such as farming rice, fishing, and collecting plants. Whoever passed Tung Dong needed to behave with great respect and worship the ghosts with food offerings, otherwise, sickness would be the passer-by’s reward. However, after a new comer had lived at Tung Dong without unusual incident, several villagers changed their attitudes as they believed that any ghosts had disappeared, they moved to live somewhere else, the new land owner who had regularly worshipped the ghosts was rewarded, or people had never threatened this land. In relation to this event, Mr Thanakorn Katiya told of his experience as:

I used to see lots of ghosts there. Every two or three days, people got sick after coming back from earning a living there. Their illness could be only recovered by showing respect to ghosts. Seeing a doctor wouldn’t help. Whenever villagers saw ghosts, they needed to kill a chicken for worship. Plenty of chicken feathers could be seen on the ground of Tung Dong.

3.2.3.3 Sacred Sites

Deserted Temple

“Wat Rang”, “Wat Hang”, or a deserted temple within the area of Thung Dong (see Map 7 Page 202 Appendix A) provided strong evidence about spiritual beliefs. The assumption was that the builders were Khmu or Lua, or pioneer ethnic settlers one hundred years ago. Wat Rang was a small spacious area surrounded by bamboo trees. No symbols of the temple could be found, such as antiques, images, figures, or the remnants of Buddhist buildings. There were only old stones, broken bricks, and tiles scattered on the ground. Based on folktales, villagers believed that there used to be a guardian spirit who protected the area of this deserted temple. Normally, villagers did not seek to earn a living
in this area because they feared sacred power. To avoid being punished, they behaved with respect and worshipped the temple whenever they passed or enter this area. This belief was maintained and the surrounding area of the forest became a common property. No one dared to occupy this land privately, however, anybody could earn a living with showing respect. The villagers who needed to collect forest products in the Wat Rang area thus followed traditional worship of guardian spirits in this temple. Mrs Yupin Udyoung who used to gather forest plants at this temple expounded:

*The elderly told me that they saw a shiny light from there at night. So they thought that ‘Sua Wat’ or the guardian spirit of deserted temple had been there. I have never seen his appearance but never showed him disrespect. I needed to follow our custom. I always asked him for permission and protection to work safely whenever I went to collect bamboo shoots there. If somebody did not tell the guardian spirit, they would suffer. So, I needed to worship him with food, drink, and offerings.*

**Pa Hin Sam Sao**

In Pok Village, there was Pa Hin Sam Sao or triangular stone on a high hillside which was located on a high slope of isolated land in the north, about three hours walk from Pok Nai (see Map 5 Page 199 Appendix A). It was at the upper source of the Mae Lai Noi stream and its tributaries. In this area, felling trees and performing activities are prohibited by Thai national law. However, most Pok villagers avoided working in this area because they believed that the guardian spirit of Pa Hin Sam Sao was dwelling in that area. Henceforth, they agreed that disturbing this area meant suffering or death.

Mr Prasit Matha explained when he guided me one time to visit Pa Hin Sam Sao:

*Guardian spirit was there. A few people from other villages used to come here and they damaged the triangle stones when they tried to find some treasure. Later, the villagers thought that they had been punished and died. Maybe this belief helped maintain the upper source of water. People worshipped this cliff with food, flowers, snacks, or drinks when they passed by.*

**3.2.3.4 Liang Phee Fai**

Liang Phee Fai or the worship (Liang) of the guardian spirit of the weir (Phee Fai) was a remarkable collective ceremony of farmers in the past. Mr Sujit Jaima, Mr Tong Yingyoach, Mrs Vilai Yingyoach, and Mr Thanakorn Katiya who formerly were farmers agreed that this ceremony was conducted to worship the guardian spirit of the weir and pray for its protection to ensure prosperous rice
production. They usually performed this ritual after the construction or the restoration of a weir was completed to give thanks for their being able to allocate water to paddy fields at the beginning of the rice farming season. Farmers believed that Phee Fai or the guardian spirit of the weir had a sacred power to ordain enough rain and the durability of dam during the season of rice farming. Mrs Vilai Yingyoach once stated:

_I did not know if it was true or not. I just knew that Laing Phee Fai worship was our duty. It also made me feel comfortable that the weir would not be broken. Liang Phee Fai was a way to ask the guardian spirit to watch the weir. We could make a wish for a strong weir. For example, any bugs could not destroy or decay it. Amazingly, a strong water flow decayed and blew away the weir in the year that we did not perform ceremony. On the other hand, every time we performed the ceremony, the dam remained in place._

In conclusion, Pok and Pang Jum villagers were proven to be evidently connected with the forests and water since these inhabitants had lived in isolated areas and did not access modern societies. Their livelihood relied on natural resources in the forests and streams which provided basic life support such as dwellings, land for cultivation, food, water, and herbs. This dependence was based on traditional knowledge and emphasised sufficient consumption only for household and community survival. There was a strong tradition for an inter-dependent society with its spiritual beliefs that could be associated to a sense of connection with forests and water.

### 3.3 From 1976 to 2002: Disconnection and Tension in the Era of Deforestation

After 1976, the improvement of transportation gradually connected villagers with the global world - one with a modern base encouraging development, economic growth, modernisation, commercialisation, and capitalism (Hewison, 2000; Waters, 2001). The power of globalisation is embedded in the politics, economy, communication, and society of the adherent countries (Kofman & Youngs, 2003). This has been regarded by some to be sufficient to have separated villagers from the forests and water as their physical settings (Franklin, 1999). This alienation was an impetus for changing the nature of livelihoods from localisation to urbanisation (Cronon, 1996; Vining, Merrick, & Price, 2008). For example, the villagers would rather buy food than seeking forest plants, or buy house ware rather than making it from natural materials: “consumption plays an ever-expanding role in the lives of individuals around the world” (Agrawal, 1999, p. 1).
A need to maximise income from natural resources then replaces a ‘sufficient use to satisfy basic requirements’, and this over-exploitation produced an ecological change, referred by some as an ‘imbalance’ (Sponsel & Natadecha-Sponsel, 1995). According to Gibson, Cahill, and McKay (2010, p. 243), “most destructive of the local habitat are the practices informed by a lack of respect for the natural environment, for sustainable ways of interacting with nature and for the community whose lives depended on a healthy environment.” A study of the Jagna Community in the Philippines (K. Gibson et al., 2010, p. 244) also showed that disrespectful behaviour caused “illegal extraction of river sand and gravel, illegal logging on uplands, overfishing, gleaning too often, and vandalism in limestone caves.”

Mr Sawas Katiya put it this way:

*When transportation was developed in the villages, the villagers’ lives needed to follow globalisation. Globalisation is common to a dynamic world. No one can resist it. So, I think that villagers changed their pattern of dependence on forest. In the past, villagers only relied on food from the forests. They then turned to make business from the forests more than finding food to eat. Formerly, they did not catch too much fish because they did not want to waste fish through decay. When they had surplus fish, they shared with other villagers. Later, lots of fish were caught because they had refrigerators to keep fresh fish longer for meal and sale. Business stimulated intensive use of natural resources in the forests such as trees, herbs, fish, bees, and wildlife. This caused loss of forest areas, including living things and non-living things in the forests. At the same time, the belief in the guardian spirit of trees became weaker. Sharing changed because people needed money to buy food and goods. People could not exchange mushroom or fish for goods anymore.*

Deforestation is a global environmental phenomenon of forest degradation and depletion (Barrow, 1999). Changing land use has been a cumulative process over several centuries since subsistence economies have depended on the use of natural resources in the forests (Leichenko & O’Brien, 2008; M. Williams, 1990). However, in the process of globalisation, western patterns of economic growth, development, communication, technology, commercialisation, and consumerism have accelerated and complicated the forest crisis (Leichenko & O’Brien, 2008; Salim & Ullsten, 1999). Over the last 8000 years, planet earth has lost about half of its forest area (Dauvergne, 2001; Spilsbury, 2012). Forests are regarded as endangered in countries such as the Philippines, Peninsular Malaya, Thailand, Australia, Indonesia, Vietnam, Bangladesh, Sri Lanka, Central America, Madagascar, West Africa, and Eastern Amazonia (Goudie, 1993, 2000). Repetto (1991, p. 204) reported that “the tropical forests are
disappearing at the rate of tens thousands of square miles per year. This deforestation is laying waste a valuable natural resource throughout much of the developing world and is driving countless plant and animal species to extinction; it may well have significant effects on world climate.” The assumption here is that the principal causes of deforestation are the expansion of construction, agricultural activities, and a commercial timber industry (Barrow, 1999; Repetto, 1991; Spilsbury, 2010; M. Williams, 1990).

In Southeast Asia, Bryant & Parnwell (1996, p. 5) have indicated that “politics played a crucial role in the environmental transformation”, where trade agreements with European countries unconsciously promoted the rate of deforestation from the late nineteenth century to the early twentieth century. At that time, forest areas had been widely reclaimed to produce and export economic agricultural products such as rice, sugar cane, coffee, tea, rubber, saga, and palm oil. Developing houses, infrastructure, buildings, and transportation also increased the demand for timbers for construction and fuel materials. Timber businesses have been politically encouraged and operated in the forests of Southeast Asia, especially the Philippines and Thailand degrading large areas of them (Dauvergne, 1997). According to Hirsch (1990, p. 166), Thailand has shown the highest rate of deforestation of all Southeast Asian countries. Ultimately, deforestation can influence natural phenomena such as biodiversity, soil erosion, the onset of drought, desertification, and climate change. Some groups of people, such as rural people or poor farmers, who have relied on forests, suffer (Barraclough & Ghimire, 1995; Prance, 1990). The loss of forest areas has been recognised as problematic, and international and national policy has been invoked and enforced in an attempt to regulate land use and restrict timber supply (Meyer, 1996; Pickering & Owen, 1994).

In the case of Pang Jum Pee Village, a dependence on timber businesses had caused deforestation and a struggle for survival from 1976 to 2002. At that time, Pang Jum Pee Village was notorious as being ‘Mod Mai Tum Lai Pa’ or ‘deforesters’. The villagers had gradually changed their livelihoods from a subsistence resource base to a more modern base since national development policy induced them to connect with modernisation. The villagers then tended to overuse trees rather than make only sufficient use of them to serve basic household needs. Subsequently, an ecological impact of deforestation occurred that ultimately was a concern for their livelihood; the villagers struggled with the degradation of forests, loss of trees, and drought in the Mae Lai Noi stream. Overtime, a change of national forest policy from encouraging timber business to forest conservation caused a tense conflict between the need for survival and law enforcement.
As this section unfolds, the actions and consequences of a separation from natural resources in the era of modernisation will be presented in detail, answering the following two questions: 1) why and how did Pang Jum Pee villagers come to depend on timber business; and 2) what effects did this have on the villagers and how did they respond?

3.3.1 Transformation to Timber Business Dependence

Cutting trees was important for Pang Jum Pee villagers’ household livelihoods since its settlement. Primary settlers eradicated trees and plants in the areas of thick plain forest for permanent rice farming and they cut down a large number of trees every year in mountainous areas for growing rice and other edible plants. Some trees were also used to support basic needs such as fuel materials and construction of houses. At that time, logs had no broader economic value and no one sold them, until the coming of the national logging concession policy. This policy allowed the government to select the village that had access to an excessive number of large trees and set up a timber auction with private timber industries in these places. The ‘winner’ of the auction process was approved by government officials for cutting and taking logs from particular villages. Mr Tong Yingyoach and his wife said that the Forest Industry Organisation from Chiang Mai entered Pang Jum Pee Village and hired the villagers with wages to work from 1962 to 1963. Felling and carrying big trees to feed this organization were the main occupations of the villagers. After this organisation withdrew from the village in 1964, some villagers sought an alternative living. However, at that time, there was a depletion in the number of trees and the rate of extraction was related to the villagers’ use of chain saws to cut the trees down. They also accessed logs for sale to gain a little income or to exchange food.

At the national level, the trend of timber investment for economic growth and development had alienated the use of forests, that traditional means of subsistence since the late nineteenth century (Hirsch et al., 1991). Thailand was involved in the export market of teak and hardwood to serve the international forest industry market in Europe, America, and Asia (Marchak, 1997). Hirsch et al. (1991), likewise, reported that the prosperity of teak forests in the north attracted British timber investors who expanded the timber trade. This expansion provided several advantages to government officials: gaining income tax from the timber business; building railway lines for transporting logs; and developing communication systems. Consequently, the decrease of teak and other trees in the forests required more sophisticated forest conservation and management. To control overuse of trees in forest areas, the Royal Forestry Department was first established at
Bangkok several years ago in 1896 (Hirsch et al., 1991; Sato, 2000). This organisation then authored and enforced several forest acts (as recorded by Hirsch et al. 1991): Forest Protection of 1897, Forest Care Act of 1913, Wildlife Protection and Reservation Act of 1960, and National Park Act of 1961.

However, the timber trade grew rapidly to serve forest industries such as the Thai Plywood Company which increased demand for logs and induced further depletion of trees (Delang, 2002; Marchak, 1997). Moreover, after 1960, the government enacted the forest policy for timber companies that enabled thirty years of concession (Delang, 2002). This concession “is a contract between a forest owner and others permitting the harvesting and/or managing of specified resources from a given area” (Gray, 2002, p. 1). The concession implied that logging companies have the right to fell trees in the forests but they are obliged to replant seedling trees. In reality, however, most of them neglect this obligation; they usually misuse land and leave forest behind. The concession policy is therefore unable to persuade logging companies to cooperate in forest management and conservation.

In Pang Jum Pee Village, the popularity of the timber business had gradually increased since necessary transportation and infrastructure were developed. This growth accorded with the first [1961 to 1966], the second [1967-1971] and the third [1972-1976] phases of the National Economic and Social Development Plan\(^\text{18}\) which focused on economic growth and social development, particularly infrastructure development (Dutt, 1985; National Economic and Social Development Board, 1967a, 1967b, 1973). Road construction in Pang Jum Pee Village commenced in 1961, first finished as a laterite road in 1975 before becoming a complete concreted road in 1992. After that, other facilities were developed: sanitation, water supply, and electricity. Most villagers accepted that the improvement of transportation was the main reason for livelihoods changing to depend upon timber business. It allowed villagers to connect with modernisation and commercialisation; to use vehicles for travel leading villagers to learn the ways of the outside world frequently; and to imitate the modern lifestyle. The villagers also had direct contact with commercialisation. Several middlemen both from inside and outside the village sold food, goods, and services.

Subsequently, consumerism gradually separated villagers from their reliance on natural settings. Buying food and materials replaced finding them in the forests or streams which increased living expenses and demand for more income. This implied a loss of sense of belonging to forest and water since villagers ignored traditional skills and knowledge that helped them to survive independently in

\(^{18}\) Field Marshal Sarit Thanarat, the Prime Minister from 1808 to 1963, launched the National Economic and Social development Plan in 1961.
the past (Schultz, 2002; Suzuki, 1997). Concurrently, the now convenient transportation system connected the villagers to timber businesses. Logging traders entered the village, directly setting up a timber business with the villagers. Financial incentives of selling logs provided the impetus for the villagers to rely on it. The more the villagers gained income, the more they demanded payment. Trees were continuously cut without any apparent awareness of further forest depletion and effect. Mrs Patra Yingyoach commented:

*A better road to our village made timber merchants come in. At first, these merchants saw wooden houses and asked whether they could be bought. Some people said that they did not want to sell their house and offered to sell timbers. So, people cut logs for sale. I used to work for a wage by carrying timber. It gave me a very good income. I never cared about forest; just wanted money to buy things. Expenses increased because I could easily buy things from peddlers or buy food at grocery store in the village. The more I earned, the more I spent.*

Since then, the changing of cultivation due to the national forest policy and urbanisation reinforced the growth of timber businesses. “Rai Khao”19 finally ceased in 1985 following the enactment by the Royal Forestry Department of the Forest Reserve Act of 1964 to conserve forests. This act indicated that Rai Khao and illegal logging were prohibited so as to protect the northern national forests from harmful action, initiatives that were set to enable Thailand to continue agricultural production and economic growth (Rerkasem & Rerkasem, 1994).

Mr Sujit Jaima and Mrs Patra Yingyoach both confirmed that the Royal Forestry Department conducted a Teak Plantation Royal Project in the Pang Jum Pee Village from 1979 to 1984. This project encouraged and provided a daily wage for villagers to plant teak trees on degraded forests from Rai Khao, to watch out for forest fires, and to build fire lines. The daily wage rate was around 18 to 25 baht per day enabling the villagers to exchange their wage for rice from this program. However, after the program’s withdrawal, villagers were deficient in income and turned to tree felling. In 1985, the higher price of land influenced several farmers to sell their large landholdings to investors from outside the village, and this further impeded the continuity of rice farming. When large areas of paddy fields were sold, fewer farmers could not produce an adequate quantity of rice for household subsistence in the village. Ultimately, rice farming disappeared in 1995.

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19 "Rai Khao" was a form of agriculture in which growers had to rotate the land every year for better production of rice, vegetables, and plants. Non-local people usually called it Rai Reaun Roi or shifting cultivation.
These changes of livelihood influenced by national economic growth and development were a common phenomenon in Thai rural communities. Parnwell (2006) indicated that villagers in three villages at Kut Chum District, Yasothon Province in the north-east of Thailand, had frustrated experience with economic and environmental change; the commercial incentives of agricultural products sales forced an expansion of cultivation on highlands which rapidly destroyed forest areas, causing severe drought. Similarly, the ability to access external markets led local northern farmers to transform their shifting traditional cultivations for subsistence to fixed economic cultivations for supplying commercial products to agricultural market (Promsiri, 2007; Rasul & Thapa, 2003). Since the farmers were able to gain income, the dependence on buying food, goods, and services increased (Cramb et al., 2009). Consequently, local communities became firmly attached to an external commercial world with its modern life style, thus separating them from traditional subsistence and efficient use of natural resources (Svetamra, 1999).

From 1987 to 1992, the timber business in Pang Jum Pee Village expanded due to the pressure of four factors: economic incentives, leader support, modern technology, and a completed road network. Mr Thanakron Katiya estimated that “around ninety percent of forty to fifty households relied on timber business due to lack of employment to provide enough income.” In 1987, a former village leader introduced a timber mill that was more efficient than a chain saw; this led to increased productivity and to the most severe deforestation. In 1992, the completed concrete road enabled the rapid transport of timber to traders or buyers who were mostly not far away in Doi Sa Ket District, Chiang Mai Province (see Map 1 Page 194 Appendix A). Even former and present village leaders became individual merchants in the Pang Jum Pee Village. Every day, a large quantity of timber was carried by motorised transport rather than by foot or bicycle. When asked about the incentive for cutting logs, seven old loggers accepted that the economic value of logs provided a high income.

I wanted money to support my living expenses and family. I didn’t know what to do except cut trees. Life was no longer the same as the past when I could grow rice to eat and didn’t need to buy anything. Selling timbers gave me 400-500 baht per day by using a chain saw and 2000-3000 baht per day by using a timber mill. People who carted timber from the forest to the car could also earn per each and every trip. For example, the wage for carting was 20 baht each, if one man carried 5 timbers per trip, he would get 100 baht per trip. If he carried 2 rounds a day, he would get 200 baht. (Mr Somyod Reaunkaew)

Timber business gave the most income. I got 3000 baht per night by using a portable timber mill. Other villagers nearby Pang Jum Pee also cut trees. I had no choice. If I did not do this, I
would have nothing to eat. I chose big straight trees to make timber before other people took them. Sawing timbers distributed income to the carter; more than 10 baht to 30 baht for each piece of timber depending on distance. Some people got 400-500 or 1000 baht per day. Sawdust removers also earned a lot, at least 300 baht per night. I milled timber until I had completed the amount of timber ordered by a timber merchant such as 100 timber pieces. (Mr Surin Tornfoo)

The aforementioned quotes indicated that it was the higher estimated income which provided the impetus for villagers to rely on timber business, especially with the use of portable timber mill (see Table 7). The main income distributed was to three groups of people, those who: felled trees and sawed them into timbers, carted timbers, and removed sawdust. Since the timber mill was used in 1987 by a villager leader and more than fifty households, the length of time for sawing timber by chain saw and timber mill is included to depict different incomes and that which caused maximised deforestation. In approximate terms, loggers could earn 60,000 to 90,000 baht per month, and traders more than 100,000 baht per month. In this sense, the timber business was usually beneficial for rural people who lived where survival and employment depended upon cultivation and livestock (Smith, Obidzinski, Subarudi, & Suramenggala, 2007). To earn a bigger income, these people became loggers, merchants, or truckers.

*Table 7* The length of time and the average income of timber business differentiated by chain saw and timber mill

<table>
<thead>
<tr>
<th>Tools</th>
<th>Estimated Length of Time for Sawing Timber</th>
<th>Average Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Logger (Baht per Day)</td>
</tr>
<tr>
<td>Chain saw</td>
<td>Cut one tree by two people within one month and sawed 5-10 timbers per day</td>
<td>200-500</td>
</tr>
<tr>
<td>Timber mill</td>
<td>Cut one or two trees by two people within one day and sawed 100 timbers per day</td>
<td>2000-3000</td>
</tr>
</tbody>
</table>

Source: This information was provided by seven participants who once were involved in the timber business: Mr Chamnan Udcome, Mr Somyod Reaunkaew, Mr Thanakorn Katiya, Mr Sujit Jaima, Mr Surin Tornfoo, Mrs Patra Yingyoach, and Mrs Vilai Yingyoach
In conclusion, external factors drove villagers to depend upon the timber business. Transportation development accorded with the national policy increasing the ability of people to connect with globalisation which in turn engaged with modernisation, commercialisation, and consumerism. This caused a separation between people, forests, and water. The villagers’ livelihoods had changed from a traditional base that focused on household subsistence to a more modern base that focused on tradable financial economic values. At the same time, accessing the timber trade provided the opportunity to satisfy their demand for income, thereby encouraging overuse of trees and causing deforestation. Figure 8 conceptualized the transformation and the external factors of dependence on the timber business in the era of modernisation. This is complemented by Figure 9 which shows a timeline of the timber business activity and productivity. The consequences of dependence on timber business affected decrease of timber business after 1999 will be discussed in the next section.

**Figure 8** The transformation and external factors of changing to dependence on timber business in the era of modernisation

- **Livelihood Change**
  - separated from forest and water
  - *Buying food rather than finding it in forest and water.
  - *Decrease of cultivation for subsistence.
  - *Increase of demand for income to buy goods and services.

- **Dependence on Timber Business**
  - serving adequate income for household
  - *The more gained income, the more increased expense.
  - *Overuse forest causing severe deforestation.

- **Stressful Effects**
  - *Conflict between the need for survival and national law enforcement of logging ban.
  - *Drought concern.

**Transportation Development**

(National policy)

**Leader role as timber trader**

**High Income**

**Timber Traders**

**New Technology**

[Timber mills]

*Commercialisation
*Modernisation
*Consumerism
*Government Policy
2012

1987 to 1992
Prosperous Timber Business

1987
Using portable timber mill and leader Support

1992
Complete concrete road

1999
Drought Concern

1985
Stopped shifting cultivation and changing in rice farming

1979-1984
Teak Plant Royal Project

1972-1963
Started learning cutting tree for wage

National concession policy

Strict national law enforcement of logging ban

Relative activity and productivity of timber business

Figure 9 Diagram of timber business activity and productivity from 1976 to 2002
3.3.2 Stressful Effects on Survival

The conflict with a national law enforcement banning logging, and recognition of the ecological consequences of deforestation, were two major issues that confronted a dependence on the timber business. These ultimately led to pressures on the villagers’ livelihoods and to the gradual termination of timber cutting in Pang Jum Pee Village since 1999. These processes will now be discussed.

3.3.2.1 Conflict with National Logging Ban

The first issue concerns a changing of Thailand national policy, from encouraging logging to conserving forests. A national logging ban was strictly enforced, promulgated in 1989 by the Royal Forestry Department and implemented by local government officials (Forsyth, 2001; G. Lewis, 2006; Sadoff, 1995), driven partly at least by a recognition of severe deforestation and severe flooding in the south. However, illegal logging continued, mirroring similar processes occurring in many other countries (Tacconi, 2007).

There was also a conflict between the national policy and rural livelihoods especially for local and indigenous people in the north of Thailand (Tomforde, 2003). The government authorities were critical of rural people who relied on natural resources and encroached on and damaged the forests (Enters, 1995). In contrast, the rural people and non-government organisations argued that governments mismanaged forest and weakened the law by encouraging corruption (Enters, 1995; Trebuil, 1995). In this sense, Kaimowitz (2007) suggested that efficient enforcement of the law for forest conservation required an emphasis on the advantage of rural livelihoods. For example, prohibiting small logging for fuel wood or hunting needed to be reconsidered so that rural people could survive in the forests. The government law should allow local people to earn a living in their original homeland rather than prohibiting and assuming them to be encroachers.

Control of deforestation was essential to underline efficient law enforcement (Salim & Ullsten, 1999); otherwise, common corruption at both national and local levels would continuously occur (Delacote, 2012). In Prae Province, Thailand, local loggers experienced conflict with the Royal Forestry Department and police who enforced the law of logging ban (Marchak, 1997). These loggers continued illegal logging to gain income even though some of them were arrested. At the same time, it was assumed that forest officials and police were engaged in bribery. National law enforcement could not apparently stop illegal logging, thus, severe forest destruction occurred in Prae Province.

In the same manner, the situation at Pang Jum Pee village indicated a tension between the need for survival and the enforcement of the national law banning logging. The villagers quietly
continued logging illegally by giving bribes to local officials since there were limited alternative occupations and the timber business provided high incomes. In the day to day, loggers, truckers, traders, and workers usually evaded from being arrested by the government officials of Royal Forestry Department, the Military Unit, and the Police Office which were authorised to enforce the national law banning logging. In 1988, Pang Jum Pee Village became notorious as a ‘Mod Mai Tum Lai Pa’ or ‘deforester’ when television, radio, and newspaper disseminated the news of deforestation in the village. Although the villagers were stressed, anxious, fearful, or restless in the various situations and concerned about the negative image attached to Pang Jum Pee Village, the national law enforcement could not prevent illegal logging. A villager who used to be a log carrier and logger remarked:

At that time, life was in crisis. No one in my family knew what to do. Everybody needed to saw timber for income. I felt afraid of being arrested. I thought how my family would be if I was arrested. Perhaps, I would lose money or I could be put in jail. However, I still went to cut trees to survive. Honestly, I didn’t want to do but it was necessary. I was so unhappy and cried sometimes.

Additionally, to avoid being arrested and punished on the basis of a need for survival, bribes had been offered extensively to the government officials. A former trader and five former loggers admitted that they paid monthly bribes to forestry officials and police to continue in the illegal logging business. After being paid, these corrupt officials ignored illegal actions such as sawing and transporting timbers. This expansion of bribes exacerbated deforestation and it was difficult to resist; even a village leader was involved as he stated:

When I received the leadership position, I had a passion for stopping illegal logging and recovering deforestation. I decided to sell my timber mill and stopped cutting trees so that villagers could follow my action. I also prohibited the carting of timbers from Pang Jum Pee to other villages. I compelled timber merchants to stop taking timber outside the village. But the villagers blamed me. They told me what they were worried. What could they do to earn a living? Why did I block timber merchants? I had also been threatened by somebody. So, I needed to receive a monthly bribe from timber merchants and did nothing except keep quiet. After that, I learned how to make timber business and how to pay bribes.

The illegal logging, however, gradually decreased after the staff officials strictly enforced the national law and refused to engage in bribe payments. The Royal Forestry Department also offered a critical option to the villagers to stop illegal logging in 1991. The villagers needed to gradually stop illegal logging so that the Forestry Department could conserve and recover the
deforested forests in the upper catchment areas at Pang Jum Pee Village. During a village meeting, there was a tense discussion between the staff officials of this department and the villagers. The villagers complained about their survival if they discontinued in the timber business. The officials then responded that a piece of agricultural land would be allocated for each household in a new place or another village. Most villagers ultimately agreed and accepted the national law of banning logging so that they could continue living in Pang Jum Pee Village. They could not confidently rely on living in an unfamiliar place that might not provide the same abundant water and natural resources for survival as Pang Jum Pee Village. A villager who was involved in this meeting recollected:

No one wanted to move anywhere. So people reduced cutting trees. We also did not know what conditions a new place held for us. What would we do in the dry, or in a small area? How could we live? It might not be the same as our village. Here, I could independently do what I wanted. I could catch fish or crab. I could collect banana leaves, bamboo worm, or bamboo shoots. If I moved to another place, I would not know what to do and what to eat. However, we could not immediately stop cutting trees. We needed to do at least a bit, because of nothing to eat, nothing to do. At the same time, we found other options. After one family worked for wage in one place, he or she persuaded other families to work. Cutting trees gradually decreased. I thought stopping cutting trees needed optional occupation for survival. The command to do it now or to stop it now, was not a realistic one.

3.3.2.2 A Concern about Drought and the Difficult Solution

The second issue that challenged the dependence on the timber industry was the ecological effect of deforestation, and a concern for livelihoods after the decline of the timber business. Deforestation and hydrology have been recognised as inseparable issues of global interest during the decade of the 1990s (Enters, 1995). Many authors have described a causal relationship between a degradation of tropical forests and ecological changes such as climate, soil erosion, drought, flood, and biodiversity loss (Anderson, 1990; Dudley, Jeanrenaud, & Sullivan, 1995; Utting, 1993). Importantly, this change can deplete natural products and resources which are vital and useful for rural livelihoods especially local or indigenous people (Barraclough & Ghimire, 1995; Scoones, 1998). For example, deforestation caused flooding of the Ganges Plain in the Himalayas where five hundred million Indian people lived (Myers, 1992). After flooding, the losses of inhabitants, habitats, cultivation, and livestock areas led these people to begin a struggle for change.
In Thailand, Barbier (2006) indicated that mangrove deforestation for shrimp farm construction affected the livelihoods of four villages in the south: two villages on the gulf of Nakon Sris Thammarat Province and two villages abutting the Andaman Sea in Phang Nga province. This leads these villagers to shift from self-reliance on fishing, collecting forest products, and firewood to a different form of survival on employment. Forsyth & Walker (2008) also emphasised the conflict between highland and lowland people of the Chomtong District in Chiang Mai Province, the north of Thailand. Khon Muang or local northern people are accused of deforestation in the upper forests. The loss of trees caused drought downstream where Hmong or ethnic groups needed water for agricultural areas, and eventually, an inadequate water supply meant the Hmong farmers could not successfully cultivate crops and produce livestock.

In this way, the case of Pang Jum Pee Village resembles other major rural areas in Thailand where the villagers’ livelihood relied on natural resources from the forests (Hirsch & Lohmann, 1989). In 2002, Pang Jum Pee villagers realised the consequences of deforestation and the timber business that had transformed their natural environment and its resources so affecting their livelihood. Zones of green and moist forest on the mountain became bald and dry. Water volume in the Mae Lai Noi stream rapidly decreased and a few of its tributaries dried up completely. These changes suffered the villagers’ livelihoods. Some villagers regularly shared their anxiety, particularly about water in the Mae Lai Noi stream which was a pivotal source of food and drink.

*At that time, there were no big trees in the forests due to heavy cutting of trees for sale. Water also dried up because of that. Many streams had less water and some of them had no water. I used to drink water in any small streams when I was in the forests. Later, there was not much water flowing in most streams. The villagers got talking - how do we deal with less water? It was difficult to find water in the forest and difficult to find shrimp and fish in any streams.* (Mrs Luksamee Meekul)

*I talked with some villagers about the fact that everything was gone. There was dry forest on mountain. We could only see bare ground. Even mushrooms couldn’t grow. Even a small bird or chicken could not be seen. Many streams had no water. Fish and crab were rarely found. At that time, I felt like there was nothing left. Dry forest and lack of water affected my life. It was difficult to earn a living in the forests. I didn’t know what to do. It was so sad. An abundant forest vanished due to using timber mills.* (Mrs Vilai Yingyoach)

These problems led to formal and informal discussion about solutions among the villagers and the leaders. Some villagers who realised the gravity of situation agreed to terminate illegal logging completely. They also convinced friends and relatives to adopt legal occupations like working for wages, selling dead wood, and planting fruits. In a formal meeting, the village leader emphasised
the severity of drought which could be avoided through a stop to the plundering of trees. There were times that officials of the Military Unit and Royal Forestry Department were invited to educate the villagers about the negative impact of deforestation and the need for national law enforcement. Moreover, the village leader endeavoured to promote occupations as alternatives to illegal logging, for example agricultural pursuits, embroidery, and bamboo basketry. These ideas were supported by several government officials who revealed examples of supportive institutions, like the Huay Hong Krai Development Study Centre which had been established to educate villagers about animal husbandry and mushroom cultivation. The Royal Project also encouraged vegetable cultivation and fish farms; and the Forestry Department provided agricultural land. For embroidery and bamboo basketry, Huay Kaew District Council established the centre of embroidery with twenty two sewing machines, whereas, the Community Development Department trained villagers on how to weave bamboo baskets. However, these occupations could not provide adequate household income because agricultural and handmade products were difficult to sell. Some villagers then returned to continue their illegal loggings.

At the same time, to address forest and water concerns, the village leader and the Community Committee at Pang Jum Pee Village cooperated with the Huay Hong Khrai Development Study Centre. This centre aimed to educate local communities about the past thirty years of experience of forest and water recovery in the areas of Mae On and Doi Sa Ket Districts, Chiang Mai Province. Several training courses had been provided for leaders in each community. These courses included the importance of forest and water, the inter-dependence of forest and water, and the technical knowledge necessary to protect forest and water such as preventing forest fires and building bamboo weir to increase moisture in the forests. This centre also supported any related projects to undertake natural resource and environmental protection: the Committee of

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20 Royal Project or Royal Development Project was established by King Bhumibol Aduladej over 50 years of his reign. More than 2000 projects, throughtout Thailand, supported by this organisation focus on improving people’s livelihoods, especially people who live in remote areas.

21 Huay Kaew District Council was a government office that encouraged development project in any villages at Huay Kaew Sub-District, Mae On District, Chiang Mai Province. Today, this office is named the Local Authority of Huay Kaew Sub-District.

22 Community Development Department was established in 1962 which aims to improve economic and social well-being of people in rural areas.

23 This Committee is the most important sector in administrative structure of Pang Jum Pee village. The mantle of this committee is to advise and cooperate with the village leader for village development, including assisting in government affairs. The Community Committee comprises from 5-15 people with the village leader as chairman. The detail of administrative structure is provided in Figure 1 Page 217 Appendix A.

24 Huay Hong Khrai Development Study Centre was established in 1982 with the King’s speech. Previously, the forest areas of this organisation deteriorated and drought since the national policy promoted mono-economic cultivation to serve export markets in corn, cabbage, tobacco, and the like. Thirty years later, the King’s idea of forest and water recovery would encourage transformation of these areas to become abundant forests again. This idea has been important to disseminate for local communities that require forest and water recovery.

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“Moo Ban Pi Tak Pa Ruk Sa Sing Vad Lom” was established to build a social network of forest and environmental protection in Huay Kaew Sub-District, Mae-On District, Chiang Mai Province. This Committee is comprised of representatives from each village in Huay Kaew Sub-District. Although the Community Committee at Pang Jum Pee Village engaged with the Huay Hong Khrai Development Study Centre and the Committee of “Moo Ban Pi Tak Pa Ruk Sa Sing Vad Lom”, the concern about water and forest re-development still existed. Mr Sujit Jaima accepted that recovering forest and water was difficult for him and the Community Committee, saying:

*I followed other people to take training course at Huay Hong Khrai. At that time, I did not pay much attention about what they taught and never thought about caring for forest and water. I did not concentrate on the projects they supported. I just did whatever Huay Hong Krai offered such as building check dams. Even though I and my assistants took training courses more than twenty times, I never got to successfully lead villagers to protect forest. I used to ask the villagers to stop burning forests but some people still did it. They said that burning was necessary to eradicate plants for easier walking in the forests.*

### 3.4 After 2002: Community-Based Forest and Water Conservation

Following the era of deforestation, concern grew about drought and its effect on livelihoods, causing pressure on the village leader and the Community Committee at Pang Jum Pee Village to ensure that they focused on forest and water conservation. The leaders and the villagers realised that they needed to depend upon the forests and the Mae Lai Noi stream. Overusing natural resources could impede their livelihoods in the era of modernisation. Maintaining natural resources in the forests was then pivotal to sustaining the villagers’ livelihoods. According to Mr Prasert Jomekun:

*It was impossible to recover water and forest to go back to live as in the past. Water and forest conservation was a way to slow the speed of forest disturbance in the era of development. It needed an action that could help people live and get enough money from the forests. In fact, forests were able to live without people but people could not live without forests. Cleared forest resulted in drought and drought caused everything to die. People would die if no one took care of forest. People and forest were inter-dependent. We could live here because there were forests. We conserved forests for sufficient and sustainable uses. It was different from the past when we cut a lot of trees until it had an effect on our lives.*
The awareness of this conservation perspective is built upon reconnecting the relationship between people, water, and forest; “conservation is a state of harmony between men and land” (Leopold, 1993, p. 98). The global impact of deforestation on economy, ecology, and society has been an important environmental issue and movement, with the intention to recover, manage, and conserve (Ghai, 1994; C. C. Gibson, McKean, & Ostrom, 2000; Vajpeyi, 2001; Warren & Goldsmith, 1983). This concern has been an international topic of interest to seek stated-based policy and implementation to improve the global environment, ever since, for example, the United Nations Conference on Environment and Development (UNCED) at Rio de Janeiro in 1992 (Poffenberger, 1996). International policy has also extensively encouraged a program of community-based conservation to achieve the concept of sustainable development of the Brundtland Commission Report 1987, and the requirement for participatory action in Agenda 21 (Campbell & Vainio-Mattila, 2003; The World Commission on Environment and Development, 1987; United Nations Conference on Environment and Development, 1994).

Community-based conservation engages with the devolution of natural resource management and responsibility from central government to local officials and local users (Agrawal & Ostrom, 1999; Fisher, 2000; Meinzen-Dick, Raju, & Gulati, 2002). The main principle of this approach is participation or a bottom-up approach to empower local communities in protecting natural resources (Brosius, Tsing, & Zerner, 1998; K. Brown, 2002). Specifically, it allows local communities or resource users to share problems, decisions, solutions, obligations, managements, rights, regulations, exploitations, and benefits for common natural resources (Armitage, 2005; Gadgil et al., 1993; Pagdee, Kim, & Daugherty, 2006).

Subsequently, the well-being of the local community will be improved since it inspires local users to recognize the value of natural resources and an awareness of sustainable uses (Western & Wright, 1994). The term ‘community-based conservation’ thus involves “local-level, voluntary, people-centred, decentralisation, and village-based management” (Little, 1994, p. 350). This practice has appeared across Africa, Asia, and the Americas for natural resource management of: forests, water, rangelands, parks, wildlife, and fisheries (Armitage, 2005; Meinzen-Dick & Knox, 1999). Agrawal (2002, p. 44) indicated that “governments in more than 50 countries” have transferred some degree of forest management and decision-making authority to local user groups. For example, the Joint Forest Management (JFM) Program between local communities and government in India focuses on cooperation in local forest recovery (Agarwal, 2000); and the Community Forestry (CFM) program in Nepal provided self benefit management for local users such as problem solving, rule enforcement, and forest product allocation.
In Thailand, the government has recognised environmental problems and has emphasised environmental management since the Stockholm Conference on the human environment in 1972 (Bureekul, 2007). In response to forest degradation, community-based conservation is included into national policies, laws, and programs for effective forest management similar to neighbouring countries in Southeast Asia (T. M. Li, 2002; Walpole, 1992). The national constitution and development plan allow local communities to participate in natural resource management (Rigg, 1991). For example, the sixth national economic and social development plan (1987-1991) indicated that “local organisations at the village and sub-districts levels will be strengthened and made more capable of planning and solving community problems; local resources will be mobilized to establish community development funds; the people will be encouraged to solve their own and community problems.” (National Economic and Social Development Board, 1987, p. 338).

The national constitution of 1997 also highlighted the importance of public participation (Ounvichit, 2005, p. 368). Article 56 stresses the right of individuals to participate in state and community work in maintaining and benefiting from natural resources and bio-diversity, and to protect, promote, and maintain the environmental quality for their normal way of living without creating danger to their health, welfare, and quality of life. In addition, to balance economy, society, natural resources, and environment, the ninth (2002-2006), the tenth (2007-2011), and the eleventh (2012-2016) national development plans have each encouraged participation of people in development and conservation (National Economic and Social Development Board, 2001, 2007, 2012).

Therefore, since 1990, the majority of non-government organisations (NGOs) have emphasised community-based natural resource management in response to nationally sponsored programs (Hirsch, 1997). Most of them play the role of facilitator to empower forest communities, thus connecting to a conservation network becomes an important feature of a participatory approach. For example, there has been the active movement of “community forest” that focuses on local socio-cultural base in forest management to seek the need of communities depending upon forest (Ganjanapan, 2000; Wittayapak, 2000). However, Poffenberger (1999) assumed that the national constitution and policy influenced the Royal Forestry Department; to create and support a program of community-based forest management; and strengthened local district authorities and local communities for protecting and managing their forests. Several organisations for community forest management have also been established by the cooperation between the Royal Forestry Department, local universities, development project staffs, and non-government organisations (NGOs). Poffenberger (1999) highlighted the example of the Regional Community Forestry Training Centre (RECOFTC) which aims to support the awareness of sustainable forest
management and to facilitate participatory action of national and local communities in the region of Asia-Pacific. It provides training courses on community forestry programs to strengthen government, NGOs, and local communities. International seminars and workshops have been also organised for discussion of forest-related issues.

This study found that community-based forest and water conservation reconnected the relationship between villagers, forest, and water through the community-based research (CBR) project which has been developed and supported by the Thailand Research Fund (TRF). The TRF is a semi-government organisation established under the National Research Endowment Act of 1992 (Thailand Research Fund, 2010). Within a dynamic global context, its role and mission focus on developing and granting research programs in addressing national issues and policy. These programs are mainly aimed to create a knowledgeable and a wise society that strengthens self-problem solving and development at national and local levels.

The community-based research [CBR] program was developed in 1998 as a research strategy for empowering wisdom in local communities (Panich, 2002; Thailand Research Fund, 2001). The concept of the CBR program focused on a collective learning process which is similar to an academic approach of participatory action research (PAR) underlying the process of participatory action (Kaewthep, 2010). In this process, people and stakeholders are encouraged to participate in problem identification, data collection, solution analysis, and action (Praputtisarn, 2002; Whyte, 1991). In addition to constructing useful knowledge for participants, this process is able to underpin individual and social change since it requires cooperation relating to common interests or concerns about social and natural settings where people live (Kindon, Pain, & Kesby, 2007; M. Walter, 2009). However, the CBR program emphasises collective learning process as an empowerment strategy rather than knowledge construction or goal achievement (Boon-Long, 2002; Sarobol, 2009).

Furthermore, Panich (2002) and Boon-long (2002) indicated that the CBR program allows local people, who share the same understanding of the problem, to be investigators. These people participate in the collective learning process, developing systematic thinking and managerial capability by identifying problems or needs, collecting data, making decisions for finding solutions based on data analysis, undertaking action, and evaluating outcomes and impacts. Each step of this process empowers local communities and requires facilitators or research counsellors who take an important role for providing advice, designing research processes, and organising discussion platforms with local people and stakeholders: leaders, villagers, monks, developers, staff officials, and non-official staffs.
Since 1998, the TRF, Community-Based Research Division\textsuperscript{25} has strengthened the competency of self-problem solving and management through the CBR projects in over 2,500 local communities on several issues such as sustainable rural agriculture, community-based tourism, natural resource management, local education, and local community administration (Thailand Research Fund, 2009a, 2009b). More than 100 local communities focused on community-based natural resource management and conservation for sustaining livelihoods in different contexts such as mangrove forests, swamp forests, tropical forests, and coastal gulfs (Thailand Research Fund, 2006, 2007, 2009a, 2010). Most of these issues have common concerns about the deterioration of forests and depletion of animals or plants so forcing local leaders to engage with collective learning processes (Thailand Research Fund, 2006).

In the north, the Thailand Research Fund (2008) reported that the CBR projects underpin systemic thinking and management of local leaders or committees concerning natural resource conservation. Some of them also establish a new local committee for sustainable natural resource management after understanding the relationship between livelihoods, forests, water, and the soil. In addition, determining self-restricted areas and regulation for sustainable use of natural resources has emerged. Even after CBR projects have finished, the activities for stimulating an awareness of conservation continue in some cases, for example Chaiya communities in Suratthanee Province and Nong Han watershed in Udonthanee Province.

In the case of Pang Jum Pee Village, members of the Community Committee agreed that they emphasised forest and water recovery when they participated in collective learning process through the community-based research [CBR] project from 2003 to 2006. This TRF funded project provided for their success in community-based forest and water management and conservation and the Pang Jum Pee Village became well known as ‘Pu Pi tuk Pa’ or ‘forest protector’ instead of ‘Mod Mai Tum Lai Pa’ or ‘deforester’.

\textit{Since 2000, everybody also wanted to recover water but it seemed impossible because of heavy deforestation. No one knew how to deal with it. When I joined this project I learned how to manage and keep forest and water. This research was different from an educational system in the sense that villagers were researchers. After finishing the project, I could continue doing what I had done and could link with other donor organisations. If no one joined this research project, Pang Jum Pee Village would become more problematic due to severe drought.} (Mr Sujit Jaima)

\textsuperscript{25} Thailand Research Fund (TRF) established the Community-Based Research Division in 1998 to manage the community-based research program.
This project made me understand people and connection between people, water, and forest. I used to blame other people because I wanted to recover the forest. So, some people hated me and did not cooperate with me. But now, I considered their need to cut trees. I could talk with them to understand the problem and convince them to find a solution together. Formerly, I was self-centred. (Mr Sawas Katiya)

This section will focus on the experience with the CBR project to recover and conserve forest and water for improving the villagers’ livelihood at Pang Jum Pee Village. Each sub-section explains: 1) how the leaders participated in the collective learning process; 2) how this process empowered community-based forest and water management leading to the improvement of villagers’ livelihoods; and 3) how the villagers showed an awareness of conservation and what the future holds for it.

3.4.1 Engaging with the Collective Learning Process

The village leader and the Community Committee at Pang Jum Pee Village was given the chance to participate in the CBR project when Mr Sawas Katiya coordinated with the TRF, Community-Based Research Division, in 2003. He was an informal leader who grew up in Pang Jum Pee Village and moved to live in Pok Village after marrying. However, his profound sense of drought concern forced him to put effort into seeking funding for water and forest recovery. When he was invited to work at the Huay Hong Krai Development Study Centre, his colleagues suggested the CBR project, leading him to discuss the proposition with the village leader and the Community Committee. After that, he shared community concerns with research counsellors or facilitators at the TRF, Community-Based Research Division, Mae Jo University Branch.26 These facilitators provided an opportunity for recovering water and forest based on the conditional support of the CBR program that their help could facilitate collective action and self management in community problems or needs.

Since Pok and Pang Jum Pee villagers used the same water catchment of the Mae Lai Noi stream, Mr Sawas invited the leaders of Pok Village to cooperate in the CBR project with Pang Jum Pee Village. He and ten members of the Community Committee at Pok and Pang Jum Pee Villages then became the investigators. To empower systematic thinking and self-problem solving or management as required by TRF, facilitators or counsellors were obliged to guide the collective learning process until the CBR project was completed.

26Currently, the branch of Thailand Research Fund, Community-Based Research Division, at the Mae Jo University, Chaing Mai Province has withdrawn from its role of research counselors or facilitators of the CBR program.
Facilitators helped us a lot. We were villagers. We did not know about research. They could give us advice: which way was right and which way was wrong. When we discussed something, they outlined the main points. If they did not help us, we would take a wrong direction or focus on wrong points. (Mr Sawas Katiya)

As a facilitator, I needed to design the research method, facilitate the learning process, and give advice or direction. We usually gave information to researchers so that they could make appropriate decisions. We also asked them what the benefits of their decisions or actions were. This role needed deep understandings about research and local context. That meant that a research counsellor should engage with villagers to learn about villagers’ lives and contexts. (Mr Panitee Boonsa)

In this study, an analysis of the facilitator and the researcher’s sections showed four stages of collective learning process (see Figure10): problem identification, data collection and analysis, and participatory action, including a discussion platform to share ideas and feedback on learning process collectively.

**Figure 10** Collective learning process for forest and water recovery and conservation
3.4.1.1 Problem Identification

Initially, Mr Sawas proposed a research proposal about promoting shrimp farming to the TRF Community-Based Research Division, Mae Jo University branch. He believed that the success of forest recovery relied on people’s financial status; that is, recovering people before recovering the forest. If people had enough income from shrimp farms, they would stop overusing trees and think about protecting the upper source of water. Subsequently, the research counsellors from the TRF organised a fortnightly meeting in Pang Jum Pee Village, for three months, for discussions with Mr Sawas and his team. These meetings aimed to identify actual problems and formulate research questions. Asking questions was the main tool of facilitators to motivate villagers to think analytically about actual concerns in the village context. Ultimately, the village leaders and their team of investigators were able to prioritize problems and make their own decision as to which problems were the most important. After a long discussion, they agreed to change the research question from promoting shrimp farming to recovering and conserving water in the Mae Lai Noi stream. Specifically, the research question indicated “how to build participation for recovering and conserving water in the Mae Lai Noi Stream to have a self-sufficient economy in the Pok and Pang Jum Pee Villages”.

I helped them to analyse a problem in the village. I facilitated them to think how lives connected with water. At the beginning, they wanted to know how to do shrimp farming to promote an alternative occupation. When I asked an analytical question, they were able to rethink and choose what they wanted to do. Did shrimps need water to survive? Did they decrease due to less water? How did people in the past manage water? Then, I connected what the villagers discussed about my questions and made a link; drought caused shrimp to disappear and this affected economic well-being. Asking questions created discussion between me and the villagers but I needed to follow the villagers’ need. I could not have refused if they had chosen to do shrimp farming. I needed to ask questions to learn and respond to villager’s needs. (Mr Panithee Boonsa)

Panithee asked us, why did you want to do shrimp farming? Could you tell me the reason? I said I wanted to promote an occupation for villagers. Right now, cutting trees was the main occupation. We discussed about this a lot. Then, he suggested rethinking of doing shrimp farm. He asked why not think about the bigger issue such as water and forest recovery rather than shrimp farm? How shrimp could live without water? (Mr Sujit Jaima)
3.4.1.2 Self Reflection

The research counsellor, Mr Panithee Boonsa, designed the activities of writing and sharing stories to gain the insights of the village leaders and the investigating team about an unfamiliar word, ‘research’. Each of them was assigned to write independently about personal stories, families, experiences, events, or the stream before sharing their narratives with other participants in a small meeting. However, this step provided unexpected consequences, as Mr Panithee Boonsa explained:

*I gave them more than a month for writing. Later, I let everybody tell their own story. It was an active discussion. At the same time, I could conclude and show the connection between life experience, village history, occupation, and the Mae Lai Noi stream. For example, the villagers used water for household and agriculture. Unexpectedly, this step brought self-recognition in addition to learning about research. It was the turning point of the researchers’ thought. It made sense of what to do with something being around them.*

The investigators or researchers also agreed that this step underpinned profound understandings of relating themselves to village, water, forest, and other people. It was self-reflection or introspection which had stimulated an awareness of the roles of self, family, village, society, and environment.

*When I wrote my story, I could examine myself and family. It made me think about bad behaviour to my wife and other villagers. I examined all risky events that had happened to me and realised that drinking alcohol was the main cause. So I decided to slow down drinking and smoking cigarettes until I completely stopped in 2005. After that, most people even opponents trusted me and followed what I said.* (Mr Sujit Jaima)

*I wrote where I studied, who my friends were, where I used to go, how many girlfriends I had, what my workplace was, how much money I earned, and what I continuously did. Just kept writing what I already knew. Writing life story made me think about bad behaviour such as shooting animals. I thought that how my wife and kids could survive if somebody shot me. So, I withdrew from hunting.* (Mr Prasert Jomekun)

3.4.1.3 Data Collection and Analysis

This step emphasised investigating facts to uncover the cause of drought in the Mae Lai Noi stream so that the leaders in the villages or newly named researchers or investigators could indicate the appropriate strategy and action for water recovery. The TRF’s facilitator assisted the researchers to design data collection and facilitate data analysis in monthly meetings. In this
process, two main themes were the focus, namely to understand the relationship between livelihoods, forests, and the Mae Lai Noi stream, and to seek the cause of change in the Mae Lai Noi stream.

Each researcher independently selected a theme in the collection of data. For example, Mr Sujit Jaima preferred to gather data about the irrigation system and ceremonies in rice farming because of his farming background. Mr Thanakorn Katiya, who had knowledge about agriculture, volunteered for examining land use and agriculture at the bank of the Mae Lai Noi stream from the perspectives of the quantity of agriculture, the types of growing plants, and water uses. Mr Prasert Jomekun wanted to survey the Mae Lai Noi stream and its tributaries in the forests because he was familiar with the forest routine. Mr Sawas Katiya selected water uses in the context of Pok and Pang Jum Pee Villages. Five researchers at Pok Village also gathered information about using “Toa Num Rin” or bamboo pipelines in the past.

Participatory observation and informal discussion were used as the main methods of data collection. The researchers engaged with the villagers in many places such as forests, streams, orchards, temples, homes, and grocery stores. Since they had lived in the villages and the villagers were their friends or relatives, they knew potential villagers who could provide particular information such as the history of village and rice farming.

In the data analysis, monthly meetings were organised wherein the researchers shared and discussed ideas, strategy, and plans based on data. Everybody could argue any of the findings, complete data, and suggest further data collection. At the same time, the research facilitator promoted discussion, identified main ideas, and concluded further action. Mr Sujit Jaima described the meetings thus:

> Everybody debated the data that each person showed. For example, Prasert said that there were around 20 tributaries of the Mae Lai Noi stream. Somebody said that I remembered there were more than twenty. So, he needed to collect this information again. He then found that there were 33 tributaries. We also discussed why each stream had less or no water. This was because people cut trees over that stream.

Ultimately, the process of data collection and analysis underpinned insights into the connection between the villagers, water, and forests. The researchers also understood the cause of drought in the Mae Lai Noi stream which informed the strategy of changing people’s thoughts about recovering water and forest. People needed water and forest for earning a living but overusing trees or deforestation for timber business was harmful.
I thought the collective learning process helped develop analytical thinking. It made me realise that people could not survive without water. I became aware of how to keep water. (Mr Thanakorn Katiya)

People, water, and forest had a close relationship. We shared and discussed information about traditional lives and water several times. Then, we came up with an idea of recovering people for water and forest recovery. (Mr Sujit Jaima)

3.4.1.4 Participatory Action

This step emphasised building participation in forest and water recovery based on the strategy of changing people’s thought processes. The team of researchers used three main techniques to stimulate an awareness of conservation: giving direct information; developing collective agreement; and performing ceremonies. Mr Sawas Katiya, Mr Prasert Jomekun, Mr Sujit Jaima, and Mr Thanakorn Katiya endeavoured to continue this step in the collective learning processes of Pang Jum Pee Village.

Giving Direct Information

The researchers provided the information they discovered from the previous step directly to villagers at Pang Jum Pee. Mainly they explained: how water and forest was important to villagers’ lives, what the cause of drought was, and why villagers needed to conserve water and forest. Mr Sujit Jaima formally educated villagers in his role as the village leader sometimes through public amplifier or at the village meeting every two or three months. In addition, the researchers shared responsibility to talk informally with villagers. As Mr Sawas Katiya said:

Everybody separately talked with villagers, 5 to 10 households each. We talked with them often in the evening or special occasions such as funeral ceremony. I talked with villagers as if I was talking with siblings. I needed to know how to talk with people at the right time and in the right manner. For example, when I sit with three people, I began the conversation; ‘I wondered why a lot of leaves in our village came down’. Somebody then expressed opinion; ‘it was common in dry season’. So, I could tell or explain why it was hot and dry. I said water dried up and forest disappeared because of cutting trees and as an effect of deforestation.

Developing Collective Agreement

The research team employed a discussion platform or meeting format in the collective learning process to build cooperation with villagers. It allowed the Community Committee and the villagers to share and discuss ideas or plans which led to collective decision making and agreement.
Initially, the effort of conservation was opposed because the villagers could use independently the natural resources needed for survival. Those who opposed believed that conservation impeded earning a living in the forest. However, discussion and collective agreement during a meeting minimised the conflict of conservation and provided the opportunity to demonstrate a positive consequence of conservation. Subsequently, the villagers realised the advantages and agreed with the conservation approach. This progression of ideas, to convince villagers on the benefits of conservation, was a carefully thought through process. Collectively, the Community Committee and the villagers determined quotas for cutting down trees and marked restricted fishing areas as described below.

Before discussion with the villagers, the village leader organised a meeting with the researchers, the research counsellor, and the Community Committee, proposing determination of regulations and ideas of restrictions to protect trees and fish. He said:

*Fish were an indicator of abundant water. Water was related with forest. Fish could not survive without water and cutting or burning trees caused drying of the streams. Everything was connected.*

Everybody agreed with his proposal because the data indicated forest deterioration at the upper source of stream and the extinction of some kinds of fish. The regulations for cutting trees and for fishing then were drafted as follows:

- Cutting down trees for timber business was strictly prohibited. It was permitted for building a house in two cases, a house with rotting timbers and one for a newly married couple. The Community Committee was obliged to consider exceptions and violations.

- Fishing in the restricted area which the villagers called the ‘fish house’ was strictly prohibited. In this area, only traditional methods to trap a small amount of water animals could be used for fishing such as nets and blocking water ways. Any methods to stun water animals such as using chemical substances and electric shocks, and bombing were strictly prohibited. Any violator would be fined 5000 baht.

Mr Sujit Jaima, Mr Thanakorn Katiya, and Mr Prasert Jomekhun discussed together how to manage the conflict with villagers in the village meeting when a visitor who came from another village with twelve people asked how to make villagers agree with draft of regulation of forest and water at the Local Learning Centre, Pang Jum Pee Village. I then connected their story tellings and checked with them as an example of argumentative conversation about restricted fishing zone as presented below.
One opponent said:

_The prohibition of cutting down trees and restriction of fishing compelled villagers too much._

Another agreed:

_What did the village leader conserve for? No one could cut down trees! No one could catch fish! No one could use electric shock! No one could use chemical substances! Why did we need to do these prohibitions?_

The village leader patiently explained:

_I conserved for the villagers, not for me or the Community Committee. We used to have a lot of fish but now there were few fish to be caught. Conserving fish provided benefits; fish could breed for further use. Fish would overflow out of fish house\(^27\) and would be a food source elsewhere._

A man argued, saying:

_It was not possible to get fish back especially the extinct one. How could it get back!_

Ultimately, the village leader negotiated with the opponents:

_Let’s try together? I would stop everything and return it for you if fish did not get back. Could you give me only five to six months and a 500 meter length of restricted fishing zone?_

While everybody was waiting for the consequence, a few opponents had strongly criticized the Community Committee at Pang Jum Pee Village. However, the members of this committee needed to be patient and ignored people who had never listened to any explanation. They endeavoured to informally explain the advantage of conservation to other villagers who wanted to talk with them. Mr Prasert Jomekun exemplified that:

_I said that using chemical substances to stun fish caused all young fish to die. This meant we could not eat fish anymore. Why did that not change your thought to use bare hands for catching big fish? This way made young fish grow up and breed the next young fish for us, forever. I repeated my explanation like this several time whenever I met villagers._

\(^27\) Fish house means a restricted fishing zone (villagers called a restricted fishing zone ‘fish house’).
Four months later, there was a large number of young fish in the restricted fishing area and a few fish, thought to be extinct, such as Pa Bung\textsuperscript{28} reappeared. This increase of fish extended to other areas in the Mae Lai Noi stream where the villagers could catch fish for cooking. The villagers who opposed conservation thus changed their attitude and accepted the plan of the Community Committee to protect water and forest. They asked the village leader to extend the restricted fishing area from 500 to 1000 metres and gradually accepted the advantage of fish conservation.

**Performing Ceremonies for Forest and Water**

Interestingly, the researchers applied ceremonies based on the belief in supernatural powers to uplift the spirit of villagers for water and forest conservation. The research counsellor, the Community Committee, and the villagers agreed with the plans of the village leader to perform the ceremonies of Buat Pa or tree ordination, and Seub Cha Ta Lum Num or longer life rituals for water. The origin, meanings, and functions of these ceremonies will be discussed in the following chapter.

Significantly, Buat Pa and Seub Cha Ta Rum Num functioned as the centre of social cooperation. The villagers were excited and enthusiastic about participating in the performance of the ceremonies. Before ceremony day, the village leader and the Community Committee discussed with villagers in the village meetings in order to collectively prepare the ceremonial performances. Everybody shared activities and jobs, such as cleaning the village and the Mae Lai Noi stream, including preparing the site, food, belongings, and offerings. After the first performance, the villagers agreed to perform the ceremonies of Buat Pa and Sueb Cha Ta Lum Num every year or twice a year. Importantly, there was an emergence of cooperation in forest and water conservation. For example, a villager gave his land (about 10 rais or 1.6 hectares) to the Community Committee for forest conservation at the upper source of the Mae Lai Noi stream. The Local Authority of Huay Kaew Sub-District gave support to a waterfront pavilion on the Mae Lai Noi stream, road construction to the centre of ceremony venue at Ta Bun Dai waterfall, and a trekking route from Pang Jum Pee to Pok Village.

### 3.4.2 Improvement of Self-Management and Livelihoods

After finishing the project on community-based research in 2006, the Community Committee at Pang Jum Pee Village was in a position to continue community-based forest and water conservation to balance the use of natural resources and protect livelihoods. They had learned collectively that forest, water, and the villagers were interconnected, and that building participation with villagers based on data or facts, was a pivotal strategy to success in

\textsuperscript{28} Pa Bung was the name of one type of fish.
conservation. Before any actions were undertaken, the village leader emphasised the importance of discussing ideas, facts, and plans with the members of Community Committee and the villagers.

*Water came from the forest. So, we needed to conserve the forest as well. Conservation also needed to provide a good livelihood, a good economy, and everything in the forest. This was because everything was connected. Villagers would cooperate in conservation if they realised the advantage of conservation. If conservation did not support earning a living for villagers, no one would participate in it.* (Mr Thanakorn Katiya)

*Whatever I did, I could not get the chance of success without participation. I could not act alone or command other people. I usually talked with the Community Committee before talking with the villagers. This committee could help me explain and build cooperation with villagers. If I had tried to enforce any actions or regulations without talking, everybody would have resisted me.* (Mr Sujit Jaima)

Within this focus of participatory conservation, the Community Committee could continue to protect and conserve forest, water, and natural resources in the forest. There were regular activities for forest and water conservation like growing plants and trees, building fire breaks to prevent forest fires, constructing bamboo weirs to increase moisture in the forests, and performing the spiritual ceremonies for forest and water. These activities were mostly supported by donor agencies that placed on conservation of natural resources in local communities. For example, the Tokyo Marlin Company, a private organisation, and the Huay Hong Krai Development Study Centre encouraged planting trees, and building fire breaks and bamboo weirs. The Local Authority of Huay Kaew Sub-Distirct and the Thai Health Promotion Foundation partly supported the ceremonies for forest and water.

In addition, the Community Committee determined and enforced self regulations for forest protection based on agreement with the villagers. These regulations, for example for land use, protected areas, and forest product control, restricted the uses of natural resources in the forests (those used for sustaining livelihoods).

Firstly, in 2007, Cha Nod Chum Chon or a local land document was developed to protect forest areas from encroachment for habitation, cultivation, or land business. This land regulation acknowledged private land property rights yet imposed restrictions on land use which were focused on protecting natural resources. Examples were: prohibiting logging trees for timber

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29 Thai Health Promotion Foundation is a semi-government organisation which emphasises implementations for improving and promoting healthy communities.

30 A local land document was approved by the villagers and authorised by the Community Committee, but it was not certified by national law.
businesses; asking for permission to fell trees for building houses; banning setting fire to forests; ways of using chemical substances; and encouraging activities for conservation such as integrated agriculture.

Next, the Community Committee and the villagers strictly regulated the fishing area in 2005 and the hunting area in 2009. These restricted areas aimed to revive the habitat and nurseries for water animals and wildlife so that the villagers could use them sustainably. The restricted fishing area was one kilometre away on the Mae Lai Noi stream at the Ta Bun Dai waterfall, and the wildlife restricted zone measured 600 rai or 96 hectare near the area of the Local Learning Centre at Pang Jum Pee Village (see Pictures 1 and 2 Page 203, and Map 8 Page 205 both in appendix A).

Finally, two main regulations restricted the use of forest products, thus, further benefited the villagers. The first forbade those from other villages from collecting anything in the forests of Pang Jum Pee Village. The second regulation was applied by the government, coinciding with the collecting bamboo shoots since bamboo shoots were an economic forest plant and tended to be on the decline. It allowed Pang Jum Pee villagers to collect bamboo shoots throughout year for cooking. However, collecting bamboo shoots for business was permitted only in the high season, three months a year from July to September.

Moreover, the Community Committee continuously managed the Local Learning Centre of Pang Jum Pee Village since they and villagers agreed to develop it in 2006, near Ta Bun Dai waterfall on the Mae Lai Noi stream. This centre is well known inside and outside of the Huay Kaew Sub-District and has gained recognition as a centre of education and conservation. Each month, visitors from other villages and overseas come to the centre to learn about the collective learning process, agriculture, local wisdom, the ecosystem of the Mae Lai Noi stream, and water and forest conservation. These visitors provided funds by paying fees and making donations. Some villagers earned income from guiding, catering, lecturing, and driving. Some of the income from accommodation and the meeting place accumulated in a collective fund for continuing the activities of forest and water conservation. Importantly, villagers assumed that this centre was meaningful for forest and water conservation. It was a symbol that could stimulate a sense of conservation of the Pang Jum Pee villagers and others.

*Having the Local Learning Centre made me love water and forest more. If we did not have it, we would burn forest to get mushrooms or would spray herbicide as we did before. Now, I knew that herbicide could pollute water. So, the Local Learning Centre helped motivate awareness of villagers.* (Mrs Sureeporn Thosungneun)
It was indirect teaching for villagers that having water meant having fish, and having fish meant having food. Destroying the forest caused drought. Normally, people did not understand, or refused to listen to direct teaching. (Mr Prasert Jomekun)

Significantly, these continuous actions for forest and water conservation led by the Community Committee were able to improve the villagers’ livelihoods in the era of modernisation. People could seasonally hunt for wildlife and collect several kinds of plants such as Puk Good or local ferns, bananas, mushrooms, and bamboo shoots. In particular, Mr Prasong Tongkumfoo assumed that conservation provided income for ninety per cent of Pang Jum Pee villagers who relied on gathering forest plants. When asked, some villagers spoke about the advantage of forest and water conservation at Pang Jum Pee Village; they accepted the advantage of conservation. Since 2006, numerous trees had grown in the forests, and water in the Mae Lai Noi stream had increased. In the bamboo shoots season, most villagers could earn high income; Pang Jum Pee villagers together could earn more than a million baht per year in three months of bamboo shoot business.

Letting animals go in prohibited zone enabled them to breed. Having this zone could limit the needs of people and provide further use. I always thought that I could have something else instead of meat. If I could not hunt anything, I could have chili or bamboo shoot, and I could go back to get meat next time. (Mr Sompet Thosungneaun)

Our forest was greener than before. Fish and crab were also more abundant. We could easily earn a living from the forests and water. We could do any jobs I wanted even though we could not get much money. It was different from cutting trees that made me feel uncomfortable. Now, I felt free, happy, and comfortable with legal jobs. I could live without destroying anything. (Mrs Vilai Yingyoach)

3.4.3 Sense of Conservation and an Uncertain Future

Since the Community Committee emphasised community-based forest and water conservation, most villagers had been aware of the importance of forest and water to their livelihoods and the need to protect these natural resources. The following several ways to show cooperation in forest and water conservation were noted when some villagers were asked their opinion of conservation:

- Most villagers ceased wrongful behaviour such as cutting down trees and burning the forest so that they could rely on earning a living there.
Forest conservation made me love forest. Formerly, I never thought about it. I cut trees I wanted as other villagers did. I burned forest to remove slippery leaves when I walked in the forests. I also burned forest to get a lot of mushroom. No one prohibited us to do that. I regretted what I did before. (A man engaged with a few villagers at grocery store)

I did not cut down trees or burn the forest because I wanted to conserve water and I did not want fire to burn my orchard. Forest was the place for earning a living. It gave me income. If I didn’t conserve it, I couldn’t sell anything. (Mrs Nongluk Udcome)

• Some people educated other people who had broken the forest or water conservation regulations, or reported to the Community Committee about serious violations.

Everybody had a duty to take care of the forest despite not being employed in any formal position. Sometimes, I warned somebody who was burning forest or cutting trees. When I saw forest fire, I called the village leader or a member of the Community Committee. The smoke of forest fire made it difficult to breath and was not good for health. I lived here! I loved the forest! So, I wanted to help keep it! (Mr Chamnan Udcome)

• Generally, the villagers participated in any activities for forest and water conservation led by the Community Committee: growing trees, building forest fire breaks and bamboo weirs, and performing the ceremony for forest and water.

It was my duty to cooperate with leaders because I lived here. I needed to show unity as a follower. Whenever leaders asked, I went to help. Sometimes, I joined in planting trees, and doing fire breaks. I thought that I should return something to the forest because I used it a lot. I needed to sacrifice my time for collective jobs. (Mrs Patra Yingyoach)

• Some villagers followed a more traditional way of life to conserve water and forest. They realised that sufficient use of natural resources could sustain their lives depending upon forests.

Mr Boon Auiwai commented on sufficiency:

I felt comfortable to only catch fish to eat in my family. I did not need to sell it. Sometimes, I went back home late. I brought one net with me and caught some fish. I then cooked curry fish or chilli paste. That was enough for me.

An elderly man met by chance at the grocery store added:

I was proud of collective conservation here. It looked like we were going back to the past. Our parents had sufficient lives. They collected any forest plants for cooking first. Some
fish would be sold when there was food left over. Now, we could catch fish and collect bamboo shoot and mushroom to earn a living. We could save money if we paid less. Living the same as urban people could not help us save money.

- Educating the next generation was pivotal to the continuation of forest and water conservation. The present generation needed to teach and share their experiences: a negative one for deforestation and a positive experience for conservation.

  We had to teach our children or grandchildren to become lovers of forest and water. Tell them that no one could survive without water and forest. Our coffee orchard needed water to grow. Water also gave beautiful and green trees. Big trees could hold a large amount of water. Cutting them caused soil erosion. I never thought like this before. (Mrs Luksamée Meekul)

However, when I asked the leaders at Pang Jum Pee Village about the future of conservation, no one could guarantee the continuity of forest and water conservation. They suggested further missions for the Community Committee. One was to sustain the use of natural resources for supporting livelihoods, which should focus on developing self-funding, thereby reinforcing villager participation. Another was to develop the next community leaders; and connecting with other conservation networks.

- To continue activities for forest and water conservation, the Community Committee should manage collective funding in addition to depending on external funding.

  I thought conservation should rely on self funding. In some years, we could not get support from any agencies. If we lacked funding, no one would help to take care of forest. Managing the Local Learning Centre was an example of earning a collective fund but it was not enough. We needed to do something else. (Mr Sawas Katiya)

- To gain insight into and stimulate the awareness of cooperation for conservation, the Community Committee should constantly explain to the villagers, especially the younger generation, about the advantages of conservation.

  I tried to explain: for example, we had something to eat because we did not burn forest. In rainy season, there was no great flood because there were trees in the forests. In 1988, one hut was carried away by a great flood due to burning forests. After conservation for four or five years, our village was never flooded nor was our house damaged. (Mr Prasert Jomekun)
In the future, we should educate the young generation at least twice a year about living in the forest. This will stimulate an awareness of young people what the benefits of conservation such as giving food. (Mr Thanakorn Katiya)

- Teaching and developing the next leaders of the conservation movement had been a difficult action to predict for the Community Committee. Without succession, the future of water, forest, and people will be less secure.

It was hard to say how water and forest would be if I and Sujit retired. Everything depended upon the next Community Committee. At least, the Local Learning Centre and regulation enforcement would exist. But I did not know about the way people will think in the future. I don’t know even how people will teach their children and grandchildren. Our future depends upon young people but it is difficult to convince them to join us. The life of young people has moved to follow globalisation. Developing young people will be problematic. (Mr Prasert Jomekun)

The sustainability of water and forest relies on the next generation. If I and this Community Committee retired, water and forest would be gone. So, I will tell villagers to choose the new Community Committee who focused on conservation. Previously, I put a lot of effort into forming a youth group but it dissolved because young people had to study or work outside the village. (Mr Sujit Jaima)

- The village leader strongly believed that water and forest conservation was a cross-boundary issue. It needs cooperation among other villages in the same district. He expected to connect a social network for further success of water and forest conservation. Mr Sujit Jaima was contemplative about this:

I thought of the future. If every place took care of environment, no one will be worried about flood or drought, and the national issue could be solved. I always say to other people that even though Pang Jum Pee villagers hadn’t burned the forest, we still had problem with forest fire. Other villagers burned forest and that made us concerned about the possibility of forest fire spread. So, it should be better to work together. Lately, I’ve tried to extend my idea to other villages who visited our village. Some villages responded well to the idea of restricted fishing but it was not enough. I would like to build a strong conservation network in our district using the collective learning process.
3.5 Discussion

There is evidence of a relationship change between forest, water, and villagers across the three eras investigated since the history of settlement at Pok and Pang Jum Pee Villages. In the pre-modernisation era prior to 1975, the villagers called themselves ‘Khon Yoo Pa’ or ‘forest people’; their relationship with the forest and water was immediate and direct. Primary settlers sought to live in the forest that could provide natural resources to serve basic life support: food, water, land, and herbs. In particular, the land along the water course of the Mae Lai Noi stream was the origin of dwellings and cultivation before expansion into territory close by. Within the physical contexts of isolated areas and underdevelopment, the villagers’ lives were underlined by traditional ecological knowledge for household and community subsistence. Having independent use of abundant natural resources, the traditional villagers consumed sufficiently for their basic needs, such as gathering forest plants, fishing, hunting wildlife, building houses, and growing rice.

There was also a strong interaction between people that indicated social dependence and a sense of unity. To survive in the forests, they usually helped one another and shared natural resources. In addition, the traditional villagers had intense spiritual beliefs that showed respect to natural resources. They believed that souls, ghosts, or guardian spirits were in sacred places or trees. Guardian spirits of forests, water, and land were worshipped so that they could safely live in, and adequately earn a living in the forests. A dependence on forest and social dependence for community subsistence, including strong spiritual beliefs in isolated areas thus encouraged connection between forest, water, and villagers.

From 1976 to 2002, this relationship had become gradually more disconnected. The infrastructure development under the national policy of social and economic development introduced modernisation and commercialisation into the Pok and Pang Jum Pee Villages which provided the impetus to change the villagers’ livelihoods from a traditional base (focusing on subsistence well-being) to a more modern base (focusing on demand for income to serve economic needs). This change fractured the villagers’ relationship with the forest and water; it increased consumption of natural resources at excessive levels to satisfy consumerism. Villagers, especially in the Pang Jum Pee Village, placed an emphasis on individual demands for income instead of subsistence well-being. With the improvement of transportation, and when the introduction of a concession policy induced them to earn a living by selling logs, the Pang Jum Pee villagers began to rely on timber business without the recognition of forest degradation. The economic value of logs underpinned overuse of a large number of trees so serving the demand for goods and services.

At the same time, a change of national policy from promoting the timber trade to forest conservation caused a tense conflict between the villagers’ need for survival and national law
enforcement. Even though the villagers realised that continuing the timber business was illegal and caused stressful situations by avoiding being arrested by staff officials, they needed to furtively fell trees to earn a living. Widespread corruption of law enforcement also encouraged illegal logging rather than protecting forests. However, the timber business gradually declined after the national law banning logging was enforced strictly and villagers became more aware in 2002 of the effect of deforestation to their livelihood. Overtime, in the era of modernisation from 1976 to 2002, the Pang Jum Pee village was notorious for being ‘Mod Mai Tum Lai Pa’ or ‘deforesters’. The villagers struggled with illegal occupation and the ecological effects of deforestation: degradation of the forest; loss of a food source; and drought affecting the Mae Lai Noi stream.

In the next era, post-2002, the awareness of this struggle forced the leaders at Pang Jum Pee Village to persist with seeking a solution to the rehabilitation of water and forest sources which implied reconnecting the villagers’ relationship with them. The Community Committee cooperated with several programs supported by external agencies, but the solution of the problem remained difficult. From 2003 to 2006, this Committee participated in a project of community-based research (CBR) developed and encouraged by the Thailand Research Fund [TRF], Community-Based Research Division. This project emphasised a collective learning process to empower the local communities to solve and manage own problems in order to respond to the mounting local concerns or needs which accorded with the national decentralisation policy for local communities.

In the process, people learned to identify problems, to reflect, to collect and analyse data, and to build participatory action. This process required action and reflection platform to share ideas, plans, solutions, and feedback collectively based on data or facts. The research counsellor also had an obligation to co-design and facilitate each step until completion of the CBR project. Since then, the Community Committee had understood the connection between forest, water, and livelihood which then led them to a successful implementation of community-based forest and water conservation. They realised that recovering forest and water required the villagers’ agreement and participation because everybody depended upon the forest and water. Ultimately, the Pang Jum Pee Village became renowned as ‘Pu Pi Tuk Pa’ or ‘forest protector’, especially so in the Huay Kaew Sub-District. Through the concerted, continual, and cooperative efforts of a village Community Committee, the villagers were supported as they undertook actions for forest protection: sharing activities, performing ceremonies for forest and water, determining village regulations, and managing a new learning centre for conservation. At the same time, conservation of valuable natural resources improved the villagers’ livelihoods: more food and even more income. The villagers became aware of the importance of conservation and showed their new
sense of conservation by cooperating in the building of fire breaks, preventing cutting down of trees, and preparing the younger generation for future leadership roles.

Even though the community-based conservation was able to control the uses of natural resources for serving modern livelihoods, the future of the relationship between the villagers, forest, and water was uncertain. The continuity of forest and water conservation required further robust effort by the Community Committee to develop the next conservation leaders, stimulate awareness and participation inside the village, connect social conservation with networks outside the village, and manage internal funding that supported conservation activities.

A relationship between the human and biophysical environment is dynamic and inter-dependent (C. U. Becker, 2011; J. C. Williams, 2010); and both characteristics are found in this study. Since humans are an element of biophysical environments (C. U. Becker, 2011; Hanh, 1988), their attitudes and actions can change that environment thereby affecting their lives through livelihoods, lifestyles, and ultimately well-being (Beckmann, 1994). In a place consisting of “physical attributes, activities, and conceptions” (Canter, 1977, p. 158), sense of belonging and reaction to physical settings depend upon an environmental conception or consciousness (Mayer & Frantz, 2004). Past research has also assumed that the conception of being a part of the biophysical environment or being apart from it affects the meaning of natural resources to people (Vining et al., 2008).

If people realise the basic relationship that they are a derivative of the biophysical environment, indeed a part of it, they will be less likely to create activities that degrade their surroundings (Berry, 2012; Schroeder, 2007). This consciousness could contribute to an individual responsibility for cooperating in natural resource protection to achieve collective benefits (Schultz, 2002). Schroeder (2007, p. 294) concluded that the relationship between peoples’ environmental conceptions and their sense of belonging in a place had two dimensions: firstly where “the human aspects of the place are experienced as harmonizing or merging with the natural aspects”, and secondly where “the human aspects of a place are experienced as contrasting or conflicting with the natural aspects.”

These dimensions of Schroeder (2007) can be applied to this study, showing that the forest is the physical setting, a pivotal place for the villagers to live and rely upon. It provided dwellings and produced natural resources which were essential for basic life support and economic well-being such as water sources, food, cultivation areas, herbal medicine, and commercial forest products. The use of these resources as a need for survival created the interaction between water, forest, and livelihoods through several actions or activities: hunting, gathering, fishing, supplying water,
growing plants, and felling trees. The pattern of change in this relationship can be seen in Figure 11.

A sense of belonging to forest and water as appeared in traditional livelihoods prior to 1975 at Pok and Pang Jum Pee Village, was common in traditional communities. Indigenous people mainly depended upon a concept of traditional ecological knowledge (Kalland, 2003; Stoffle et al., 2003). This concept is a cultural transmission of knowledge, beliefs, and practices from generation to generation which emphasises the relationship between the human and non-human, and allows for a sustainability of ecosystems (Berkes, 1999; Doubleday, 1993; Hunn, 1993; Kimmerer, 2002; Ruddle, 1993). In other words, villagers were a part of water and forest as physical settings (Pierotti & Wildcat, 2000); water and natural resources in the forest were used for subsistence of households and communities in Pok and Pang Jum Pee. Traditional villagers there also recognised the meanings of natural settings, mainly showing respect for them through spiritual and religious beliefs. This inter-dependence is consistent with the environmental philosophies of eco-centrism and deep ecology generally that focus on the nature-centred; the ecosystem has intrinsic value and there is an interconnection between the ecological community, its individual people, and society (Birch & Cobb, 1985; Capra, 1995; Eckersley, 1992, 1998; Kleffel, 1996; Naess, 1993). According to Eckersley (1998, p. 50), “ecocentrism is based on an ecologically informed philosophy of internal relatedness, according to which all organisms are not simply interrelated with their environment but also constituted by those very environmental interrelationships.” Naess (1993, p. 184) also indicated that “every life form has in principle to live and blossom. As the world is made, of course, we have to kill in order to eat, but there is a basic intuition in deep ecology that we have no right to destroy other living beings without sufficient reason.”

This sense of belonging was not static: it depended upon changed circumstances internal to and external to communities, that created new vulnerabilities. A dependence on internal factors for subsistence well-being in the era of pre-modernisation prior to 1975 made villagers vulnerable; a loss of this sense of dependence appeared when external forces encouraged the living of more convenient lives and promising economic well-being in the era of development and globalisation at Pok and Pang Jum Pee Village. Pang Jum Pee Villagers subsequently struggled against the internal force of demand for economic well-being after changing to depend on cutting down trees for timber business. Globalisation is assumed to have been a cause of environmental change since it accelerated the growth of national and international trade, the national and local economy, production of goods, capitalism, and consumption (Dauvergne, 2011; R. O’Brien & Williams, 2007).
Moreover, the modernisation or westernisation embedded in globalisation, extensively manipulated politics at all levels, the economy, communication, and society in general (Kofman & Youngs, 2003). This globalisation provided impetus for the feeling of separation from their environment (M. W. Lewis, 1993; Spretnak, 1999) which engendered the concept of controlling the physical environment to serve the satisfaction or convenience of people’s lives (De Mooij, 2009; J. Pretty, 2007). This concept confirms a western viewpoint, that of anthropocentrism, being people-centred, where “human beings are primary and central in the order of things” (Steiner, 2010, p. 1). This viewpoint is also consistent with a belief that God creates everything in the universe to support human needs (Muir, 1994). The value of a natural setting is thus instrumental; it has value only when the needs of people are served (Barry, 1999; Verhagen, 2008). This leads to the practice of unlimited consumption or behaviour which disturbs the natural settings (K. Gibson et al., 2010; Leopold, 1993): the action of deforestation at Pang Jum Pee Village for continuing timber business.

When natural resources were depleted or degraded, humans find themselves in a situation where continuing their activities to survive, economic growth, and development was limited (Hardin, 1998; Meadows et al., 1998). This study argues that the vulnerabilities created by the ecological and political issues of deforestation could resurrect a sense of belonging to forest and water since villagers realised the importance of water and forest to livelihoods. This awareness is a fit with environmental global awareness and environmental ethics which focus on a moral responsibility or obligation of humans to deal with the consequences of an interaction with ecosystems (Keller, 2010; Rolston, 1989; Taylor, 2001). In particular, the damage done to pivotal natural resources, especially water, constituted the awareness of leaders to lead a community-based, or participatory, forest and water conservation to reconnect villagers’ sense of belonging. This participatory approach emerged when another external factor or global trend began influencing the villagers and the region; a trend towards an environmental consciousness that challenged communities to manage natural resources based on decentralisation of authority away from central and other government administrative levels to local communities or local resource users (Agrawal & Ostrom, 1999; Kumar, 2005; Strum, 1994; Twyman, 2000). This stimulated a sense of belonging and participatory forest and water conservation, and collective learning processes supported by external organisations was used as a social strategy.

Brown (2008) and O’Brien and Williams (2007) agreed that collective thinking and action is a key to weaken the complex and interconnected bonds of economy, society, and environment for human sustainability in the era of globalisation. In the global environmental movement, there has been an extensive contribution by community-based conservation according with the concept of sustainable development and the call for action of Agenda 21 (Campbell & Vainio-Mattila, 2003;

The participatory process allowed people to share knowledge, skills, and resources, constituting a more effective pattern of conservation (Barton, Borrini-Feyerabend, Sherbinin, & Warren, 1997). Importantly, it is a practical approach for: stimulating a sense of forest and water problems and cooperation in conservation; empowering creative thinkers and lifting the ability of self-reliance; and developing local institutions for conservation. However, Western (1994, p. 449) wrote that “the success of community-based conservation will depend on outside forces and how conducive they are to the growth and spread of conservation within and between communities”. Pagdee, Kim, & Daugherty (2006, p. 49) argued that three factors of success in community-forest management are “well-defined property rights, effective institutional arrangements, and community interests and incentives”. Hence, reconnecting a sense of being a part of natural resources required an empowerment tool such as the collective learning process that constituted community-based conservation for sustaining natural resources and livelihoods.

Importantly, these eras, or phases, of dependence, belonging, vulnerability and change, will not stop. The reconnection described in the third era here suggests another vulnerability, one recognised by the leaders of the village. The next succession may not emphasise the concepts and actions of conservation, then the awareness and participation of villagers in protecting forest and water may be weakened. Connecting the social network and managing funds for conservation are also vulnerabilities to further relationship between forest, water, and livelihoods.

In conclusion, the forest is the important physical setting that provided a place for villagers to live because of natural resources for survival such as water, food, and life-style products. A dependence of villagers upon the forest suggests a dynamic and inter-dependent relationship between forest, water, and livelihoods. The change of this relationship affected the sense of belonging and villagers’ actions towards natural resources, forest and water, which, as time passed, engaged with external and other internal forces, creating vulnerabilities. There is a suggested pattern for this change based on the experience of villagers. The sense of being a part of forest and water was common in traditional livelihood when the villages had abundant natural resources, separated from development and modernisation. The transmission of traditional ecological knowledge, beliefs, and practices encouraged subsistence well-being, a strong society typified by social inter-dependence, and culture based on spiritual beliefs.
However, subsistence well-being was vulnerable to external forces that changed the sense of belonging and traditional actions. The connection with globalisation and modernisation coming with national development policy weakened traditional livelihoods and the subsistence-base thereby constituting a more modern-type livelihood and economic base. This change separated the villagers’ consciousness of forest and water to a western-style concept of anthropocentrism which focused on the instrumental value of natural resources. Increased demand for the improvement of economic well-being led to the overuse of natural resources, affecting ecological and political issues.

These issues were themselves susceptible to the changing relationship between forest, water, and livelihoods. The village leaders responded to ecological change through a collective learning process which helped to stimulate a sense of belonging. This process convinced the villagers to realise the importance of forest and water, to carefully consume natural resources in order to support economic well-being. With its result of improving livelihoods and gaining economic benefits, the community-based forest and water conservation continued under the government’s decentralisation policy with the support of external organisations. The villagers expressed the need for conservation, which was itself related to a moral responsibility to protect natural resources, and in doing so indicated a sense of belonging to forest and water.

Interestingly, the leaders underlined the importance of ceremonial rituals for forest and water based on traditional beliefs, for building social unity which stemmed from conservation consciousness, and stimulating the sense of belonging to forest and water. The function of these traditional ceremonies will be investigated in the next chapter since it was an important strategy of community-based conservation, and therefore an integral part of the pattern of change in the relationship between forest, water, and livelihoods. In a dynamic and interdependent system, vulnerabilities of a community-based conservation like change of leadership or policy, awareness and participation of villagers, social networking and funding support, may yet transform further the sense of belonging and actions to influence the way the relationships between forest, water, and livelihoods are expressed.
Figure 11 An explanatory framework showing the dynamic and interdependent pattern of change in the relationship between forest, water, and livelihoods.
Additionally, the evidence of change in this chapter implies interesting phenomena relevant to the historical period of time between eras. The influence of globalisation on traditional livelihoods affecting natural resources occurs in a shorter time compared to other societies. In most other parts of the world, humans’ activities to survive have accumulated impacts on the natural environment over the past three centuries (Kates et al., 1990) while the history of Pok and Pang Jum Pee Village from storytelling indicates the same situation over only forty years (Barrow, 1999; Boyden, 1993). Simultaneously, elsewhere the global awareness and action to improve environmental problems commenced in the late 1800s (Beckmann, 1994; Marshall et al., 2005) and several countries response to preserve natural resources for sustainable development with local action plan in Agenda 21 since 1992 (Carew-Reid et al., 1994). Community-based conservation coinciding with this action appeared concretely and rapidly in Pang Jump Pee Village within four years after the period of forest destruction. The process of stimulating a sense of forest and water conservation is ongoing in order to sustain economic well-being for present and future generations.

Previous studies have also focused on eras of change for communities and the environment, and related these eras to economy, society, politics, and religions. Severe deforestation and political change in Thailand from 1957 and 1988 weakened an important way of life of the Buddhist Priest, making it difficult for monks to live in the forest and continue practicing meditation (Tiyavanich, 1997). Sturt’s local analysis (2010) described the way an English community changed; a traditional way of life changed due to several factors - economy, technology, and education. These examples serve to reinforce the argument that a local analysis is required to determine the periods of change, because these periods differ from place to place.

In Chapter 5, the explanatory framework of changing pattern will be connected and synthesised with the explanatory framework in the next chapter to address a conceptual framework that demonstrates the relationship between the meaning of water and sense of place.
CHAPTER 4

Collective Rituals as Meaningful Expressions of the Relationships between
People, Water, and Forest

4.1 Introduction

Religions, beliefs, traditions, or rituals have been meaningful in culture and human lives in places and societies around the world, influencing different personal and social lives in various contexts (Nye, 2008); “religion is as old as mankind and is found wherever organised communities exist” (Agorsah, 2010, p. 1). In historical and anthropological studies, it has been assumed that humans have believed in soul and life after death since pre-history, showing that every society and culture has its own belief in supernatural power (Santasombat, 2001).

Because people can give meaning to their places through their experience or interpretations, religions, beliefs, traditions, or rituals can attach people to their places and indicate symbolic meaning and sanctity to some places (Mazumdar & Mazumdar, 1993, 2004). For example, Ruback, Pandey, and Kohli (2008) described the way that Indian people regard the Ganges River as the most sacred place for worship, bathing in it, especially on auspicious days. They believe that bathing in this river can eliminate their sins. This spiritual belief creates meanings for places along the course of this river but the most popular sacred place is the Sangam, at the junction of the Ganges and Yamuna River. It involves the legendary belief that at this place, there is holy water from God for people to wash away their sins, and millions of Hindus go there for a ritual performance: worshipping God, bathing, and giving food to monks.

The importance of religion to society, culture, and sense of place is consistent with literature from across the world that emphasises the important role that religion plays in strategies of the environmental movement. Some scholars have accepted that an integration of religious studies with scientific knowledge is able to contribute to solving environmental problems (McDuffie, 2011). Farley (2002) also believed that the existence of religious or spiritual identity leads people to understand an ecological system and maintain it with religious beliefs and traditional practices. International organisations have also increased their interest in religions, traditions, or beliefs including them in environmental conservation plans, for example, the International Union for Conservation of Nature (IUCN), World Wildlife Fund (WWF), World Bank (WB), and United Nations Educational, Scientific and Cultural Organization (UNESCO)) (Chandrashekara & Sankar, 1998; Dudley, Higgins-Zogib, & Mansourian, 2009).
Additionally, practical local experiences of biodiversity conservation relating to spiritual beliefs have been found in several countries and continents: India, the United States, Africa, China, Tibet, Australia, and Zimbabwe (Salick et al., 2007). Sacred sites can become important for the preservation of biodiversity and provide benefits for local people (Wadley & Colfer, 2004). For example, after deforestation concerns, recovering the belief in sacred powers and the traditional regulation enforced by local Malshegu residents is an influential factor in the success of forest management of sacred groves in the northern region of Ghana (Dorm-Adzobu, Ampadu-Agyei, & Veit, 1991). A case study in Zimbabwe concluded that the trees in the sacred forest at the east side of Musegezi River have remained in better condition than those in the common forest on the west of that river (Byers, Clunliffe, & Hudak, 2001). It also suggested that spiritual or religious values play an important role in protecting the forest thereby enhancing the strategy of forest conservation. In Hindu tradition, most Indian people believe in the inter-dependency between human society and the surrounding context (Misra, 2007). This includes respect for the sacredness of ecology such as rivers, mountains, and animals. Misra (2007) further assumed that this Hindu belief is embedded in the Hindu way of life. Several tribal forest areas have been maintained as sacred places for gods or ancestral spirits; these places cannot be entered or disturbed. Hence, Hindu tradition allows for conservation of plants and animals in the forest. Most Asian studies also show that religious and cultural meanings in the worship of a deity or spirit of a sacred forest communicated from generation to generation can protect biodiversity in grove areas (Lebbie & Freudenberger, 1996).

In Thailand, entire ethnic groups provide strong spiritual beliefs and rituals relevant to forest management (Santasombat, 2004). For example, Lua, Khmu, and Karen people worship “Phi Rai” or the spirit of crop-farming land, ‘Phi Fai’ or the spirit of the irrigation system, and ‘Phi Fi’ or the spirit of fire. These worships gather people together and collectively perform activities to protect forest such as building fire breaks before the start of the next season of irrigated crop-farming. Some local communities especially in northern Thailand also protect the upper source of water by the worship of ‘Phi Khun Num’ or the spirit of water based on their belief in supernatural beings. Some have sought to recover spiritual beliefs in response to environmental concerns. For example, in Chom Tong District, Chiang Mai Province, Thailand, the Chom Tong watershed and environment conservation club, consisting of the leaders of a traditional irrigation system and local people, highlights the worship of the watershed spirits to weaken the conflict over watershed management between people in lowland and highland in the Inthanon Mountain region (Svetamra, 2011).
In this study, I was interested in investigating the role of the ceremonies of Buat Pa (tree ordination) and Seub Cha Ta Rum Num\(^{31}\) (longer life ritual for stream or river) at Pang Jum Pee Village in reinvigorating a sense of belonging that connected with the pattern of change in the relationship between forest, water, and livelihoods as discussed in the previous chapter. I thought that they could provide data relevant to understanding the interconnection between the meaning of water and sense of place.

As described in Chapter 2, open questions of key informants asked: 1) why did a leader need to undertake the ceremonial performances; 2) what was the meaning of these performances; 3) how and why did villagers participate in them; and 4) how did they affect the awareness of conservation, and under what circumstances.

Pang Jum Pee Village is a Buddhist base in the north of Thailand; ninety nine percent of villagers are Buddhist. They usually offer food and gifts for monks and annually perform traditional Buddhist ceremonies at the temple in the village or neighbouring villages (see additional details in the section of cultural background Page 211 Appendix A). Most of them also believe in supernatural beings such as Theveda (deity), Jao (guardian spirits), and Phee (ghosts). There are regular ceremonies for showing respect to “Sae Ban” or the guardian spirit of village and ask him for blessing and protection. Each house owner worships the guardian spirit of land who lives in the spirit house in front of each house so that land, house, and inhabitants can be protected. In addition, Jao and Phee have been in several places—forest, stream, trees, and cultivation areas—which need to be worshipped for protecting people’s lives and having abundant natural resources to earn a living (see additional detail in chapter 3 section 3.2.3).

This chapter discusses whether the spiritual and socio-cultural meanings hidden in the ceremonies of Buat Pa and Seub Cha Ta Rum Num helped attach people to a place, including whether these ceremonies acted to stimulate a collective awareness of forest and water. In the first section, the origins of such ceremonies are explored. An explanation is sought as to how the meaning of spirituality influenced attitudes and behaviours toward the natural resources that supported livelihoods. Then, the function of these ceremonies is discussed in socio-cultural terms. Subsequently, the thinking of Pang Jum Pee villagers about the future of these ceremonies is plumbed. Finally, in the discussion, the model of the role of Buat Pa and Seub cha Ta Rum is presented to explore a sense of place in terms of forest and water conservation.

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\(^{31}\) Seub Cha Ta Mae Num or Seub Cha Ta Num is sometimes substituted for Seub Cha Ta Rum Num. Seub Cha Ta is a ritual for longer life and Rum Num, Num, or Mae Num means stream or river.
4.2 The Origin of Buat Pa and Seub Cha Ta Rum Num Ceremonies on the Need for Change

The ceremonies of Buat Pa and Seub Cha Ta Rum Num have been adapted, from Thai Buddhist tradition of Buat Khon and Seub Cha Ta, as a cultural mechanism to build participation in ecological conservation. Sairoakum and Baiya (2006, pp. 35, 65-67) indicated that the ceremony of Buat Khon is the traditional base of Buat Pa, and the ceremony of Seub Cha Ta was the traditional base of Seub Cha Ta Rum Num. Buat Khon aims to prevent bad behaviour, and eliminate greed, vice, sin, and desire. Similarly, Buat Pa is the ceremonial performance for forest leading community to avoid threatened behaviour to forest or physical setting. Seub Cha Ta prays to a Thevada or deity for a blessing of protection in three ways: for people, their houses, and their village or city. Within this belief, Seub Cha Ta Rum Num is adapted to show respect to the river by praying for its protection by sacred powers. It also aims to build participation and to ensure that people respect and care for the river in their community.

The adaptation of these ceremonies is the result of a “Buddhist ecology movement, developing in Thailand and other Buddhist nations”, led by ecology monks who “are those actively engaged in environmental and conservation activities and who respond to the suffering which environmental degradation causes” (Darlington, 1998, p. 1). Since the decade of the eighties, the activist monks who lead community development, focused their movement on forest conservation in response to the priority given it in the national development policy for recovering from heavy deforestation affected by the result of heavy economic development (P. Walter, 2007). In 1988, the first ceremonial performance of Buat Pa (tree ordination) emerged at Mae Chai District, Phayao Province, the north of Thailand, led by Phrakhru Manas Natheephitak, the abbot of Photaram temple (Darlington, 2007; Morrow, 2011). Since the early nineties, Buat Pa (tree ordination) has become popular for stimulating environmental concern and building a spiritual commitment of local people in forest and watershed conservation (Darlington, 1998, 2007; Isager & Ivarsson, 2002). In 1990, Phrakhru Manas Natheephitak also established the ceremony of Seub Cha Ta Rum Num (longer life ritual for stream or river) based on his efforts to protect the upper source of water in the forest of Mae Chai District (Sairoakum & Baiya, 2006). The application of Buat Pa and Seub Cha Ta Rum Num has then expanded to the northern Thai local communities in Chiang Mai, Nan, Ultradit, and Chiang Rai Provinces, transferring learning across local communities; however, the most popular expression and experience is in Nan province, led by Phrakhru Pitak Nantakun, the abbot of Aran Yawas temple and the leader of Huk Muang Nan Network, Nan Province32 (Darlington, 2007; Udomittipong, 2000).

32Huk Muang Nan Network is the name of the organisation which takes an important role in natural resource management in Nan Province, Thailand.
In the case of Pang Jum Pee Village, the origins of Buat Pa (tree ordination) and Seub Cha Ta Rum Num (longer life ritual for stream or river) ceremonies are related to the Buddhist ecology movement when the Community Committee led by the village leader at Pang Jum Pee Village connected with an ecology monk, Phrakhru Pitak Nantakun. The stories presented by this Committee indicated that this Committee visited Huk Muang Nan Network to learn the experience of natural resource management at Huk Muaeng Nan Network supported by the Huay Hong Krai Development Study Centre. Phrakhru Pitak Nantakun then shared the ideas and performance of Buat Pa and Seub Cha Ta Rum Num for forest and water conservation. Therefore, the ceremonies of Buat Pa and Seub Cha Ta Rum Num were not traditional but they were established by the influence of external movements and concepts especially Phrakru Pitak Nantakun. After that, the Community Committee made an agreement with the villagers to lead these ceremonies as a strategy for forest and water recovery and conservation in response to the consequences of deforestation.

At that time, a drought occurred and made livelihoods difficult; it was difficult to find fish in the Mae Lai Noi stream, likewise any plants and animals in the forest (see section 3.3.2 Chapter 3). The members of the Community Committee discussed the idea of determining regulations to protect forest and water, and performing new ceremonies for forest and water learned from Huk Muaen Nan Network. This discussion occurred while Thailand Research Fund (TRF), Community-Based Research Division supported a collective learning process through community-based research (CBR) project (see section 3.4.1 chapter 3). In the meeting, they agreed to regulate restricted areas for felling trees and fishing. There was also an agreement about the aims of these ceremonial performances: 1) to show respect and gratefulness to forest and water; 2) to stimulate the awareness of conservation based on the spiritual belief in sacred power; and 3) to build participation in forest and water recovery and conservation with Pang Jum Pee villagers, neighbouring villages, and external agencies.

I thought regulation, ceremony, and “Sum Neuk” were important for conservation. The ceremony for water was a tradition in the other villages. Our village had never done it before. This ceremony was used as a means to make people believe in sacred power and build the consciousness of maintaining natural resource. I believed that after the ceremony, villagers would think more carefully about water in the stream. (Mr Prasert Jomekun)

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33 Sum Neuk means conscience about what have done to forest and water.
We totally agreed to do this ceremony to build cooperation among the villagers. Usually, they gathered to share some activities. We did it because water was drying up. We believed that Seub Cha Ta Rum Num could bring more water and would make villagers help us take care of water and forest. After that, water in the Mae Lai Noi stream increased. If nothing disturbed the stream, no one used an electric shock to stun fish, we would have fish and crab to eat in the village. (Mr Inthorn Daoawadwong)

When the Community Committee shared and discussed their agreement to perform the ceremonies of Buat Pa and Seub Cha Ta Rum Num with the villagers, there was disagreement among the villagers over performing the new ceremonies of Buat Pa (tree ordination) and Seub Cha Ta Rum Num (longer life ritual for stream or river) at the Local Learning Centre of Pang Jum Pee Village. Some villagers argued that it would be a disadvantage to their livelihood. For example, after the ceremony, the government officials were able to control the forest area so that hunters and gathers were not permitted to enter this area. Some of them were also not confident that supernatural beings could overcome the concern regarding the drought. However, most villagers agreed to perform the first ceremony on the 22nd of May 2005 and to consider what advantage it might bring. After the ceremonies were performed, villagers realised that Buat Pa and Seub Cha Ta Rum Num encouraged supernatural power to recover the Mae Lai Noi stream from drought. This recovery provided benefits for villagers’ livelihoods; having more fish to feed families and having more plants to sell. Subsequently, Buat Pa and Seub Cha Ta Rum Num became regular spiritual traditions of the Pang Jum Pee Village, once or twice a year, to continue forest and water conservation led by the Community Committee and supported by external agencies.

Mr Tong Yingyoach concluded:

*When we talked with the villagers about our ideas, some of them asked us why we needed to perform Seub Cha Ta Rum Num. We explained that it was the way to worship water for longer life and ask sacred power for helping increase water in the stream. More than half of villagers agreed with us but some of them did not want to do it because of some misunderstandings. They thought that this would block their way of earning a living because soldiers and staff officials of forestry Department were able to hold the forest. In fact, the ceremonial performance showed them our potential to do conservation ourselves. I thought the rest of villagers later agreed with the ceremonies because of their sacredness. For example, within one hour of praying, there was heavy wind and rain. It was credible to them because there had been no rain for a long time.*

Interestingly, this statement implied the issue of community rights relating to forest and water conservation. According to Hayami (1997, page 568), Karen people have used forest “based on
topographical, ecological and ritual conceptualization of the area.” The concept of rituals in Pang Jum Pee Village reinforced communal rights to use water and forest products in order to earning a living. The Community Committee deliberately and competently managed the rituals and negotiated with government officials, to provide the right for Pang Jum Pee Village to continue forest and water conservation.

4.3 Spiritual Beliefs, Buddhist Teaching, and Actions

The statements below expressed by Mr Somyod Reaunkaew, Mr Dang Thabooyoung, and Pra Suthep Janatharo, respectively, indicated the spiritual meaning of the ceremonies for forest and water as Buat Pa and Seub Cha Ta Rum Num.

*Water was the blood of our village. We could not live without water. So we needed to ‘Tum Boon’ for water. ‘Tum Boon’ meant showing gratefulness to water. For example, do not cut trees. Cutting even only one tree was a sin. To me, cutting a tree was like killing a human. When I cut a tree, I noticed the rubber running out of that tree. It looked like the blood of a human. The sound of the tree falling down was similar to somebody crying. ...Hue HueHue... Each tree absorbed water all the time. The more trees we had, the more we had water to use.*

*Forest and water had served us for a long time. They gave us food sources, habitation, and allowed us to earn a living. But people forgot about their benefits and hurt them a lot. We cut trees, used explosive or chemical substances for fishing, and polluted water with dirty washing. So, their virtue had remained with us for several life cycles. It was time to think of what we had done and showed our respect.*

*Buat Pa and Seub Cha Ta Rum Num were auspicious ceremonies. In the forest, people believed that there was a guardian spirit. We imagined that water and forest had lives and feelings just as humans do. Ceremonial performance was the way to ask sacred power for protection. We needed to do this because we had been using water in the stream for a long time and wanted to ask for forgiveness for treating water badly such as by washing dirty feet in the stream. Continuing to do it would make people regard the benevolence of water. Moreover, it would maintain spiritual tradition and religion.*

In saying these things, the villagers were expressing the following beliefs: that everything in the forest had a soul like humans and animals; that hurting any of living or non-living things meant hurting humans; and in doing so that it was either immoral or disrespectful (to both human and
non-human). They further believed that supernatural beings were spirits in the forest protecting the natural resources: Pra Mae Kong Ka or the guardian spirit of water; Pra Mae Toranee or the guardian spirit of land; and Jao Pa Jao Khao or the guardian spirit of forest. Together these spiritual beliefs were connected with people’s livelihoods, such as fishing, hunting, and drinking water provided by the stream. The importance of water and forest as basic life support was commonly believed because people could not survive without them. The ceremonies of Buat Pa (tree ordination) and Seub Cha Ta Rum Num (longer life ritual for stream or river) were therefore a way of showing respect and gratefulness for water and forest.

This meaning given by villagers was based on ancestral spiritual beliefs of Khon Muang or the local northern people in Thailand. Since ancient times, villagers in Pok and Pang Jum Pee Village had interacted with supernatural beings as discussed in the previous chapter (section 3.2.3). Some of them followed traditions and beliefs to worship the guardian spirit of a particular place to ask for protection. For example, each household established a house for the guardian spirit of land and independently showed respect to this spirit, particularly on Buddhist days or special occasions. Some gatherers and hunters also worshipped the guardian spirit of forest by giving a mouthful of food to pray for protection while they were earning a living in the forest.

These types of beliefs and practices have been similarly documented elsewhere. Darlington (2003) recorded that Khon Muang (local northern Thai people) believe in the different kinds of supernatural beings: Thevada (deities), guardian spirits, and ghosts. In general, guardian spirits have been everywhere and have protected every place and forest, comprising water, trees, earth, and agricultural areas. These beliefs influence the attitudes and behaviours of local people towards forest and natural resources.

In the Buddhist perspectives of nature, everything in the natural process is inter-dependent, mutually affecting each other so that everything in nature must be respected: soil, forest, animals, rain, and water (Kabilsingh, 1993). In the same manner, it is conceived that separation from ecology causes a negative action that damages ecosystems and leads to humans suffering (Kabilsingh, 1990). Importantly, Buddhist tradition provides a peaceful and contemplative attitude about careful use of natural resources which is in contrast with consumption of natural resources to serve demands for economic growth without limitation (P. D. Silva, 1990). In brief, the Buddhist viewpoint suggests that humans are a part of ecology34, and they need to use natural resources appropriately and harmonise with them for human survival in present and future generations.

34 Ecology is the generic term of scientific study about the relationship between living organisms and their environment or it is a system of this relationship in particular environment. The concept of ecology agrees with Buddhist viewpoint on the point that humans inextricably connect with natural settings.
Experiences of an interconnection between spiritual beliefs and Buddhist concepts have been documented in many other national and international studies of local communities. In western Tibet, Tibetan religion and tradition have protected several large junipers with some of them becoming holy sites, for example, Reting forest, 80 kilometre north of Lhasa (Mieje, Miehe, Koch, & Will, 2003, p. 325). Similarly, the biodiversity and large trees in the sacred sites of eastern Himalayan mountains of Tibet are greater than in non-sacred sites because Tibetan Indigenous people follow their belief in the sanctity of some forest areas (Salick et al., 2007). In Thailand, Leaungaramsri (1996) explained that the Karen people, an ethnic group living in the forest of Thung Yai Naresuan, Uthaithanee Province, believe that the kingdom of living and non-living things such as land, river, air, animals, and trees is interconnected with humans, and that a sacred power protects this kingdom. This belief is the basis of the manner in which the relationship between the Karen people and natural resources is maintained. Some trees are regarded as sacred trees since the soul of children, and the guardian spirits of tree and village, are found there. As a consequence, no one is permitted to fell these trees. The Karen also worship the Lord of water and land led by Hi Kho or the village ritual leader, invoking the guardian spirits and supernatural beings to provide a good harvest (Hayami, 1996).

In the case of Pang Jum Pee Village, the ceremonies of Buat Pa (tree ordination) and Seub Cha Ta Rum Num (longer life ritual for stream or river) indicated a relationship between a belief in supernatural beings and Buddhist concepts. The villagers believe that showing respect for water and forest could help recover their natural resources such as water volume, trees, water animals, and wildlife. After the ceremonies, the supernatural beings at the Local Learning Centre, Pang Jum Pee, were able to ordain adequate water in the Mae Lai Noi stream and protect everything in the forest. The worship of forest and water reinforced the recognition of the value of water and forest in supporting their lives and therefore was instrumental in the development of a sense of conservation. Most people realised that merciful actions or moral behaviours to forest and water help sustain natural resources and the people’s livelihoods for each generation. As Mrs Vilai Yingyoach stated:

_"I did not know whether there was sacred power or not. I just knew that we worshipped something in one place and I thought that there was sacred power there. I could not show disrespectful behaviour to him even though it was impossible to see him clearly. It was in our minds that we believed in something. After the worship of water and forest, everything was better. We had a lot of water. We had a lot of fish. Previously, there was no fish, no shrimp. People could do anything they wanted because of no conservation; they could cut trees, they could burn forest, and they could use electric shock to stun fish. Now, people had gained awareness. They did not want to do these bad behaviours again."_
The sections below discuss the activities during ceremonies of Buat Pa and Seub Cha Ta Rum Num, in relation to: 1) how Pang Jum Pee villagers worship supernatural beings for water and forest protection; and 2) how these ceremonies affected the actions of villagers towards conservation areas in the forest.

4.3.1 Showing Respect to Supernatural Beings

Spiritual beliefs and rituals relating to forest and water recovery and protection can be traced to Buddhist legends. Kabilsingh (1998) mentioned that the Bodhi-tree and its direct descendants have been protected as the sacred and significant tree since Buddha achieved enlightenment under it. Buddha could also request the rain to overcome drought and water animals’ lives. Thai history reveals the request for rain by King Taksin, who ruled Thailand from 1767 – 1782 A.D.; “Buddhists still believe that people with perfections can actually request rain” (Kabilsingh, 1998, p. 89). Xu et al., (2005) indicated that the Dai people, an ethnic group, in Xishuangbanna, southwest China, regard and worship water as being of the most important for life. They also mentioned the Naxi people or an ethnic group in southwest China who worshipped Shu or the spirit of nature at a water source or pond near the village. These people believed that Shu can repair damaged common properties: mountains, rivers, forests, birds, and wild animals, hence providing a better livelihood. After being worshipped, Shu will also protect people and the village from any evils, and will provide great production and prosperity. In the area of forest dependence and agriculture of northern Thailand, Liang Phii Khun Num or the worship of the spirit of water and land, praying to have adequate water and greater production, also appears in the communities of ethnic groups as Karen, Arka, Lahoo, Leesoo, and Hmong, and the communities of Khon Muang as Ta Lard Kee Lek Village, Doi Sa Ket District, and Mae Fax Village, Sansai District, Chiang Mai Province (Panichareon, 1993; Sattakorn, 2010; Wattanapon, 2002). These beliefs imply an impetus of supernatural beings to control natural phenomena and the use of natural resources. Such is consistent with the statements that social rituals for natural resources and spiritual belief in Buddhism connect with morality to serve basic human needs such as food, water, and production (Tambiah, 1970).

At Pang Jum Pee Village, the ceremonies of Buat Pa and Seub Cha Ta Rum Num emphasised the importance and the awareness of forest and water to sustain villager livelihoods. To show respect to forest and water, the village leader and the Community Committee were the main leaders. They selected the area of the Local Learning Centre, Pang Jum Pee, to be the centre of the ceremonial performances since it was the centre of conservation. After the ceremonies, most villagers believed that this Centre was the sacred site of supernatural beings, especially restricted fishing and wildlife conservation zone.
I observed and participated in three main regular performances in sequence, based on spiritual beliefs of local northern people in 27-28 May 2011, and held conversations with other participants; these experiences are described next, along with the insights gained from document analysis. The first performance showed the traditional parade of Pra Oop Pa Koot who was regarded as the highest level of supernatural power on the ceremonial day. The villagers believed that Pra Oop Pa Koot could ordain rainy or sunny days and protect the ceremonial performances from any harm or demons. The second, Thao Tongue See or the deities of four directions, needed to be worshipped before worship of Jao Ti or the guardian spirit of land. Thirdly, Seub Cha Ta Rum Num or longer life rituals for river or stream and Buat Pa or tree ordination were performed.

The Parade of ‘Pra Oop Pa Koot’

Pra Oop Pa Koot was a holy symbol that the Pang Jum Pee villagers have respected and regarded as the guardian spirit of river or Pra Mae Kong Ka, since ancient times. In Buddhist legend, he lived in the middle of the ocean in order to maintain Buddhism and had the supernatural power to conquer demons. The parade and worship, before starting any religious rituals, were the traditional practices to ask for protection of the ritual’s performances from any demon or harm. According to Pra Suthep Janatharo:

*Pra Oop Pa Koot was a Buddhist Saint born three hundred years after Buddha died. In 669, the King Tilokaraj invited the monk from Sri Lanka to help him change Buddhist scripture. This monk told him to invite Pra Oop Pa Koot to prevent demons disturbing this change. However, Chiang Mai was far away from the ocean. So the monk said to just imagine a stone in the big river of Chiang Mai as Pra Oop Pa Koot. Then, the king set the parade to the Ping River and prayed to one stone ‘please tell Pra Oop Pa Koot at the middle of Indian ocean - through this river to protect the seventh ceremony of changing Buddhist scripture’. Later, this stone was taken into a special place until completion of this ceremony. Since then, people in Chiang Mai had imitated the parade of Pra Oop Pa Koot to stop demons affecting any religious events.*

Simultaneously, the parade and worship of Pra Oop Pa Koot were adapted for the ceremonies of Buat Pa and Seub Cha Ta Rum Num. People believed that Pra Oop Pa Koot had a sacred power to ordain water balance at the upper source of forest and water in the Mae Lai Noi stream. Mr Tong Yingyoach averred his belief in this way:

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35 The King Tilokaraj was the ninth king of Lanna Kingdom, Meng Rai Dynasty.
36 Ping River is a tributary of Chaophraya River which has the origin in Chiang Rai Province, the north of Thailand; it flows south into Chiang Mai, Tak, and Kamphaeng Phet Provinces.

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I was sure that there was sacred power. In the first year of the ceremony, there had been no rain for such a long time. Incredibly, after a leader at the performance asked ‘Pra Oop Pa Koot’ for rain, there was heavy rain. Conversely, in the following year, we asked him to stop it. Rain was then stopped after making this wish. It was incredible!

At 2.00 p.m. on 27 May 2011, I participated in and observed the parade and worship of Pra Oop Pa Koot in the Mae Lai Noi stream at the Local Learning Centre, Pang Jum Pee (see the set of Pictures 3). Mr Thavorn Jina held the ‘Parn’, an offering tray with flowers and joss sticks, in front of the parade of villagers along the bank of the Mae Lai Noi stream. While some villagers were walking, others were performing a local dance and instrumental music joyfully: ‘Mong Tum Mong, Mong Tum Mong, Mong Tum Mong...’ (the music sound). When they reached Ta Bun Dai waterfall on the stream, they paused, waiting for a man who clambered down to grasp a stone. This stone was then regarded as Pra Oop Pa Koot and was placed on the ‘Parn’. Mr Thavorn then held the Parn above his head and prayed quietly seeking a blessing, after which, the parade of Pra Oop Pa Koot restarted. The Parn with Pra Oop Pa Koot was placed on the stall which was regarded as the temporary holy place for Pra Oop Pa Koot in the middle of the Mae Lai Noi stream. When the ceremonies of Buat Pa and Seub Cha Ta Rum Num were completed, Pra Oop Pa Koot was invited back to the same water place from which it was taken. Mr Thavorn Jina explained:

I prayed for a blessing from Pra Oop Pa Koot; please protect our water, do not have calamity, and give success for the rituals or activities. Usually, the parade of villagers

Pictures 3 The sequence of the parade of ‘Pra Oop Pa Koot’; photos taken on 27 May 2011
headed to the Mae Lai Noi stream because people believed that Pra Oop Pa Koot was in
the water.

The Worship of ‘Thao Tongue See’ and ‘Jao Ti’

It was the ancient belief of Buddhism to worship Thao Tongue See and JaoTi before
performing any auspicious ceremonies.

These words of Mr Thavorn Jina preface this explanation. Thao Tongue See means the deities of
four directions; north, east, south, and west. Worship of these deities was aimed at invoking the
deities and praying for blessing so that participants and forests were protected from any harm on
the ceremonial day of Buat Pa and Seub Cha Ta Rum Num. After this performance, Jao Ti or the
guardian spirit of land was worshipped in order to invite him to protect the water of the Mae Lai
Noi stream and everything in the forested area of the Local Learning Centre. The worship of Thao
Tongue See and Jao Ti showed the sanctity of supernatural beings and their ability to ordain
abundant water in the stream and protect trees in the forest.

Pictures 4 Showing offerings and
worship of ‘Thao Tongue See’ and ‘Jao
Ti’ at the spirit house near the Local
Learning Centre, Pang Jum Pee, led by
‘Poo Jarn’ or performance leader;
photos taken on 28 May 2011
Based on participatory observation at 7.00 a.m. on 28 May 2012, Mr Thavorn and his assistant prepared offerings for Thao Tongue See and Jao Ti at the wooden guardian spirit house of the Local Learning Centre. Mr Thavorn lit a joss stick and worshipped Thao Tongue See and Jao Ti showing respect and praying for blessing. The offerings to Thao Tongue See were in rectangular containers made of banana stalks (see the set of Pictures 4). The main offerings were prepared in containers composing of “Mark” or raw betel nut, “Proo” or betel, tea leaves for chewing, and cigarettes, while, the Jao Ti offerings included chicken, rice, a snack, dessert, fruit, a flower, a candle, and joss stick. This spirit house was established through the cooperation of villagers to symbolise the sacred power of Jao Ti or the guardian spirit of land who lived there to protect water and forest in the area of the Local Learning Centre. In addition to worshipping Jao Ti on the ceremonial day of Buat Pa and Seub Cha Ta Rum Num, people were allowed to worship Jao Ti independently at other times with snack, fruit, or a flower offerings, especially when they needed to earn a living near the Local Learning Centre, when visitors had to stay for overnights at the centre, or during celebrations of annual festival such as Thai Happy New year or Songkran festival.

‘Seub Cha Ta Rum Num’ and ‘Buat Pa’

Seub Cha Ta Rum Num or the longer life ritual for water in the Mae Lai Noi stream was performed on 28 May 2012 after the worship of Thao Tongue See and Jao Ti. In this performance, a holy thread line connected the Buddhist holy table to Sum Klang Num and the stall of Pra Oop Pa Koot in the middle of the Mae Lai Noi stream (see the set of Pictures 5). The Sum Klang Num was the triangle booth composed of holy offerings for sacred power and auspicious lives: coconut, banana tree, sugar cane, and raw betel nut, including a bamboo tube of sand, water, rice, and paddy rice. In the assembly hall, Mr Thavorn Jina led the ceremonial performance with eleven Buddhist Priests. While the Buddhist Priests were praying for blessings and longer life, participants paid respect to the holy ceremony by ‘Karn Wai’37 (see the set of Pictures 5). An hour later, eleven men were invited to give offerings to the monks before one Buddhist Priest sprinkled magic water on everybody in the assembly hall to foster auspicious lives. Food was offered to all Buddhist Priests after the ceremony was completed.

37Karn Wai aims to show respect to supernatural beings by bringing two hands together and holding them close to the chest or in prayer position.
In some years, Buat Pa or tree ordination was performed nearby in the area of the Local Learning Centre after Seub Cha Ta Rum Num. The ordination aimed to protect and allow some trees to grow in the higher areas of the forest. Mr Thavorn Jina described this practice in which Buddhist Priests prayed for protection in front of one tree and wrapped it with the yellow fabric (see the set of Pictures 6). Subsequently, several villagers followed by wrapping other trees growing in the ceremonial area. This performance was based on the Buddhist belief in the sacredness of the yellow cloth worn by a Buddhist monk. The residents of the Pang Jum Pee Village believed that yellow cloth - the symbol of a Buddhist Priest - required everybody's respect. As Mr Inthorn Daowadwong explained:

Yellow cloth was the sacred thing. Buat Pa was a way to keep trees. Yellow cloth on one tree meant that people could not cut down this tree. Monks had already prayed for it to be so. So, everybody needed to let it grow in the forest. People respected and worshipped yellow cloth on trees as they did for monks who wore yellow cloth.

Pictures 5 Showing ‘Seub Cha Ta Rum Num’ performance at the Local Learning Centre; photos taken on 28 May 2011

Pictures 6 Wrapping of yellow fabric during the ceremony of ‘Buat Pa’; photos provided by an assistant village leader in May 2012
4.4.2 Moral Behaviours at the Sacred Site

This topic presents a short example of a northern dialect’s holy promise written by Pra Suthep Janatharo, the abbot of Aramkuntaivek temple in 2009 which was provided by an assistant village leader in May 2012. When translated from northern dialect to Thai language, there were some terms used that I did not understand and I consulted some villagers about them. The translation from Thai to English was then checked with the Thai co-supervisor to ensure accuracy. This holy promise began with an invitation to the variety of deities and/or guardian spirits to accept the offerings from Pang Jum Pee villagers. Next, it indicated a confession of guilt and awareness of previous bad actions to both forest and water which caused problems in livelihoods such as cutting down trees, burning the forest, and using chemical substances for fishing. The villagers then made a promise in front of all supernatural beings to behave appropriately to forest and water protection. This promise also threatens the consequences for those who do not conform. It was avowed as:

...Ohmm\(^{38}\) Tae Va Ar Rak, Pra Mae Kong Ka, Pra Mae Thoranee\(^{39}\), and all supernatural power in front of the sky, in front of the earth, in front of Buddha, Buddhist doctrine, and Buddhist Priest we promise to Pra Mae Thoranee: to stop ravaging behaviour, to stop burning trees, to stop pouring toxic substances into ground surface and greedily occupying the land. From now on, everybody will follow the regulation of forest and water, and not invade the land beyond each border. Whoever violates these will be destined to face calamity. Pra Mae Thoranee will punish that person: pump into the earth.

Ohmm... Tae Va Ar Rak, guardian spirit, small and big plants, animals having two or four legs, and animals having no legs, animals living on the ground surface, animals flying in the sky, animals living in the forest, small animals, we promise that from now on, we will not do anything bad to Rook Kha Tae Wa\(^{40}\). We will not be greedy with a little money. We will not sneak to cut tree for selling. If we need to fix a house damaged by flood, fire or storm, we will ask for permission from staff officials or Community Committee. After getting permission, we will request Rook Kha Tae Wa that we can cut trees. Then, we will cut trees, but only for building houses. Whoever will not follow this promise will be destined to have a failed life. No sickness disturbs a person who has a genuine heart, always sacrifices his force to grow trees for the earth, protects forest, stops burning forest

\(^{38}\)Ohmm is a chanting word.

\(^{39}\)Tae Va Ar Ruk means deity, Pra Mae Kong Ka means the guardian spirit of water, and Pra Mae Thoranee means the guardian spirit of earth.

\(^{40}\)Rook Kha Tae Wa means deity.
to keep any small and large animals in their habitat, and shows mercy to wildlife and does not hunt it. This person will be destined to flourish and be happy.

...Ohmm... Pra Prom, Pra Peung, Pra Prai, Pra Na Rai, and Pra E Saun\textsuperscript{41}, please witness us. If a person cheats, does not support water animals but damages water animals with chemical substances or makes them die for eating at any time, this person will be destined to have a big stomach and a lot of pus in their intestines. This will not be treatable by any doctors even if this person has a million to pay for any treatment. Jao Pa Jao Khao\textsuperscript{42}, please take care of animals in the forest, let them grow well. Whoever hunted any small and big animals in the conservation zone with a gun or any weapons will be destined to suffer within three or seven days.

...This holy promise is aimed at keeping nature: forest, river, stream, water animals, and wildlife. It will reduce the problem of global warming, will prevent the end of this world. Person who agrees with this promise will be ordained to be happy and flourish. A person who thinks it is silly will be ordained to suffer great harm. Relatives of this person will also be damaged without any doubt. Sa Tha Sod Tee Pa wan TuTe.\textsuperscript{43}...

The ceremony for giving this holy promise was once performed on the day of Buat Pa and Seub Cha Ta Rum Num in May 2009. This having occurred, the Community Committee agreed to adapt their traditional beliefs in sacred power to emphasise a sense of conservation and to prevent behaviours that disturbed forest, water, and animals. This promise accorded with the agreement of villagers to enforce the regulation of water and forest conservation as adopted in 2005. This regulation restricted felling trees in the forest area of Pang Jum Pee Village, and declared a restricted fishing zone one kilometre at Ta Bun Dai Waterfall within the area of the Local Learning Centre (see Map 8 Page 205 in Appendix A). A restricted hunting zone of 600 rai or 96 hectares was also determined in 2009, near to the Local Learning Centre (see Map 8 Page 205 Appendix A). Within these conservation zones, the Community Committee believed that the holy promise could help build faith and sacredness since the villagers respected supernatural beings; they feared being punished by sacred power rather than paying fines for breaking the regulation of forest and water conservation.

On the day of the ceremony, the chanter from Doi Sa Ket District was invited to chant this holy promise. Prior to chanting, there was the formal grand opening of the wildlife conservation zone similar to that of the formal declaration of the fishing conservation zone or fish house in 2006.

\textsuperscript{41}Pra Prom, Pra Peung, Pra Prai, Pra Na Rai, and Pra E Saun are the names of deities.
\textsuperscript{42}Jao Pa Jao Khao is the guardian spirit of forest.
\textsuperscript{43}Sa Tha Sod Tee Pa wan TuTe are the words of chant.
Interestingly, the chanting of the holy promise prompted awareness of previous mistakes and the taking of new actions for conservation henceforth. The chanting words and voices invoked the fear of a sacred power that guarded and protected water and forest. This fear stimulated positive attitudes and behaviours of some villagers, for example, in relation to controlling the use of trees and animals in the forest, particularly in the restricted fishing and hunting zone.

This ceremony showed our pride. People believed that the sacred power protected forest and water even though no one saw him. We just knew that after performing the ceremony, water and fish returned. I never burned forest and I helped to stop forest fires. Most people were aware of the area of prohibited hunting of wildlife. I was not greedy and did not break conservation rules. I realised that I could get anything I needed from other places. Previously, someone was stubborn, still hunted wildlife in the conservation area. This showed selfishness and disrespect to the conservation agreement. So, we needed to rely on the sacred power to stop this person. Listening to promise words was awful. It made me fear. It made my tears roll down. I still kept these words in my mind.

(Mrs Vilai Yingyoach)

I did not dare to catch fish or hunt wildlife because of the promise words. I remembered what someone chanted on the day of Seub Cha Ta Rum Num. On the same day, we let young fish grow in the fish house and let young wildlife grow in the wildlife zone.

Whenever I went hunting, I thought of those words and ceremonies. Everybody had fear when they thought of the promise words. I thought no one dared to shoot animals in the conservation area. People who went trekking also watched out for people who disobeyed the promise. Hunters let animals go when they saw them running into the conservation area. They were not greedy or selfish to obtain animals from there. (Mr Song Jaima)

After the ceremony, the area of Local Learning Centre, Pang Jum Pee or the Centre of the conservation and ceremonial performance, became the sacred site. Most villagers believed that supernatural beings resided there to protect water, forests, plants, and animals, and they would be punished individually if a person broke the holy promise.

This experience of a sacred site based on ceremony and spiritual beliefs has appeared elsewhere in Thailand and in other international localised communities. Leepreesha and Vanishpradit (2009) reported that Hmong people at Mae Sa Mai Village, Mae Rim District Chiang Mai, Thailand, maintain their beliefs and rituals that affect appropriate use of natural resources. There are to be several sacred areas, for example, ‘Haudlej’ or the upper forest or water source, ‘Qhovdlejtxhawv’

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44 Most villagers called the restricted fishing area at Ta Bun Dai waterfall as ‘fish house’.
or the area of seepage water, and ‘Haavva’ or marsh. In these areas, the sacred power does not permit anybody to perform activities or evidence disrespectful behaviours such as collecting plants, scratching trees, or urinating or deposition of faeces. A disobedient person will be punished or ordained to be suffered by the actions of devils, ghosts, or guardian spirits. They also indicated that Hmong people believed in the soul of a human depending upon the soul of ecology; humans will be healthy in a healthy ecology. To protect humans and the ecology from a natural disaster, they regard a big stone or tree as a protective symbol of the guardian spirit and worship it. Marafa (2003) also suggested that the physical environment constructs culture and spirituality and thus affects forest management. For example, the sacred grove in Feng Shui village, Hong Kong symbolises the importance of restricted areas to control the use of ecosystems through local tradition or belief. The same symbolic thought also occurs in areas of India, Kenya, Japan, and China, where biodiversity can be maintained and where symbols of sacredness exist, such as large sacred trees, temples, and shrines.

Importantly, in Pang Jum Pee Village, there was an interconnection between the belief in the sacredness of a holy promise and the Buddhist moral principle that provided an impetus for stimulating the sense of conservation. To encourage a happy and peaceful society, Buddha suggested people to behave in a good way towards themselves and everything else. How people act would affect the self, based on the belief in Karma: good behaviour provided a good result but bad behaviour provided a bad result. Some villagers considered that breaking the holy promise made in the sacred ceremony was a sin and resulted in bad karma since it was as effective as breaking any precepts. For example, killing animals in the conservation area is obvious; and cutting down trees without permission is the same as stealing the possessions of a sacred power, stealing from themselves and other villagers. Hence morality, found within the holy promise in front of the sacred power, was able to help stimulate the consciousness to behave appropriately towards plants and animals in the forest.

_I believed in the promise words. It told us ‘do not do this’, ‘do not do that’. I did not want to break it. Breaking it would not be good for me. At least, a person who never believed in anything should think about this promise before doing something. The promise words were already in my mind. It was like a precept. What I did wrong meant I broke precept. For example, taking anything in the prohibited area meant that I stole something. ‘There was the sacred power here. No one could do something bad.’ I thought the sacred power was precept. Breaking precept meant breaking promise to sacred power._ (Mrs Vilai Yingyoach)

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45Buddhism regards five precepts as basic to the principle of being well-behaved: do not kill animals, do not steal others’ possessions, do not lie, do not succumb to mistaken desires, and do not drink alcohol.
Wrapping yellow clothes on trees and giving promised words made me afraid of cutting trees. A person who cut trees with yellow cloth will be destined to be sick. I did not know whether this thing was true but I believed in it. I did not dare to cut those trees because of the yellow cloth. I had the awareness that those trees were ordained the same as people who were ordained. No one could kill monks because people knew that killing a monk was a great sin. Likewise, people could not kill trees with yellow cloth. Without sacred power to punish us, people could get everything in the forest. (Mr Chamnan Udcome)

The influences of spiritual belief and the fear of supernatural power on the sense of conservation and moral behaviour relate to Buddhist cosmology and specifically as it relates to karma and reincarnation. Thai Buddhist cosmology divides the world into three levels: heavens or the place for deities or celestial beings; earth or the place for humans; and hell or the dwelling place of ghosts or spirits (Darlington, 2003). Reincarnation of human and sentient beings to any of these levels depends upon karma. According to Keown (1996, p. 39), “Karma functions as the elevator that takes people from one floor of the building to another, and the Buddha defined karma by reference to moral choices and the acts consequent upon them.” The future or destiny of humans thus depends on self actions; it is not determined by any supernatural beings (Sponsel & Natadecha-Sponsel, 2003). Moral decisions and actions influence people to obtain good consequences and to have a better rebirth. In contrast, immoral decisions and actions lead people to obtain poor consequences and to have a worse rebirth. In Buddhist teaching, morality or correct action is one of the Noble eightfold path in the Four Noble Truths⁴⁶, the pathway to end suffering of human beings (Kapur-Fic, 1998; Pond, 2003; Sponsel & Natadecha-Sponsel, 2003). This moral action follows the five basic precepts of Buddhism and is related to “the cultivation of compassion and sympathy for all living beings” (L. D. Silva, 2000, p. 96). Immoral action can create guilt or sin and affects individual karma and reincarnation (Forrest, 1994). In the case of Pang Jum Pee Village, the ceremonies of Buat Pa and Seub Cha Ta Rum Num helped to connect the relationship between human beings and supernatural beings. This relationship influenced the fear of being punished by supernatural beings and the fear of karma both of which were able to help stimulate morality to control the use of trees, water, animals, and plants in the forests. This implied that the beliefs and fear of supernatural beings encouraged values of conservation based on Buddhist concepts and practices. According to Silva (2000), the reconstruction of morality to recover natural resources for longer human life affirms the Buddhist concept of inter-dependent relationship between humans and natural settings.

⁴⁶ Four Noble Truths mean: 1) all existence is suffering; 2) suffering is caused by ignorance and desire; 3) suffering can end; and 4) the way to end suffering is the Noble eightfold path. In the Noble eightfold path, there are eight components: 1) right understanding; 2) right resolve; 3) right speech; 4) right action; 5) right livelihood; 6) right effort; 7) right mindfulness; and 8) right meditation.
4.4 Reconstructing Socio-Cultural Space and Collective Sense of Conservation

The statement below by Mr. Vilai Yingyoach suggests a socio-cultural meaning hidden in the rituals of Buat Pa (tree ordination) and Seub Cha Ta Rum Num (longer life ritual for stream or river). It connects sense of community (or a sense of belonging) with the terms of conservation.

*If we were only saying conservation, it would not involve participation. Imagine that a few people wanted to conserve forest but had never done anything. No one wanted to participate with them. Or if only one person said 'do not cut tree, do not take banana leaves', people would be angry and hate this person. They would say 'conserve for what? want to use alone?' The ceremonial performance revealed the area of conservation. Everybody needed to know and accept it through ceremony. Without ceremony, people would talk separately and someone might ignore it. Someone might say 'I did not know, no one told me'. So, the ceremonial performance was a declaration or promise for everybody to keep conservation area in their own mind, without any document.*

Since the first ceremonies in 2005, Buat Pa and Seub Cha Ta Rum Num have been continuously performed as village events or rituals through the social spirit of the Pang Jum Pee villagers. This continuity has helped stimulate a collective sense of commitment to maintaining common natural resources in the forest for sustainable uses. In this sense, the Community Committee at Pang Jum Pee Village took the main lead in the ritual’s performances. This Committee believed that the message of conservation embedded in ritual performance could help stimulate the awareness of forest and water protection since participation in social activities and religious performances was the socio-cultural basis for the Pang Jum Pee villagers’ actions. As Mr. Sujit Jaima recalled:

*People still help each other in the village events and religious ceremonies. So, I thought that Buat Pa and Seub Cha Ta could make people get together and agree with conservation.*

The belief of the Community Committee in social unity embedded in ritual performances for conservation was consistent with past research. For example, Roberston Smith cited by Hamilton (1995, p. 98) claimed that “religion has two functions, regulative and stimulative. Regulation of individual behaviour is important for the good of all, or in other words, the group, and it is religion which has been largely responsible for this regulative task in the history of human societies.” Similarly, religious belief, tradition, or ritual embedded in society or community can develop a sense of place (Krieken et al., 2000; Mazumdar & Mazumdar, 2004). Sharing religious thoughts, beliefs, and practices helps construct social cohesion and collective consciousness towards social concern or affairs (Durkheim, 1965, 2001).
However, ritual is not only performance but also a transmitted message (Rappaport, 1999). Each message in ritual usually implies the meaning of each action; for example, praying before having meals reminds one of the devotion of animals and plants species in providing human food (Coleman, 1999). In the case of Pang Jum Pee Village, the ritual’s performances of the forest and water functioned as socio-cultural mechanism to transmit and emphasise a message. To continue stimulating a collective awareness of conservation, the Community Committee managed to involve participants, both inside and outside the village, in the ceremonies for forest and water, and to show how necessary it was to have their cooperation in conservation.

The next section discusses the manner in which Pang Jum Pee villagers showed a sense of community in the rituals of Buat Pa and Seub Cha Ta Rum Num; and how these rituals helped connect the village with a social network of conservation that included neighbouring villages and external agencies.

4.4.1 Social Unity of Pang Jum Pee Villagers

Social unity commonly appears in rituals that engage people within the same social values and ideological beliefs (Sosis & Ruffle, 2003). This cooperation requires communication for a better understanding about the need for a ritual’s performance and the sharing of ideas and facts for collective agreement (Bauman & May, 2001). Mazumdar and Mazumdar (2004, p. 387) contended that, “Acting as collectives, persons can develop strong attachment to places religions considers [sic] significant or a place that the collective feels is significant.” Community implies a sense that people want to share beliefs, faith, needs, and responsibilities with other people when they are members of that group of people (Dalton et al., 2007; McMillan, 1996; McMillan & Chavis, 1986; Sarason, 1974). According to McMillan and Chavis (Dalton et al., 2007; McMillan, 1996; McMillan & Chavis, 1986), sense of community is composed of four elements: 1) sense of belonging and being a member in a community; 2) vertical power of members that influences collective or individual decision and action; 3) social inter-dependence to satisfy the needs of a community; and 4) sharing emotional connection or spiritual bonds through events in a community (rituals, occasions, and stories).

In the case of Pang Jump Pee Village, the ritual’s performances of Buat Pa and Seub Cha Ta Rum Num created social interaction and cooperation among the villagers so helping them to address forest and water conservation. To create this interaction, the Community Committee at Pang Jum Pee Village was pivotal in leading village members to express social unity or cooperation in the ritual’s performances of the village. As described in Chapter 3, they organised the meeting to communicate the aim of the ceremonial performances and permitted village inhabitants to discuss ideas, facts, plans, and situations before making a collective decision or agreement.
Subsequently, the Community Committee and the villagers shared their obligations and roles to undertake collective actions in ritual performance, for example, inviting participants and Buddhist monks, raising funds, cleaning the village and the Mae Lai Noi stream, preparing sites and appliances, welcoming guests, and security tasks (see Appendix E for details of how these tasks were undertaken as part of the ceremonies). In addition, the role of a Buddhist monk in Buat Pa and Seub Cha Ta Rum Num is similar to the villagers. The Community Committee invited a Buddhist monk to participate and share his idea and responsibility in the village meeting. He usually worked with a performance leader to organise and perform Buddhist ceremonies.

Importantly, each participant agreed to use a traditional social rule to stimulate social unity or sense of community in each household. This rule was a common one for any important events or activities at the Pang Jum Pee Village, and had been accepted for a long time. It indicated that at least one person of each household had to cooperate in each of the activities for a ritual’s performance. If a member of any household did not go to help other people, this household would be fined 200 baht per day, this amount being linked to the daily wage rate. The amounts of these fines were accumulated and managed by the Community Committee as collective funds for supporting fuel for the village lawn mower or any social activities. However, it was flexible, for example, any household could hire somebody to work for them instead of being fined. There were exceptions for special events in households such as sickness, accident, or death. In general, whoever broke the rule needed to discuss their situation with the villagers and the Community Committee at the village meeting.

According to Mr Prasert Jomekun:

*It was impossible to persuade everybody to help with the village activities. So, we needed to motivate people’s spirit or sacrifice by social rule. The head of each pok[^47] knew who came to help or not. Sometimes, villagers told me who did not go. The leader needed to have the ability to convince people to help. For me, I politely talked and asked people for help. When I knew who did not go, I had to tell them to talk with other people in the village meeting. He would be asked why he did not go to help. Then, villagers considered whether he should be fined or what he should do next, for example, be given the chance for going next time. This way could increase participation of villagers.*

Mr Thanakorn Katiya expressed it this way:

*Without the rule, people could feel unfairly treated and would not want to cooperate any more. They could say no one blamed a person who did not go; never saw him in a village*

[^47]: The additional detail of the head of Pok (group of housing) is provided in Figure 1 Page 217 Appendix A.
activity. This will make people feel discouraged and think that it was not necessary to go. They would say it was better to work for wages because one person could do this while other people were working without payment.

Mr Sujit Jaima concluded:

_A few families never followed the rule or helped others. People thought they took advantage of them. They went to work for wages while everybody sacrificed time for village activities. Mostly, we rarely fined them but such stubborn people never came and never changed. Perhaps, we needed another social rule to force this kind of people; for example, no one will join their special events._

After the meeting, the Community Committee and the villagers realised their mutual social agreement and obligations. For example, on the 15th, 22nd, and 27th of May 2012, to prepare for the ritual’s performances, the Community Committee managed villagers and the villagers volunteered to share jobs.

_The committee needed to tell the villagers to do this job, that job. Sometimes, villagers did not know what to do. So, it was our responsibility to lead them. But it did not mean the committee controlled or commanded villagers. Just tell them to do something that needed to be done. What we told them depended upon the ability of each person as well._ (Mr Prasert Jomekun)

_**I did general tasks such as building the fish house and cleaning the stream. The Community Committee led villagers to help them and villagers could do any jobs they wanted. Sometimes, they needed to select some people for one job such as weaving bamboo baskets, growing young plants, fixing a roof, building a stage, and repairing a wooden bridge. One committee member usually led around ten people. But we never formally told each other who led whom. We understood each other because we had worked together for many years._ (Mr Tong Yingyoach)

Most villagers followed the directives and collective agreements with the Community Committee: responsibility to help with the activities in village events and avoidance of being fined via the social rule. For example, a man building a stage thought that, “The committee asked us for help and did not give any wage. Everybody also agreed with a fine for people who did not go. So we needed to share jobs.” Three women also agreed that they chose to help other people because they did not want to pay the fine. Some of them wanted to show social unity or a sense of community in forest and water conservation.
Mr Chamnan Udcome expressed his feelings about cooperating in the ritual’s arrangement:

*Each time, I went to help other people do any jobs. I had a common sense that I needed to do this because I lived with many people here. No one could live alone. Nobody would help me when I needed it if I never cooperated with anything. This showed that people depended upon each other.*

Mrs Vilai Yingyoach agreed with the following statements:

*People get together for performing a religious ceremony. Without ceremony, people would not be in unity. Most people helped others because they thought about unity and conservation. They wanted to have abundant water and forest for further use. We did it for everybody and our descendants. We would have water and forest for them.*

Overall, this social interaction in the conduct of Buat Pa and Seub Cha Ta Rum Num rituals suggested a sense of community that accorded with the four elements comprising a sense of community proposed by McMillan and Chavis (1986). Villagers as members of community were able to share in decisions, social responsibility, and spiritual bonds since they had the same needs to conserve forest and water through participating in the ritual’s performances. However, creating the space for villagers to express this sense of community required leadership; in this case it was the Community Committee at Pang Jum Pee Village. This leadership created its own obligation to connect spiritual bonds with community members to achieve their aims for forest and water conservation, particularly by organising meetings to build participation through discussion, decision making, and action.

### 4.4.2 Connecting Social Networks with Hua Wat Tradition

Reciprocity is an important element of culture embedded in societies. Becker (1986, p. 3) postulated that “reciprocity is a fundamental virtue and moral obligation: returning the good we receive and making reparation for the harm we have done”. This agreed with Gouldner (1960) on the point of moral action and obligation hidden in the norm of reciprocity or pattern of exchange. Some have reciprocity as an obligation to be kind without expecting any return or exchange (Fehr & Gachter, 2000). The strong moral obligation of reciprocity can empower social norms and cohesion to a degree that exceeds cooperation in social action (Fehr, Fishchbacher, & Gachter, 2002). For example, the norm of gift exchange, which builds reciprocal obligation in American, African, and Asian societies, engages with religion, society, economy, and politics (Yan, 1996). By this norm, most Chinese people relate through casual social networks rather than formal social
institutions. Also, a study in Banmai, a Yunnan Chinese Village in northern Thailand (Huang, 2009) indicated that the culture of reciprocity in family and social rituals or traditions can facilitate the inter-personal relationships which are beneficial for helping one another in life, especially in difficult situations.

In Southeast Asia, Swearer (2010) proposed that the culture of reciprocity underpins robust religious practices or rituals. The reciprocal relationship between Buddhist people and monks commonly appears in merit-making rituals; Buddhist people offer food, gifts, or money to Buddhist monks and Buddhist monks reward them by spiritual blessings. These rituals can be individually performed such as giving food for monks in the morning or at the temple or monastery. Swearer described the popular collective ritual for merit-making performance such as the Kathina ceremony. People from the same village and another village or urban area usually participate in this ceremony to offer monks food and gifts at a particular monastery for spiritual exchange. In Thailand, money is the most important offering to support temple development in the Kathina ceremony. Importantly, Swearer assumed that merit-making rituals for spiritual exchange influence individual status of reincarnation relating to karma and cosmology in Buddhism; villagers wish for rebirth in heaven after participating in this ceremony. As discussed in the previous section, the reincarnation of human and sentient beings to any of the three levels in Buddhist cosmology depends upon karma. Buddhist people believe that karma is the cause and effect of individual action; moral behaviour brings a happy life and immoral behaviour causes a suffered life (Forrest, 1994; Humphreys, 1994). In this sense, ‘Boon’ implies the meaning of karma; it is the consequence of individual moral action affecting happiness in this and the next life. Thus, merit-making rituals with Buddhist monks mentioned by Swearer reciprocated with the accumulation of individual Boon.

At Rum Num Khan, the name of the river between Chiang Mai and Lum Phun Province, the temple is the religious centre of each village or community, and there has been a tradition of Hua Wat that helps bind the social relationships among families, relatives, friends, and neighbouring villages (Lertvicha, 2002a). This tradition creates the reciprocal relationship by the ceremony of Poy Luang; each Hua Wat, 93 temples and 147 villages, organises this ceremony to receive donations for their own temple development and in the process, are obliged to return donations to other hosts next time, strengthening the religious network. In another example, Sevatam (1999) described the ceremony of Tod Pa Pa Khao at Koa Noi village, Phayao Province, as a process of binding social cohesion. This ceremony seeks to raise rice and funds for helping people who need rice and loans under the collective management of the leaders and villagers. Based on

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48Poy Luang is aimed to celebrate new holy buildings or objects in temples.
the belief in Boon and rebirth, most people, especially those of superior status, believe that helping inferior people by donations could gain more individual Boon, thus affecting the next life. The ritual of Tod Pa Pa Khao also implies a social obligation which reciprocates good interpersonal relationships between relatives and neighbours. The spiritual belief in Boon, embedded in the Tod Pa Pa Khao ceremony, encourages individual and social reciprocity thereby gaining individual Boon and sharing collective commitment to help one another. Svetamra (1999) ultimately concluded that this provides a way to adapt religious performance to ensure local people help one another and survive in the era of modernisation which differs from the contribution of government or non-government.

In the case of Pang Jum Pee Village, the reciprocity between individual belief and social network of conservation appeared in the performance of Tod Pa Pa since the Community Committee adapted the tradition of Hua Wat for raising funds for conservation and emphasising the message of conservation. They invited four major groups of participants to participate in this performance through the rituals of Buat Pa and Seub Cha Ta Rum Num: 1) the leaders and villagers in the same district and sub-district such as Pok Village, Pa Miang Village, and Pian Village; 2) the leaders and villagers in other districts and provinces such as the villages in Doi Sa Ket District, Lumphun and Lampang Provinces; 3) the old conservation network such as Lum Num Kuang network which is the social conservation network of Kuang Watershed within Doi Sa Ket and Mae On District, Chiangmai Province; and 4) the staff of external agencies such as the Local Authority of Huay Kaew Sub-District, the Huay Hong Krai Development Study Centre, the Thailand Research Fund, and the Departments of Environment and the Forestry.

On the day of ritual’s performances of Buat Pa and Seub Cha Ta Rum Num, these participants engaged in the performance of Tod Pa Pa and donated money for conservation (see Picture 7). This donation was based on the Buddhist belief in ‘Boon’ which was defined by Mrs Pen Sangtha and Pra Suthep Janatharo, respectively, as:

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\text{Boon was an invisible sacredness blessing. Boon could prevent us from any harm. A way to gain Boon was to donate money, gave things to other people, such as offering food or belongings to monk, donating money for temple construction, and giving clothes or food to poor people.}
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\text{In Buddhist teaching, Tarn (giving without expectation) was one way to build and accumulate Boon for the better in present lives and the next life. This included helping any}
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\footnotesize{\text{49Tod Pa Pa is a ceremonial performance of Hua Wat tradition aiming to raising fund for religious purposes such as supporting Buddhist Priests, temple development, or social activities inherited from ancient times.}}\]

social activities or giving anything to other people without expectation that this be returned to you personally.

In the same manner, the message of forest and water conservation was emphasised; the village leader declared that “Our village performed these ceremonies to show respect and gratitude to water and forest and to build consciousness of conservation for further use...” and softly recited a sentimental poem to inspire a sense of conservation further (see Box 3). The conservation area and the regulation of water and forest conservation were formally declared. All participants thus perceived and accepted conservation at Pang Jum Pee Village, the villagers were henceforth not permitted to catch fish and hunt wildlife in the protected area, and other villagers were not permitted to earn a living in the forest area of Pang Jum Pee Village. In addition, the idea of conservation through the ceremonies of Buat Pa and Seub Cha Ta Rum Num expanded to neighbouring villages. Some of them performed this ceremony in the next year and became part of a social conservation network based on the tradition of Hua Wat.

*I felt that we let other villagers nearby know what we had done and what the regulation was. Then, they did not hunt anything or earn a living here. Only our villagers were allowed to earn a living here but in a few areas, they were not allowed to hunt or fish. At the same time, we let fish and animals grow in the conservation zone. People could get fish and animals which moved to somewhere else.* (Mr Somyod Reaunkaew)

*Buat Pa and Seub Cha Ta Rum Num were part of a strategy to make people aware of natural resources: keeping forest and fish. Later, other villages adapted our idea such as Mae Tao Din Village. I was pleased with that. If each village did the same ceremonies, it would easily help each other in the same network.* (Mr Prasert Jomekun)

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50 This declaration was based on participatory observation on 28 May 2012.
Interestingly, based on the belief in Boon and the emphasis on conservation, Pang Jum Pee villagers and participants realised that their help and money donations as a way to accumulate Boon was reciprocated by the benefits of forest and water. Their involvement triggered the initiation of a social conservation network, based on the culture of Aoa Muae or reciprocity. Pang Jum Pee Village and other villages were also obliged to rotate participation and donation within the forest and water conservation network. In addition, the Community Committee was obliged to manage funding from Tod Pa Pa for social activities in Pang Jum Pee Village, especially the activities for conservation such as building fire breaks, extinguishing forest fires, and building bamboo weirs.

Everybody knew the benefit of Tod Pa Pa for conservation. People who came to help us in the ceremony might believe in Boon. They might get Boon by giving us money. We

Boon is an invisible sacredness blessing each person. Buddhism believed that Tarn (giving without expectation) was one way to build and accumulate Boon for the better in present lives and the next life. This meant helping any social activities or giving anything to other people without expectation that this be returned to you personally, such as offering food or belongings to monk, donating money for temple construction and giving clothes or food to poor people.
strongly supported conservation and they knew that. They could get benefits from our
conservation at the upper source of water. Pak Village was also our friend. What events
we had, we told each other. (Mr Inthorn Daowadwong)

Tod Pa Pa was a way to gain Boon. Money belonged to the village. The Community
Committee discussed priorities with villagers before using it. Whatever we did provided
benefits for our village. We could gain Boon as well because we used money for the right
thing. Building fire breaks could save everything in the forest. Bamboo weirs could also
increase moisture levels in the forest. (Mr Prasert Jomekun)

People whom I invited donated money for conservation through Tod Pa Pa. Totally, we got
around 60000 to 70000 thousand baht. I kept a record how many participants came to the
event and how much money each of them donated. Next time, I needed to join and
donated money for other participants who came to donate. For example, a village gave
our village 100 baht; I gave this village back 120 baht. I could also ask for food from
neighbouring villages. It was a ‘give and take’ situation. I asked you, you asked me to
participate in the event. It was a way to create a network for forest conservation. (Mr Sujit
Jaima)

In addition, the declaration and competency of forest and water management led several external
agencies to provide regular support for the ritual’s performances of Buat Pa and Seub Cha Ta Rum
Num, and for the activities for forest and water conservation. For example, the Thailand Research
Fund, Community-Based Research Division provided some food and drink, and the Huay Hong Krai
Development Study Centre donated plants and animals. The Local Authority of Huay Kaew Sub-
District, the Environment Department in Northern Region, and the Thai Healthy Promotion
Foundation also supported conservation with funds. According to Mrs Vilai Yingyoach:

No one wanted to support us if we did not arrange this event to show that we focused on
forest conservation. When we got money, we needed to do appropriate activities;
otherwise, we would not get support anymore. Our village was the upper water source of
Chiang Mai and Lumphun City. If drought occurred here, water in other places would be
very limited. So, doing conservation here could gain benefit for other places. External
agencies usually supported conservation activities along water course.

To conclude, the tradition of Hua Wat based on the culture of reciprocity contributed the social
moral obligation to villagers to protect forest and water which provided advantages to their lives.
In this performance of Hua Wat, two forms of reciprocity were demonstrated to help connect
social conservation networks. The first indicated individual reciprocity; people donated money
and helped social events for conservation in order to accumulate Boon in accordance with Buddhist belief. The second form was social reciprocity, the social obligation to donate and manage funding which was reciprocated by maintaining forest and water, and to help social events exchanged for encouraging social networks in other villages and external agencies to continue forest and water conservation. This experience of reciprocity through the Hua Wat tradition, hence, helped stimulate social unity and action to protect natural resources as the common property of the environment in which people lived.

4.5 The Existence of Ceremonies

Since the ceremonies of Buat Pa (tree ordination) and Seub Cha Ta Rum Num (longer life ritual for stream or river) were first performed in 2005, most villagers acknowledged that maintaining them was essential to stimulate a sense of conservation continuously. It could also help transmit this sense to the next generation in order to sustain forest and water.

*It was not good to leave this tradition. The young generation would not know how to do Buat Pa and Seub Cha Ta if we left it. Previously, there was no ceremony, no conservation. The water and fish were almost gone because people here and somewhere took the fish to eat or sell without awareness. Now, people realised what would be lost. They warned their friends or relatives to think of them before taking anything in the water and forest. I thought the awareness of water and forest would be weaker if there was no ceremony.*

(Mr Chamnan Udcome)

*Ceremony made people love water and forest more than before. Ignoring it showed that no one paid attention to conservation. We already did the ceremonies. It needed to be continued. It was our sense of keeping animals and other things in the forest.*

(Mr Song Jaima)

As discussed in the two previous sections, two meanings of spirituality and socio-culture hidden in those ceremonies functioned to stimulate a sense of forest and water conservation. Spiritual beliefs interplaying with a Buddhist doctrine could change the attitudes and behaviour of most villagers from environmentally disruptive behaviour to conservation. The villagers realised that their livelihood depended upon natural resources provided by forest and water. Concurrently, socio-cultural processes in ceremonies could reproduce a social unity or sense of community and collective commitment to protect forest and water as common property. These ceremonies could also facilitate a social network of conservation between Pang Jum Pee Village, neighbouring villages, and external agencies.
However, many villagers argued about the existence of the ceremonies of Buat Pa and Seub Cha Ta Rum Num. Most participants responded to my inquiry about the future of these ceremonies by considering them as optional rather than essential activities to emphasise the importance of conservation. Whether it was performed or not, water and forest conservation could be continued by other strategies such as regulation enforcement, or building fire breaks and bamboo dams. Although the ceremonies were included in the action plan for village development at Pang Jum Pee twice a year, their essential status could not be substantiated due to several unstable elements, as suggested by these participants quoted below.

4.5.1 Leader

The current village leader and Community Committee in Pang Jum Pee Village were able to initiate and continue the ceremonies of Buat Pa and Seub Cha Ta Rum Num because there was a consistently held idea and a collective agreement over water and forest conservation. Any change of leadership positions could influence the way the concept is understood and the conduct of activities for forest and water conservation in Pang Jum Pee Village. Hence, continuing these ceremonies requires a group of leaders, and a successional arrangement, for those who shared the same attitudes and concepts.

*It was difficult to guess the outcome if this leader left or lost his position. I am not sure that the new generation (and I tried to convince them to join us) would continue the ceremonies. But I thought somebody might help keep conservation so that people could earn a living in the forest.* (Mr Inthorn Daowadwong)

*In addition to using the regulation, ceremony was another way to conserve our forest. It helped stimulate a sense of conservation. Now, it was the activity in the village plan. I could manage everything. I do not know what the next leader will do. They will keep it if they think what we’ve done was good.* (Mr Prasert Jomekun)

4.5.2 Centre of Ceremony Performance

On a regular basis, the ceremonies of Buat Pa and Seub Cha Ta Rum Num had been performed at the Local Learning Centre in Pang Jum Pee Village. This Centre was well regarded throughout and known as the central to forest and water conservation; it provided an educational service for visitors who wanted to learn about villagers’ lives and how water and forest conservation could produce individual income for some villagers. The Community Committee also gained collective funding from visitors to maintain the function of this Centre in forest and water conservation. Performing those ceremonies at this centre hence emphasised the continuity of this conservation
in Pang Jum Pee. As long as there was a centre of conservation, the ceremonies for forest and water would be continued. Mr Prasert Jomekun thought:

*We had our Local Learning Centre there. We had a home stay there and it attracted many visitors. So, we had to perform the ceremonies there. Doing the ceremonies at temple was not suitable. The Local Learning Centre and temple had different function. Temple indicated the tradition of religion. Learning Centre indicated the tradition of conservation.*

### 4.5.3 Participatory Management

The village leader and the Community Committee realised that undertaking a large ceremony required the cooperation of Pang Jum Pee villagers. Mr Prasert Jomekun mused:

*I alone could not organise the ceremonies. Villagers needed to agree with us. If they disagreed, no one could do it. If only the village leader and the Community Committee wanted to do it, villagers would not participate with us. They might think that it would be better going to earn a living than helping in the ceremonies. So, everybody needed to be ready for performing ceremonies.*

Some villagers, when questioned whether the ceremonies would continue to exist and/or how they could help to maintain them, suggested that the performances of the ceremonies depended upon the participatory management style of the leader. To build participation with the villagers, the village leader and the Community Committee should consider how to make ceremonies accord with a way of life as well as planned fund management for the performances. These leaders needed to consider suitable times in the schedule of ceremonies because the villagers needed to sacrifice several days of their working periods to help in the preparation of ceremonies without being paid. This affected individual income for support expenses. In this sense, six villagers agreed that performing the ceremonies once in two or three years would be appropriate. Importantly, the village leader and the Community Committee had to be transparent with financial matters to maintain the cooperation of the villagers. For example, one couple mentioned to me during a home conversation one evening that lack of financial document and notification could discourage participation. Some villagers may come to think that the fundings for arranging ceremonies was regarded as common property; everybody had the right to know how it was used.

### 4.5.4 Change of Administrative Policy

Under the administration of the Local Authority of Huay Kaew Sub-District, Mae On District, Chiang Mai, the Community Committee led by the village leader at Pang Jum Pee could
independently create a plan of activities for water and forest conservation such as the ceremonies of Buat Pa and Seub Cha Ta Rum Num. However, change of political leaders might affect the existence of these ceremonies. In early July, 2012, the news was heard at a grocery store in the village about changes to administrative policy. Five people mentioned that Pang Jum Pee Village and neighbouring villages in Huay Kaew Sub-District were to have a changed administration, from being under the local authority to being led by the municipality, a higher level of authority. When I engaged with them, asking about the likely effect of this change on ceremonial performances, no confidence of assurance was expressed that the ceremony of Buat Pa and Seub Cha Ta Rum Num would be continued. For example, one woman said:

Somehow, the leader would return all decision making to municipality. This meant our forest and water might become the property of the government. We might not have any right to manage anything even the ceremonial performances. There might not even be any conservation here in the future.

On the contrary, when I spoke with three members of the Community Committee as a group they agreed that the change of administrative policy might not affect forest and water conservation in the village, rather, it might provide further opportunities for village development in the context of forest and water conservation. Mr Chalerm Mantan concluded:

Our village would get more benefits after the change. We might get more funding for building roads, cleaning, and any other development. Maybe, the government will highlight our conservation and support our efforts. It might be good for our village.

Interestingly, both statements implied an uncertainty of community rights to manage forest and water under changeable political circumstances. If the government did not devolve natural resource management to local communities, the capacity for Pang Jum Pee Village and government to negotiate forest conservation would be limited. Ultimately, local communities that did not have right to manage their own natural resources may lose a connection, and a sense of belonging to water and forest (Santasombat, 2004).

4.5.5 Consistency with Villagers’ Need

Mrs Villai Yingyoach suggested that the continuity of ceremonies of Buat Pa and Seub Cha Ta Rum Num relied on the need of villagers. Spiritual beliefs would not be meaningful or acceptable if they impeded villagers’ livelihoods. For example, the villagers would resist the ceremonial performance which aimed to conserve entire forest areas. Under those circumstances, they would not respect supernatural beings or believe that deities and guardian spirits protected forest and water. Everything in the forest should be used and distributed to support people’s lives. If that
were the case, the ceremonies of Buat Pa and Seub Cha Ta Rum Num would not be an effective strategy for forest and water conservation. She affirmed:

_Buat Pa and Seub Cha Ta Rum Num were not the same as an annual festival. We could perform them when we were ready or had the chance. They are aimed at conservation but could not be done everywhere. It was impossible to perform the ceremonies everywhere in the forests for conservation. No one will be allowed to get anything here. Performing ceremonies everywhere will block people’s lives. What could people do and how could they live here? In this case, beliefs go against people’s lives. It is not belief._

4.5.6 Suitable Program Design

Designing the program for the ceremonies of Buat Pa and Seub Cha Ta Rum Num is important to stimulate a collective sense of conservation constantly. If the people do not respond to the aim of water and forest conservation, the ceremonies of Buat Pa and Seub Cha Ta Rum Num will be meaningless. To address the aim, the village leader and the Community Committee must consider tradition, time, and age of the villagers in the program design.

_I wanted to follow the tradition. But it should be suitable, not be too old or not be too modern. It should go with time. Without conservation, I did not have anything to do._

_Having ceremony should remind us of this sense of conservation._ (Mr Chamnan Udcome)

_In old times, there were only religious ceremonies on the day of Buat Pa and Seub Cha Ta in the program. Now, people followed globalisation. We need to have show. Soa_52_ was suitable for elderly but young people like a modern show. At the same time, the nature of the ceremony must be considered. A singer with short skirt or singlet was not appropriate in a religious ceremony. The ceremony needed to be continued and depended upon the design of activity. We could have entertainment, could have discussion. In some places, there was folk song but young people did not like it much. Next year, we might add an activity for the nature lover such as planting orchid._ (Mr Sujit Jaima)

Those viewpoints about the future of the ceremonies for forest and water supported previous research about the elements of ceremonial or ritualised performance. Kaewthep (1986) proposed three main elements of a particular ceremony that could reconstruct robust collective awareness: timing, social action, and institution or centre. Bloch (1977) also assumed that social activists or leaders mainly lead the ceremony to transmit a particular ideology. In the case of Pang Jum Pee Village, the Community Committee functioned as the leader to initiate the ceremonies of Buat Pa

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52 Soa or fiddle was a type of local northern Thai musical show.
and Seub Cha Ta Rum Num that were symbolic for the need to recover forest and water. To stimulate the sense of conservation as constantly as possible, they led and maintained the ceremonies as collective rituals twice a year. Concurrently, the villagers agreed, following their ideas to show the social unity and collective action basic to these rituals. The village leader and Community Committee also managed the centre of conservation, the Local Learning Centre at Pang Jum Pee, which was the centre of ritual’s performance to reproduce the collective ideology for forest and water conservation.

In essence, social activists or a leader are an important element in ritual’s performances; they gave impetus to the emergence of the elements as postulated by Kaewthep (1986). The future of the rituals of Buat Pa and Seub Cha Ta Rum Num depends upon social activists. A new leader could change the present role of the Local Learning Centre and its objectives or goals. In terms of participation, collective religious performance requires mobilisation of resources such as people, funding and supporting agencies, the lack of which have been the main impediments to religious movements in several places (Aldridge, 2000). The Pang Jum Pee villagers thus have good reason to justify their concerns. To maintain a sense of community and conservation by religious performances, the Community Committee at Pang Jum Pee Village must advocate for robust participatory management.

In terms of political aspects, Santasombat (2004) indicated that allowing local communities to manage forests themselves, such as through the worship of supernatural beings in the forest, could strengthen the collective ideology for forest protection. In contrast, this ideology would weaken when local authority under a government policy takes control of communities in some remote areas. Local people could lose their awareness of maintaining the forest after an external organisation is empowered to manage their land or natural resources. The experience in Zimbabwe also suggested that government and non-government organisations should encourage local leaders to maintain cultural values and traditional performance independently (Byers et al., 2001). This could foster respect towards the importance of protecting forests and wildlife. In this sense, such political issues could affect the existence of the ceremonial performances at Pang Jum Pee Village.

In a dynamic world, time constantly changes individual or social needs which suggest that the rituals may also need to be responsive to change (Bell, 1992). People will not acknowledge beliefs, traditions, or rituals if they are not relevant to their needs. According to Mrs Vilai’s transcript (see 4.5.5), the rituals of Buat Pa and Seub Cha Ta Rum Num had been meaningful because the rituals helped sustain the forest and water that served natural resources to support people’s livelihoods in Pang Jum Pee Village. Interestingly, some literature has argued that transmission of religious
beliefs or practices to the next generation could be lost through the influence of western cultures (Aldridge, 2000; Payutto, 2011). However, modernisation poses such further challenges for the Community Committee at Pang Jum Pee Village as: how to recreate the rituals of Buat Pa and Seub Cha Ta Rum Num for reconstructing awareness of forest and water; and how to transmit their meanings of conservation to the next generation. The rituals of Buat Pa and Seub Cha Ta Rum Num must reconnect people with forest and water, otherwise, they might have to be replaced by a new strategy.

4.6 Discussion

There has been a global trend to use religious rituals and ceremonies in response to an environmental agenda. According to Gottlieb (1996, p. 8), “religion should turn on a sense of ‘ultimate significance’ to orient us to that which is of compelling importance beyond or within our day-to-day concern.” Religious beliefs or rituals are thus regarded as an important potential strategy to address environmental or ecological concern in the dynamic world of modernisation (Kirman, 2008); they can reconnect the relationship between human and physical settings, cultivating awareness of conservation and protection of ecosystem (Badiner, 1990; Kirman, 2008; Payutto, 2011). Previous studies have shown that tradition and beliefs can establish the importance of places as ‘sacred’ (Salick et al., 2007; Wadley & Colfer, 2004) which lends itself very well to the ideals of a conservation movement.

This study indicated that the rituals of Buat Pa (tree ordination) and Seub Cha Ta Rum Num (longer life ritual for stream or river) at Pang Jum Pee Village originated from a concern about the effects of deforestation, the need for a conservation ethic, and the initiatives of the Community Committee drawing on an ecological movement of activist monks. These rituals had been adapted from Buddhist traditions as a strategy for building social cooperation in protecting forest and water within the same village and other villagers. Embedded in these rituals, there were two meanings; spiritual beliefs and a socio-cultural base. These meanings functioned together in stimulating a collective sense of forest and water conservation which implied reconnecting relationships between forest, water, and villagers, for the community’s benefit. This function added to previous academic perspectives that ritual interconnected with spiritual beliefs and socio-cultural phenomena: “rituals can be powerful tools for social change, or for acceptance of the status quo. Their power emerges not only from the spiritual meanings embedded in them, but also the social contexts in which they are performed” (Darlington, 2007, p. 169). Ritual is one of the religious expressions embedded in society and culture (Haught, 1990; Ludwig, 2006; Oates, 1973) wherein people can express their belief or show respect to an important situation or place.
such as worship, ceremony, and tradition (Coleman, 1999). Haught (1990, p. 22) also suggested that “Some kinds of rituals are essential to human social existence. Rituals are ways in which people communally celebrate meanings that give them identities. And in this way rituals function to provide solidarity.”

The function of the rituals of Buat Pa and Seub Cha Ta Rum Num in stimulating a collective sense of forest and water conservation at Pang Jum Pee Village is conceptualised in Figure 12. This function consisted of the two elements described above.

For the first element, showing respect to supernatural beings and Buddhist teachings of karma and reincarnation, created an interplay from which the fear of supernatural beings and the awareness of morality emerged (see Box A Figure 12). These were directly meaningful, functioning to help stimulate a sense of forest and water conservation, and indirectly controlling the use of natural resources for sustaining villager livelihoods.

Religion relates to worshipping sacred powers that expressed the relationship between people and deities; people believing that this expression can help protect human and supernatural beings (Frazer, 2006; Ludwig, 2006). This belief in supernatural beings such as God, divinity, and spirit is a unique meaning of religion (Park, 2005; Silberman, 2005; Sinnbauer, Paragament, & Scott, 1999); this is pivotal to individual life, society, and culture (Pargament, 2008; Santasombat, 2001). Buddhism has been the state religion of Thailand society and culture since the thirteenth century of the Sukhothai Kingdom53 (P. Walter, 2007), and almost a hundred per cent of Pang Jum Pee Villagers were Buddhist. This religion connects with animism or spiritual beliefs (Kapur-Fic, 1998) which has its origin from ethnic groups in the north of Thailand and embeds in Thai Buddhist society and culture (Stratton, 2004). Most Thai people believe in and fear ghosts, magic forces, or supernatural beings; they worship spirit houses to ask for protection or forgiveness for mistakes from guardian spirits (Kapur-Fic, 1998). These spiritual beliefs allowed people to interpret and understand the meanings of their context (Baumeister, 1991); people followed religious belief as a pathway to fulfil basic needs beyond the service of the actual world and to address individually significant goals or destinations (Silberman, 2005; Sinnbauer et al., 1999; Thouless, 1979).

Buddhism connecting with spiritual beliefs thus provided a sense of belonging and respect for natural resources: “everything is inter-dependent and affected one another the same as natural process and everything in nature must be respected: soil, forest, animals, rain, and water” (Kabilsingh, 1993, p. 44).

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53Sukhothai was the old kingdom around the area of Sukhothai Province, the central of Thailand, existing before 13th century until 14th century.
In this study, the community leaders drew on beliefs in supernatural beings that protected land, forest, and water as a strategy to conserve forest and water for sustaining livelihoods. Through the ceremonies of Buat Pa and Seub Cha Ta Rum Num, they led villagers to show respect to forest and water, to ask supernatural beings for help in protecting and guarding forest and water, and to remind them to recognise the importance of natural resources to their livelihoods. This worship was sufficient to create the connection between villagers and supernatural beings, and this influenced the actions of villagers to protect forest and water. After the ceremonies, most villagers believed that the Local Learning Centre, the Centre of the ceremonial performance which included a restricted fishing zone and wildlife conservation zone, was sacred since supernatural beings had been protecting these areas. The fear of supernatural beings affected most villagers so they caught fish and hunted wildlife outside these areas. They also avoided cutting down trees in the forest especially the trees wrapped with yellow fabric. They believed that these trees represented ordination, the same as the ordination of people or Buddhist priests: cutting them down was a sin equivalent to killing a monk. Such belief and fear are relevant to the notion of Baumeister (1991, p. 196) that “empirically, religious systems have often served as anchors for moral systems”. The fear of supernatural beings interplayed with the doctrine of Buddhism in terms of Karma and reincarnation which forced villagers to act morally towards natural resources. Pang Jum Pee villagers believed that morality could lead to a better level of rebirth and vice versa. Some villagers proclaimed that they would maintain their holy promise, made in front of supernatural beings on the day of the ceremony, to behave morally and protect animals and plants in the forest and water in some sort of perpetuity.

The other element was the Buddhist socio-cultural base which contributed social interaction and obligation to cooperate, within the community and across communities, around the issue of forest and water conservation (see Box B Figure 12). According to Walsh (2000), when such socio-cultural processes are active, people give meaning to the environment in the place they live. The feeling of attachment to place is thus developed and affected by people’s willingness to protect a place (Scannell & Gifford, 2010).

Since the ritual performances of Buat Pa and Seub Cha Ta Rum Num were social events and required cooperation, they could create a sense of community in Pang Jum Pee Village and it was relevant to where they were situated. To build a sense of community in Pang Jum Pee Village, the leaders were pivotal to organising villagers so they could share expectations, goals, beliefs, experiences, practices, and plans in the process of the ritual’s performances, thereby leading to social obligation and collective commitment. After that, they understood the aim and need of the rituals for forest and water conservation. They felt obliged to manifest social roles and actions for addressing this aim and need; they shared their responsibilities, activities, and jobs in the
arrangement for the ceremonies. This interaction confirms what many sociologists have found that sharing deeply and commonly held beliefs and undertaken practices could develop a sense of community or social unity in social events (Durkheim, 1965; Kaewthep, 1986; O’Dea & Aviad, 1983). These were composed of a sense of belonging to community, contributing to decision making, gaining social inter-dependence, and sharing spiritual bonds (Dalton et al., 2007; McMillan, 1996).

Simultaneously, the religious tradition based upon a multilevel reciprocity demonstrated the function in connecting social networks of forest and water conservation among neighbouring villagers and external agencies. According to Harris (2003, p. 123), reciprocity encourages group cooperation “through the belief that actors will ultimately benefit from their cooperation with others or will incur sanctions if they do not cooperate”. In terms of religions, people expressed reciprocity for receiving something back “from God and/or from others in the community” (Beyer & Beaman, 2007, p. 73). As discussed in section 4.4.2, reciprocity between gaining individual Boon and social benefits of conservation emerged when participants from other communities and external agencies perceived the message of conservation and engaged with the tradition of Tod Pa Pa; and raising funds for continuing forest and water conservation through the rituals of Buat Pa and Seub Cha Ta Rum Num. Money donated in this way obliged leaders to use funds appropriately for supporting activities for conservation. Other communities and external agencies also had an obligation to reciprocate their help and donations in the same ritual’s performances of each village. This multidimensional reciprocity thus functioned as an on-going catalyst for the contribution of social conservation networks so as to support one another to protect forest and water in the place which people lived.
In conclusion, Buddhist rituals such as Buat Pa (tree ordination) and the Seub Cha Ta Rum Num (longer life ritual for water) stimulated a community-wide understanding of the need for forest and water conservation, based on spiritual beliefs, and roles derived from the socio-cultural base. The expression of these roles was consistent with leaders, community needs, and Buddhist faith (see figure 12). Leaders were the main actors who conceived, implemented, and reinforced Buddhist rituals to mediate a local community need to protect forest and water. This reinforcement depended upon the strength of Buddhist faith in the local community where most people claimed to be Buddhists, a commonality that proved socially cohesive through Buddhist events. Buddhist faith thus served as a connector between leaders and local community needs in
two ways: it helped members of the local community to understand the message of conservation embedded in Buddhist rituals; and manifested itself as cooperation within communities where leaders initiated and coordinated ritual performances and conservation. Ultimately, the adaptation of Buddhist rituals for conservation provided a reciprocal function. Buddhist rituals helped stimulate an awareness of the importance of forest and water and the need for their conservation. On the other hand, it emphasised, even reinforced, the preservation of Buddhist concepts and practices: basic precepts; the doctrine of karma and reincarnation; and social norms by demonstrating unity in collective ritual performances.

However, this role is not static; its continuity and effectiveness depends upon several other factors, particularly the nature of leadership and the presence of social activists. Without strong and effective leadership, the organisation and design of programs for villagers would not occur. The ‘sacred’ Local Learning Centre or the Centre of ceremonial performance and conservation must also persist in some form or another. The message of forest and water conservation must be constantly communicated and emphasised. To constantly stimulate a sense of community and conservation, the leaders must design suitable programs and focus on participatory management and equitable resource mobilisation of such major elements as human resources and funding. In addition, changing the administrative policies at an external or higher level could threaten the future of these rituals; government officials could withdraw their support and thereby cease encouraging activities for conservation created by local communities. Ultimately, and as shown in Chapter 3, these rituals might be unable to withstand forces that challenge more directly villagers’ needs and livelihoods.

How to maintain these rituals or to adapt appropriate strategies for participatory forest and water conservation are challenging issues for leadership. Importantly, the change of sense of belonging to forest and water will affect the role of Buddhist rituals. If people especially the younger generations do not perceive the importance of water and forest to livelihood, conservation will not be focused and rituals for forest and water will not persist. The future relationship between water, forest, and livelihoods will then be changed, or set on another path.

The next chapter will connect and synthesise the role of Buddhist rituals with the pattern of change narrated in the previous chapter to explain the relationship between the meaning of water and sense of place.
CHAPTER 5

Conceptualisation and Reflection

5.1 Introduction

Going back to the challenging inquiry posed at the beginning, this thesis concerns the subtle and complex relationship that might exist between two deep and abstract notions in human development: the meaning of water and sense of place.

Based on the methodology of constructivist grounded theory which seeks to develop theory that is grounded in data systematically gathered and analysed, I assumed that the investigatory process should be conducted in a particular setting of features that will allow developing a theoretical account pertaining to the subject to be investigated in this research. Hence, this study had its foundations at Pok and Pang Jum Pee Villages where villagers could provide meanings, through their experiences and socio-cultural expressions relating to water. A systematic research process involving ethnographic methods was applied in this study. Interrogations and interviews were repeatedly done to collect data among different participants at different times, in different situations, and in different places. Such a process provided the researcher an opportunity to cross-check the data as a measure of reliability. The iterative data collection and analysis also allowed an opportunity to track threads and themes to seek evidence, before theoretical sampling was done. This established the emergence and saturation of conceptual categories from which I was able to identify common elements of the relationship. Literature dealing with particular phenomena and concepts was then reviewed to interpret, discuss, and synthesise conceptual categories and detailed descriptions in order to develop two explanatory frameworks.

An explanatory framework from chapter 3 has indicated an inter-dependence of livelihoods and sense of belonging to a physical place (forest and water), and the way this inter-dependence changed over time. The other framework from chapter 4 pointed to the role of Buddhist rituals as a tool for evoking that sense of belonging. Seen together, these frameworks can be used to justify that water was meaningful to people as a part of sense of place and suggested that the connection depended upon the particular biophysical setting and context, in this case, where people lived in and relied on the forest.

Forest and water were meaningful together as the source of economic well-being in local communities; it was paradoxical to note, however, that this source of economic well-being made the villagers, and the community in general, vulnerable to an external influence, when they were
threatened especially in the era of community development. The increased demand for products from forests acted as a catalyst for changing the villagers’ relationships with forest and water, effectively removing an essential form of protection and management for the forest and water. A legal solution to this state of affairs led to contemporary protection and management, one that demanded strong leadership from those who were able to develop active strategies such as collective learning processes and ritual performances. Both strategies were applied to re-establish a sustainable ecological system, ensuring economic well-being, and being consistent with the existing socio-cultural base.

This chapter will discuss the implications and a generalisable conceptual framework which shall be followed by interpretation of the practical contribution of this framework, as well as recommendations for further research and reflection on this study in epilogue.

5.2 Implications from the Ground

The two frameworks from chapter 3 and 4 implied two important themes in Thai local communities: the ways in which sense of belonging to forest and water (physical settings) change over time, and what influences these changes; and the important agencies (change according with 5.2.2) involved in the community processes which constantly evoke a sense of belonging to forest and water and the need for change.

5.2.1 A Dynamic Sense of Belonging

The economic needs of individuals and the community, the socio-cultural base, ecological problems, and political structures can all affect one another and a sense of belonging, especially when any of these undergo change.

Economic needs in local communities were pivotal elements of this change. People needed to rely upon water and forest in the place where they lived. A subsistence economy that focused on using natural resources in the forest to support basic needs encouraged a stronger sense of belonging than the commercial economy that focused on using natural resources in the forest to satisfy demand for income. In this economy, “most families are potentially self-sufficient in the sense that they own or have access to the land, labour, tools, and other resources necessary for survival.” (Peoples & Bailey, 2011, p. 140); this contributes to a sense of being a part of physical settings based on local belief, knowledge, and experience (Barrow, 1999; Schroeder, 2007). External influences are well known for their ability to impact on these relationships; economic growth and development have been shown to stimulate unlimited consumption mainly to serve
individual demands thereby causing disruptive behaviour to physical settings (Barry, 1999; K. Gibson et al., 2010; Leopold, 1993). In the case of Pang Jum Pee villagers, the resources of the forest are threatened; in such a way that the villagers were not aware that they depended upon the forest in order to gain income and improve their economic well-being by, for example, cutting down many trees for their timber business. However, that loss of awareness was temporary; people became aware of recovering and conserving forest and water, especially when those resources in the forest could no longer serve basic life support and supplement incomes of the villagers.

A sense of belonging depended upon the existence of a socio-cultural base in communities. A form of social cohesion or ‘unity’- doing things together for their livelihood - could help attach people to forest and water: sharing water and labour for rice cultivation; exchanging food and products from the forest to serve household and community subsistence; and participating in activities of ritual performance for forest and water conservation. Previous studies support such a relationship: there is an interconnection between social cohesion and place attachment (Convery, Corsane, & Davis, 2012); affective bonds to place are reinforced, then reciprocated with civil participation and social unity (Lewicka, 2005); and place attachments, place identity, sense of community, and social capital motivate the collective process to seek aspects of physical, economy, society, politics in communities (Manzo & Perkins, 2006). Commonly held spiritual beliefs, ceremonies, rituals, and traditions can also attach people to place and create social unity (Durkheim, 2001; Mazumdar, 2005; Mazumdar & Mazumdar, 2004). In the case of the villagers in this study, sacred powers possessed and protected forest and water. To express a sense of belonging, people showed respect to supernatural beings to ask for permission to earn a living and ask for protection from any harm during that process of earning a living in the forest. When people focused on their own individual economic well-being and ignored this unity and over-rode their beliefs, they tended to over-control natural resources in the forest and water. In contrast, when social unity and spiritual beliefs were revived through collective activities and ritual’s performances for forest and water conservation, villagers gradually reconnected with forest and water.

An expression of sense of belonging to physical settings can be challenged by ecological change when it manifests as something local people perceive to be problematic. When people in the Pang Jum Pee village lost an abundance of natural resources in the forest they lost vital sources of life support and income. They were confronted with the phenomenon of drought, which they interpreted as being due to their action of deforestation. This phenomenon further affected their ability to earn a living in the forest: having none of the big trees for the on-going survival of other plants and animals; having less water sources; and having less food from the forest.
environmental stress can be diagnosed by the concept of ‘solastagia’, which means “the pain or sickness caused by the loss of, or inability to derive solace from the present state of one’s home environment” (Albrecht, 2006, p. 35). Albrecht (2006) also claims that the experience of ‘solastagia’ can enforce the expression of a sense of belonging to place, and the commitment to recover the environmental situation in order to derive solace in lives, and he gives the example of Indigenous communities in the north of Australia. The loss or discomfort from drought at Pang Jum Pee village was felt most especially by community leaders, those leaders being able to exert an influence. To maintain this sense of what was important, the leaders expressed their intention of leading the recovery of forest and water in the Mae Lai Noistream, using the strategy of community-based conservation. This strategy helped build social cooperation inside and outside the community to protect and conserve water and forest. Ultimately, the survival of ecological systems in the forests would improve people’s livelihoods and maintain an economic status. The recognition and cooperation with this survival strategy implied the sense of ‘eco-economy’, “a sustainable economy that respects the sustainable yield of the ecosystems on which it depends: fisheries, forests, rangelands, and croplands” (L. R. Brown, 2001, p. 78).

Political structures were important beyond the leadership in the village, being influenced by external circumstances that affected economic needs, socio-culture, and natural resources in local communities, thereby influencing a sense of belonging to forest and water. In other words, environmental politics connecting with development, society, economy, and the human relationship with the natural settings influences environmental changes and preservation (N. Carter, 2007). Loss of both sense of belonging, and love and respect for physical settings, encourages people’s actions which threaten natural resources (Leopold, 1949); this being most graphically expresses in the era of modernisation, capitalism, materialism, and commercialisation when livelihoods changed from depending upon natural settings to material settings (Schultz, 2002; Suzuki, 1997). At the same time, environmental politics imbues with awareness enforces action to address environmental degradation both globally and locally (Ford, 2011). In Pok and Pang Jum Pee Village, the national social and economic development policy exposed people’s livelihoods to globalisation or modernisation which tended to disconnect people from forest and water: buying goods and services to satisfy their lives of convenience rather than finding products in the forest; and using natural resources for gaining income rather than for supporting basic needs as described above. The policy of concession also encouraged expansion of the timber business to Pang Jum Pee Village, stimulating the overuse of trees in the forest with its negative socio-cultural and ecological consequences. However, the shift in national policy was realigned with forest and water conservation, and paralleling a global environmental awareness was a factor that provided critical support to efforts to reconnect to a sense of belonging in this village.
5.2.2 Agencies that Stimulate a Sense of Belonging

Both two explanatory frameworks pointed to important agencies in community processes that evoked a sense of belonging to physical settings in order to maintain economic well-being within a dynamic sense of belonging. These agencies were internal (significant leaders, and their strategies for building participation in conservation), and external (involving the role of an external organisation which had a relevant mandate).

Community leaders’ efforts are critical for constructing community capacity and community development; “local communities, like other organisations, cannot proceed successfully without having dynamic leaders that are willing and able to take initiatives” (Aref, 2009, p. 187). Previous research suggests six important attributes of effective leaders (Northouse, 2012, pp. 27-28): intelligence (ability of critical thinking and communication), confidence (positive about oneself and one's ability to succeed), charisma (having power of influence), determination (very focused and attentive to tasks), sociability (friendly personality and potential for building cooperation), and integrity (honesty and trustworthiness).

The effort to recover and conserve forest and water at Pang Jum Pee Village showed that the formal and informal leaders played significant roles in stimulating a sense of belonging. The formal leaders - the village leader, the assistant village leader, and the members of the Community Committee - were accepted as, and by, legitimate authorities, and had clearly understood their obligations to make decisions for villagers. The informal leaders did not have the same legitimate authority in the village but they had close friendships or familiar relationships with the formal leaders. These relationships influenced the decisions of formal leaders by them sharing and discussing together their experiences and concepts concerned with community problems and the need for conservation. Both formal and informal leaders had four characteristics: a shared awareness of problems and situations, for example, the drought making livelihoods difficult; a shared understanding that they should endeavour to seek solutions, for example, their efforts to connect with donor agencies for addressing drought and improving economic well-being; their ability to influence others and show leadership in the village, for example, the ability to lead and manage villagers to cooperate in forest and water conservation; and their emphasis on the continuity of concrete actions, for example, constantly organising conservation, and seeking grants from donor agencies which promoted conservation.

Two strategies led by these leaders, with critical support from external organisations, encouraged and facilitated a sense of belonging to forest and water. The first strategy was to implement a social process, collective learning, which emphasized the principle of participatory action, in order
to maintain the physical settings of places, or the environment, for human survival and sustainable development. By being involved in this process, the leaders and villagers could share and discuss problems, facts, decisions, and the various modes of implementation in order to protect and conserve natural resources in the forest. Implementation was the collective process used to restrict the fishing and hunting zones. In other words, this process empowered the critical thinking of leadership in the village so that it managed collective actions or activities for forest and water, consistent with the village policy of community-based conservation. According to Mansuri (2004), a participatory approach is the crucial strategy of bottom-up development for empowering communities to control their own decisions and implementations through government’s legitimate projects. In addition to stimulating participation in conservation, application of this approach strengthens the competency of creative thinkers and self-management in communities (Barton et al., 1997).

The second strategy, the rituals for forest and water, were established and adapted as regular events in the community. The function of these rituals was based upon spiritual beliefs and socio-cultural interactions connecting with the doctrine of Buddhism. Importantly, these rituals functioned as catalysts to stimulate among the villagers a sense of belonging and conservation, while providing a mechanism through a form of reciprocal obligation to gain the support of other communities to do the same. Reciprocity is an element that enforces a social norm of cooperative actions (Fehr et al., 2002) and encourages the relationship through social networks (Dalton et al., 2007). Simultaneously, “religion has a capacity to generate the practice of reciprocity as a feature of group cooperation, an aspect of religion-as-social capital” (F. Harris, 2003, p. 137).

The role of external organisations was important to encourage evoking sense of forest and water conservation itself. Koontz et al. (2004) suggested three functions of governments in collaborative natural resource management: follower - participating in programs of main actors or local organisations; encourager – offering incentives or grants for connecting participants in government programs; and leader – being key actors in management. Non-government organisations also respond to “facilitate the efforts of the local communities in managing their natural resources through the participatory approach” (Negi, 2001, p. 18).

The manner in which the Thailand Research Fund [TRF], Community-Based Research Division as a semi-government organisation became involved at Pang Jum Pee Village implied that external organisations should function as facilitator or counsellor to strengthen the competency of leadership in local communities. They focus on the collective learning process based on sharing data, facts, knowledge, and resources to achieve self-management. In this process, staff of external organisations can facilitate leaders and community members to identify and investigate
their own problems and seek solutions or strategies to protect forest and water. In addition, others such as Huay Hong Krai Development Study Centre (a government organisation), the Local Authority of Huay Kaew Sub-District (a government organisation), and the Thai Health Promotion Foundation (a non-government organisation) also provided grants or resources to continue effective strategies for conservation developed by local communities, such as, performing rituals for forest and water, institutionalising the informal centre for conservation, building fire breaks to prevent forest fires, and extending the conservation zones.

5.3 Deriving a Generalisable Conceptual Model

The two explanatory frameworks from Chapters 3 and 4 were combined to produce a conceptual framework that may help explain the dynamic relationship between the meaning of water and sense of place in general settings or situations (see Figure 13). The synthesized components of the frameworks are described below (see Figures 13a and 13b).

There is a reciprocal and dynamic relationship between humans and their physical environment; humans’ actions influence the physical environment, and vice versa (Duka, 2007; Steg, Van Den Berg, & De Groot, 2013). This relationship also involves the contributions humans make to structuring their physical environment; and the benefits and effects that flow from the physical environment to humans (Geist & Galatowitsch, 1999). Figure 13a suggests that such a local reciprocity is at the core of dynamic relationships between the meaning of water and sense of place. Within local settings and contexts, where once community livelihood and economy relied on forest and water, this reciprocity (see upper cycle in Figure 13a) is now defined by the persistent interaction between water, people, and place which adjust and respond to one another. Water is a part of the forest which itself is meaningful as the pivotal physical setting for livelihoods and the economic well-being of local communities. On the one hand, people’s actions to obtain benefits from physical settings reciprocate with the effects to the nature of forest and water which can diminish the ability of community to earn a living. On the other hand, people themselves can contribute to revive or prevent these effects in order to maintain the economic benefits from water and forest.

Sense of belonging or belongingness thus connects with a sense of place in terms of an affective bond towards a physical setting; it means alternatively the feeling of people who have a place in their world where they are accepted or where they belong; and it is “a state of mind, a perspective or self-perception of individuals as they determine where they fit in their world” (J. E. Brown & Stephens, 1996, p. 69). A sense of being a part of nature suggests that a person might
feel at home or have a sense of belonging in a natural place, but a sense of being separate from nature might suggest that a person would feel out of place or like an intruder in a predominately natural setting (Schroeder, 2007, p. 294). When people recognise the reciprocal relationship or have a sense of being connected with the physical environment, they will respond to protect their settings, so serving the common benefits of humans (Berry, 2012; Schultz, 2002).

Within this local reciprocity, sense of place relates to a sense of belonging to forest and water, being differently expressed but in accordance with livelihood and economic well-being. People’s action towards physical setting changes and has repercussion for water, forest, and livelihoods. Disruptive action towards water and place implies the loss of, or ignorance of, sense of place and the meaning of water which generate ecological and economic repercussions causing temporary problems or difficult phenomena in local communities. A recognition of these phenomena can concurrently commit people to participate in protecting and managing water and forest to ensure adequate natural resources in the forest for livelihood and economic well-being. Therefore, to prevent a community from exacerbating difficult phenomena, stimulating sense of place and the meaning of water is essential to local communities.

![Diagram of Local Reciprocity](image)

*Figure 13a* Local reciprocity of the dynamic relationship between the meaning of water and sense of place

Figure 13b proposes an ongoing process between the weakening and strengthening of sense of place and the meaning of water within a reciprocal relationship in local communities. The changes, influences, and repercussions that occur in response to the weakening of sense of place and the meaning of water produce a physical setting and economic distress. However, leadership functions to stimulate sense of forest and water protection and management to ensure the economic and livelihood benefits.
Vulnerabilities involve: an economy relying upon forest and water; culture (beliefs, ceremonies, traditions, or rituals); and socio-political forces. A common concept is that natural resources are an underpinning capital of all lives and economic systems on earth (Miller & Spoolman, 2009); and that economic systems can survive only if ecosystems do (Savage, 2006). If unrecognised, this dependence can cause a use of water and natural resources which threatens and damages a physical setting. This is particularly noticeable in, and acutely felt by, local communities where survival and economic well-being depend upon forest and water. In response to the focus on demand for economic well-being, culture relating to beliefs, ceremonies, traditions, or rituals can be weakened. This weakness disconnects people’s feelings from water and the physical setting and it ignores traditions, rituals, or practices that provide benefits for forest and water protection. According to Pretty et al (2008), “to have a weak sense of oneness with nature is to adopt the worldview that humans are separate from nature”, and that abandons the cultural system of respect afforded supernatural beings, plants, and animals. Loss of culture, echoed by indigenous communities, is thus associated with loss of sense of place and ownership of natural resources and customs or practices in livelihood, especially in a situation of displacement from damaged land (Kirsch, 2001; Snyder, Williams, & Peterson, 2003).

In addition, both economic and cultural contexts are susceptible to socio-political forces. There are several forces in modern societies that influence the phenomenon of “placelessness” (Kellert, 2005). Tuan cited by Green (2010, p. 15) “attributed placelessness to the weakening of people’s emotional involvement with places, loss of immediate contact with physical settings”. According to Kellert (2005, p. 60), these forces involve “transience, excessive mobility, the loosening of neighbourhood and community ties, economic globalisation, the decline of extended family networks, urban sprawl, loss of open space, environmental and biological degradation and pollution”. In the context of this study, the weakness of sense of place is made vulnerable by globalisation, capitalism, modernisation, and national policy where it aligns with these. Globalisation relating to capitalism and modernisation can accelerate consumerism and commercialisation which force water and natural resources in the forest area to be threatened by the advent of commercial products to serve economic needs. National policy supporting export of forest products to international markets encourages environmental problems, such as, drought, forest fire, and extinction of commercial animals or plants, to arise from unlimited consumption. Governance or national law enforcement that is incompatible with community needs and livelihoods can also diminish the responsibility and stewardship for sustaining forest and water.

In response to such vulnerabilities, leadership plays a critical role in persisting with evoking sense of place and the meaning of water by seeking to know local community needs (for protection and management of water and physical setting (forest)) to ensure adequate natural resources that can
serve livelihoods and economic well-being. This form of leadership is complex and multi-dimensional and can be explained by different theoretical approaches (Northouse, 2010). Gill (2011, p. 9) depicted that “leadership is showing the way and helping or inducing others to pursue it. This entails envisioning a desirable future, promoting a clear purpose or mission, supportive values and intelligent strategies, and empowering and engaging all those concerned.” An effective leadership acquires managerial skills or strategies to manage resources, and to motivate or inspire followers to engage with sharing, visions, missions, values, and implementations.

Leadership emerged in the local context of this study as focusing on participatory management and applying strategies to address its tenets. The leaders, especially formal leaders who have an official authority, are aware of common needs for change and organisation of community members to share and discuss their needs, including facts, problems, situations, goals, and plans. This sharing and discussion leads community members to understand and recognise the meaning of water and forest connecting with livelihoods and economic well-being. Ultimately, community members manifest social cooperation and obligation to seek their needs. At Pang Jum Pee village, to pursue the mission of forest and water conservation and inspire participatory action in local communities, the leaders applied strategies such as the collective learning process and the implementation of ceremonies, rituals, or traditions based on religious faith, spiritual beliefs, and socio-culture.

In addition, external factors influence effective leadership to stimulate sense of place and the meaning of water, and to drive community needs in protecting and managing water and forest. A previous study indicated that there are external influences on leadership, for example the external agency provided by facilitators, community support, budgets, and policies (Aubrey, 2011, p. 45). In this study, there are two specific external influences: national policy and external organisations. National policy influenced action towards water and place by leaders and members in local communities. The leaders and community members utilised collective decisions to formulate local actions and regulations for conservation according to community needs after understanding the new policy of forest conservation and strict law enforcement intended to prevent forest degradation. External organisations also functioned in granting and empowering leadership in local communities, encouraging the critical thinking of leaders, and their understanding of participatory management. According to Yaofeng, Jinlong, and Dahong (2009), the role of external organisations should focus on assisting local people to make their own consensual decisions, based on knowledge, values and principles, on how best to protect and preserve biodiversity in local communities.
In conclusion, the combination of Figures 13a and 13b generates a conceptual framework (see Figure 13) that may be applied to explain the dynamic relationship between the meaning of water and sense of place. There is local reciprocity relationship between the meaning of water and sense of place as long as livelihoods and economic well-being of local communities rely upon...
water and place (a local setting). Within this reciprocity, vulnerabilities are important; otherwise, water and physical setting will be in distress due to a weakening of meaning and sense of reciprocal belonging. However, the competence of leadership can be persistent, evoking the meaning of water and sense of place to prevent changes, problems, or unusual phenomena with water and the physical setting. To secure livelihoods and economic well-being dependent upon water and physical setting, developing the competence of leadership is thus an important mechanism to be continued for survival of local communities within the vulnerable contexts of water and place.

Figure 13 A conceptual framework of the dynamic relationship between the meaning of water and sense of place
5.4 Contribution and Future Research

While previous studies have proposed models to articulate the relationship between people and the place in which people live (like those reviewed in section 1.3 Chapter 1: relational geographic framework to integrate theory and practice in ecosystem management (D. R. Williams & Patterson, 1996), three-pole model for mapping the meaning of place (Gustafson, 2001), and the meaning-mediated model for integrating environmental factors with sense of place (Stedman, 2003)), the framework presented in this chapter represents the relationship by way of a systematic comprehension of two deep and abstract notions: the meaning of water and sense of place in the context of human development. Within the context of local communities, it foregrounds a local reciprocal relationship between these notions: sense of place can evoke or ignore meaning of water, and vice versa, and be consistent with the interaction between people, physical settings, and water as a part of place. This relationship corresponds to livelihood and economic well-being reliant on the ecological condition of water and place which together connect with society, culture, and politics. The other prominent features of this framework are vulnerabilities and leadership, the former influencing the loss of sense of place and meaning of water, and the latter having potential to recover this loss and construct social unity in the protection of water and place. They reveal, respectively, critical processes of problematic phenomena and alternative solutions in local communities due to the dynamic nature of relationships. This new understanding provides a holistic and systematic perspective which may be essential in an academic discourse to articulate the relationship between people and place including water. Policy makers or environmental managers may also apply this model to suggest an alternative policy or plan natural resources management in local communities, thereby developing the competencies of leadership in local communities.

However, this framework is context-oriented. It can be applied in other similar contexts to those where it was derived, or where people rely on water and forest; contexts in which interaction between people, water, and place has been changed by internal and external forces; and where leadership predominates. In addition, the systematic research process applied during the course of this work, being constrained by a three-year time frame, did not allow this practical framework to be more generalised. Further research requires a systematic research process which leads to theoretical saturation. I suggest focusing on the verification of this framework using a similar methodology to that employed here, but the areas for study must provide different settings, phenomena, or circumstances where people interact differently with water and place, and where such a focus might produce tangible and beneficial outcomes. These settings could be in rural remote or indigenous communities in which social cohesion and a belief system predominate, where socioeconomic status is low, where infrastructure and development are limited, where
water and natural resources are problematic, where leadership is weak, where access to external organisations is difficult, and where political issues or conflicts are critical. An urban setting to be considered could have economic growth and development predominating where a socio-cultural base and leadership are weak, where acceptable governance and management predominate, and where livelihoods are dependent upon modernisation and capitalism.

5.5 Epilogue

A curiosity about water, and what it might mean for those in Thai local communities, inspired me and set me on this path to design and conduct this study. During fieldwork, I somehow felt at ease and at home; happy and comfortable living and engaging with villagers. This sense, plus perhaps my personality helped build relationships and trust with villagers. I knew that politeness and a friendly manner came easily for me, and being able to communicate in the local language (northern dialect) was important. When I had conversations with villagers, I could feel that most participants were familiar enough with me and comfortable enough to tell me their stories, even when the subject involved personally and politically sensitive information about the villagers or villages.

There were methodological aspects to this too. Knowing the northern dialect saved time and ensured that the transcription process and interpreting stories were possible (at least more possible than if I did not have this local tacit knowledge). I often thought during my fieldwork and now even more so in reflection, that the flexibility and the systematic process of grounded theory enabled me to spend time to play with data in actual settings and situations for ensuring the quality of data, descriptions, and models. I could revisit the villages, forest and water sources in essence and could have conversations with participants frequently to repeat asking the questions where a topic or category needed to be re-examined. Moreover, regular or special activities and events of the villages relevant to water and place could be observed and recorded spontaneously.

However, this nature of the research process also made it difficult to seek outcomes from descriptions towards a conceptual framework. Each step of the process ideally required much more time than the time constraints of a PhD would allow; constant effort was needed with data comparing transcriptions, categorising themes, connecting stories, and identifying conceptual categories. Without a guiding framework, I had to get a sense of data immediately to continue asking questions - perhaps too quickly and without the reflection time that might have helped. Data sometimes confused me, for example which story or anecdote was necessary, when could I be sure about conceptual categories, and when I thought I had one, when was it completed.
Looking back I think the advantages of selecting a place that I was familiar with, outweighed the disadvantages. My prior knowledge and background of the study area were pivotal to be able to complete this study within the period of time required. I knew about research and had had fieldwork experiences (seven years of working at Thailand Research Fund (TRF), Community-Based Research Division). This enabled me to manage actual circumstances and use several techniques and skills properly during fieldwork. Moreover, choosing a specific study area provided the advantage of being able to commence fieldwork sooner, since I was familiar with places and the leaders of communities, and even though I probably didn’t know it at the time, the tacit understanding of background stories of water, people, and place in Pok and Pang Jum Pee villages allowed me to be creative with ideas, to ask questions and examine in deeper detail. This background also helped me analyse data, categorise themes, and create descriptions.

If this study were to have been conducted in a place unknown to me, and without a guiding conceptual framework, it would not have been possible time wise. However, knowing the background information also came with a disadvantage that I had to counter: I had to be careful not to be distracted by paying much more attention to a story I knew rather than seeking new or more important data. I addressed this in part by explaining clearly my new role (to go past the familiarity of my former position at TRF) at the beginning of fieldwork to prevent bias of data. The distance provided by my consultations with, and questioning from, my supervisors also helped me in this regard.

Yet it was this timeliness, familiarity and flexibility that made me realise that the outcomes of this investigation had to be subjective, and where the meaning of water and sense of place exist in a particular social context and relied on perspectives, experiences, and actions of human beings towards water and place. Further theoretical validation and saturation are essential, along these lines. Ethnography, grounded theory, or phenomenology will be appropriate since they allow seeking and interpreting in societal settings using perspectives, experiences, and actions. Further investigation should be conducted in both remote and urban communities where researchers are familiar with settings and where there are a range of different backgrounds of water sources, biophysical environments, cultural diversity, socio-economic well-being, and political issues.
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Appendices
Appendix A

Background Information of Pok and Pang Jum Pee Villages
Location and Geography

Map 1 The location of study areas at Mae On District, Chiang Mai Province, the north of Thailand

Pok and Pang Jum Pee Village are located in Huay Kaew Sub-District, Mae On District, Chiang Mai Province, the north of Thailand as shown in Map 1. Map 2 shows that to reach both villages, travel north from Chiang Mai City on highway 118 towards Chiang Rai Province. After about 30 kilometres the police unit, Pong Kum arrives. At this site, turn right and go straight for 4 kilometres, then left at Mae Takrai National Park Office, Royal Forest Department. About 3 kilometres down a winding road, Pang Jum Pee Village, Moo 7 comes into view. From this village, travel back to the T-junction at Mae Takrai National Park Office, turn left and proceed straight towards the path to Pok Village, an isolated village in a valley. Next, turn left at the Local Authority of Huay Kaew Sub-District (Huay Kaew Local Authority) and go straight along the curved slope for 20 kilometres to reach Pok Village.
As shown in the Map 3, both villages area are located along the course of the Mae Lai Noi stream, which has more than one hundred tributaries. Pok Village is divided into three housing groups: Pok Nok, Pok Klang, and Pok Nai. It is an isolated area on highland, about 1500 metres above sea level, surrounded by a tea plantation and a forest. The forest located above this village is the upper source of water for the Mae Lai Noi stream flowing down to Pang Jum Pee Village. Pang Jum Pee Village has five housing groups: Pok Ta Sai, Pok Lai Num, Pok Klang or Pok Jum Pee, Pok Ta Kian Tong, and Pok Ban Pao. It is located about 700 metres above sea level in a region physically characterised by alternating plains and uplands, and surrounded by orchards and forests.

The east side of Pang Jum Pee Village and the west side of Pok Village are connected by the Mae Lai Noi stream. People can trek along this stream for approximately 7 kilometres, from Pok Ban Pao at Pang Jum Pee Village to Pok Klang at Pok Village. This route has been developed by the village leader and the Community Committee at Pock and Pang Jum Pee Village to support visitors who prefer nature and adventure. It provides natural scenery and waterfalls (see Map 3): Tad Pra Teuk, Song Kuae, Pa Yuaeng, and Ya Jun. In addition, there are a water power plant and a water power dam near Ya Jun waterfall. Each village is surrounded as indicated below:

<table>
<thead>
<tr>
<th>Direction</th>
<th>Pok Village</th>
<th>Pang Jum Pee Village</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Pa Rai Village, Thep Sa Det Sub-District, Doi Sa Ket District, Chiang Mai Province</td>
<td>Pian Village, Thep Sa Det Sub-District, Doi Sa Ket District, Chiang Mai Province</td>
</tr>
<tr>
<td>South</td>
<td>Mae Lai Village, Huay Kaew Sub-District, Mae On District, Chiang Mai Province</td>
<td>Huay Kaew Village, Huay Kaew Sub-District, Mae On District, Chiang Mai Province</td>
</tr>
<tr>
<td>West</td>
<td>Pang Jum Pee Village, Huay Kaew Sub-District, Mae On District, Chiang Mai Province</td>
<td>Mae Tao Din Village, Huay Kaew Sub-District, Mae On District, Chiang Mai Province</td>
</tr>
<tr>
<td>East</td>
<td>Mae Jam Village, Jae Sawn Sub-District, Muang Pan District, Lampang Province</td>
<td>Pok Village and Pang Hai Village, Thep Sa Det Sub-District, Doi Sa Ket District, Chiang Mai Province</td>
</tr>
</tbody>
</table>
Map 3 The Mae Lai Noi stream and neighboring villages
Mapping Pok Village

The total area of Pok Village is approximately 1000 ha as shown in Map 4, divided into a residential zone, an orchard zone for working, and a forest zone. Pok Village is also divided into three groups of housing: Pok Nok, Pok Klang, and Pok Nai (see Map 5). The village population is 128 people, 72 male and 56 female. Of the 53 households in Pok Village, 11 are in Pok Nok, 10 are in Pok Klang and 32 are in Pok Nai; each Pok has a different altitude above sea level, 1200 m, 1100 m, and 1300 m, respectively. Travel within the village cannot avoid the steep and curved route along the contour line of the mountain. The distance from Pok Nok to Pok Klang is shorter than Pok Klang to Pok Nai and the road from Pok Klang to Pok Nai is steeper than from Pok Nok to Pok Klang.

Noticeably, most houses are in clusters and located along the steep contour road. They are of different sizes and styles: some of them are made of wood and covered with a tile roof; others have a single storey or two storeys; and yet others have Thai basements. A few of them are made of brick and have fences with ornamental plants and flowers decorating the front of some houses. Flowers like cockscomb, rose mallow, marigold, mimosa, cape jasmine, and megaphone flowers provide colourful blossoms in winter. The houses and orchards are surrounded by a forest, and they are mostly close to the Mae Lai Noi stream and its tributaries.
Map 5 Pok Village
The centers for Buddhist ceremonies are Jomkere Temple and Pok Nok Monastery (see Map 5). The former is the centre of Pok Nai and the latter is the centre of Pok Nok and Pok Klang. Most people also respect and worship Sua Ban or the village shrine. They believe that the guardian spirits of the village have been there and would protect the village from any harm. The three main village shrines have different guardian spirits; Jao Poa Kum Noi at Pok Nok, Jao Poa Sri Meaun at Pok Klang, and Jao Poa Prom Min at Pok Nai. Moreover, the villagers respect Jao Ti Ban (the guardian spirit of houses), Jao Pa (the guardian spirit of forest), and the guardian spirits of cliff areas: Jao Pao Sri Vichai at Pra Too Pa (name of a cliff), Pok Nok (see Map 5).

The Mae Lai Noi stream and Huay Hok (name of a tributary of the Mae Lai Noi stream) are the main water supply for daily use. They are connected to three water tanks at Jomkere Temple, Pok Nok Monastery, and the upper area of Pok Nai. An irrigation system for agriculture is being developed on the Mae Lai Noi stream by the Royal Project, Teen Tok branch. Nevertheless, agricultural practices in the village do not need much water; tea leaves, coffee, and winter fruit can grow well using the natural supplies. Most villagers can also use water from small tributaries of the Mae Lai Noi stream for nearby orchards. In some years, water volume in the Mae Lai Noi stream decreases for some time in summer, requiring villagers to save water during these times.

**Mapping Pang Jum Pee Village**

![Map 6 Boundary of Pang Jum Pee Village](source)

Map 6 shows Pang Jum Pee Village as being

The total area of Pang Jum Pee Village is about 2272 ha (see Map 6). It is divided as follows: residential and orchard zone 480 ha; applicable forest zone (is permit to use for earning a living) 992 ha; and forest conservation zone 800 ha (is not permitted to use for any purpose). The population is 268 people, 124 males and 144 females. Map 7 shows Pang Jum Pee Village as being
divided into five groups of housing: Pok Ta Sai, Pok Lai Num, Pok Klang or Jum Pee, Pok Lai Num, and Pok Ban Pao. There are 82 households distributed as follows: Pok Ta Sai 18, Pok Lai Num 19, Pok Klang (Jum Pee) 20, Pok Ta kien Tong 20, and Pok Ban Pao 5. Each Pok isolated on a flat area which alternates with low mound areas. Pok Lai Num, Pok Klang, and Pok Ta Kien Tong are in the same area but Pok Ta Sai is about one kilometer distant. There are two bridges across the Mae Lai Noi stream in the village, one between Pok Lai Num and Pok Klang and another between Pok Klang and Pok Pang Ta Kien. Pok Ban Pao is isolated on highlands in the forest being about 5 kilometres from Pok Ta Kien Tong.

Most houses are located on the plain area at the edge of road and along the curve of the Mae Lai Noi stream; a few houses are on the mound. There are various house appearances: small or large, single or two-storey, wood or brick dwelling, and fenced or not. Usually, they are plain and harmonise with the surroundings. Flow of the Mae Lai Noi stream and its tributaries also passes most orchard land surrounding the village. Trees around the village are plentiful and water in the Mae Lai Noi Stream flows regularly. This stream provides sufficient water for daily life, even for orchard land in summer when the volume of water decreases. Two big concrete dams on the Mae Lai Noi stream supply water to the residential and agricultural areas. There is also a drinking water supply from Huay Piang Luang in the forest, one of the tributaries of the Mae Lai Noi stream. Some households use and drink water from private wells and some orchardists connect water from the nearest streams.

Aramkuntavivek Temple is the Buddhist ceremonial centre of Pang Jum Pee Village. Buddhist people also respect the guardian spirits of the village at Sua Bann in similar vein to Pok villagers. There are two “Sua Bann” or village shrines: Jao Poa Kab Dum located at Pok Klang; and “Jao Poa Moon Muang” located at Pok Ta Sai on the way to Pian Village in Thep Sa Det Sub-District, Doi SaKet District (see Map 7). Villagers believe that Jao Poa Kab Dum protects Pang Jum Pee Village but Jao Poa Moo Muang guards Pian Village and Pok Ta Sai in Pang Jum Pee Village, including people who always earn a living in the forest near these areas.

Near the Ta Ban Dai waterfall, the Local Learning Centre, Pang Jum Pee is located (see Pictures 1); it is a famous centre of forest and water conservation, and provides an educational service of local knowledge. In this centre, visitors can learn about the way of life in the village and can visit a bamboo weir, the restricted fishing zone or fish house, and the wildlife protection zone. Some visitors prefer sightseeing and trekking in the forest along the Mae Lai Noi stream from Pang Jum Pee Village to Pok Village.
Map 7 Pang Jum Pee Village
On the banks of the Mae Lai Noi stream, adjacent to the Local Learning Centre, are the hut, the zone for nursery plants and vegetables, and the natural fish pond with bamboo pipelines. The fish house is a highlight for each visiting group (see Pictures 2). Visitors enjoy feeding large shoals of fish in the stream and seeing the fish jumping to get food. In the summer season (from March to May), some visitors prefer to participate in the activity of building, from stones, a fish house near the original fish house.

This Local Learning Centre provides five routes for visitors to follow (see Map 8).

Route 1 Learning about villagers’ lives

This route is for visitors who want to learn about the way of life in the village. They can walk in the village and see demonstrations by the villagers of making bamboo rope and grilling banana leaves. They
can also converse with villagers on topics of interest, such as daily life routines, occupation, society, culture, and forest products. The route takes about 1 hour to complete.

Route 2 Learning about the vegetable garden and the Mae Lai Noi stream

The agricultural way of life and an ecosystem of the Mae Lai Noi stream are mainly discussed with the visitors. The tour, lasting about 2 hours, begins at the Royal Learning Centre, Pang Jum Pee Village where knowledge is shared by the members of this centre. Then, a village guide leads visitors along the bank of the Mae Lai Noi stream to the Local Learning Centre, describing the ecosystem of this stream such as plant and animal species.

Route 3 Learning about the forest at the rear of the temple

This route aims to educate about biodiversity in the forest such as herbs, bamboo trees, plants, insects, and animals. It starts at the rear of Aramkuntavivek Temple and finishes at the Local Learning Centre. This route continues for about 2 hours.

Route 4 Learning about nature with short trekking

This route aims to educate visitors about the making of a bamboo weir on the upper stream, and to show the wildlife zone of 600 rai or 96 hectares, where traces of wildlife such as boar and jungle fowl may be found. The tour is about 1.5 kilometres long taking about 2 hours of trekking. Two alternative ways give a choice to trek along this route. The first route has visitors start at the restricted fishing zone before walking through the Mae Lai Noi stream to Huay Hok and returning to the Local Learning Centre. The other pathway starts at the rear of the Local Learning Centre; then, through Huay Hok before completion at the fish house.

Route 5 Learning about nature’s diversity by distance trekking

This route starts at restricted fishing zone at the Local Learning Centre; then, onwards to visit the vegetable garden at Pok Ban Pao. After that, visitors continue trekking from Ban Pao Dam to Pok Klang, Pock Village. The trip takes about five hours to hike the seven kilometres along the lines of the Mae Lai Noi stream. During this trekking, visitors enjoy themselves in the diversity of the forest which includes several waterfalls: Tad PraTeuk, Song Kuae, Ya Jun, and Pa Yeung. They can also visit the water power dam and water power plant at Pok Village.
Map 8: The Local Learning Centre, restricted fishing zone (fish house), wildlife conservation zone, and the five learning routes.
A Way of Life

Pok and Pang Jum Pee villagers are now semi-urban; their life styles resemble northern Thai people in the city. They speak northern dialect and wear universal dress; t-shirt, pants, and jeans are common except for the elderly who always wear a local sarong. There are various occupations: orchardist, gatherer, worker, renter, and merchant. Single and extended families are found, most of them are relatives on whom people can rely when in need. In general, middle-aged people have an obligation to earn a living and elderly people are housekeepers or baby-sitters. Young children and teenagers go to school outside the village and come back home every day. Some of them live outside the village and visit home weekly, monthly, or during semester break and for special occasions. In leisure time, people enjoy several activities: relax at home, hunting, fishing, or sightseeing.

The atmosphere in Pang Jum Pee Village is quiet during the day. Young and adult groups go out for study or work. People who usually remain in the village are elderly, housewives, domestic workers, and a person who works night shift. In the evening and on the weekend, the atmosphere becomes energised by students who comeback home and loudly play together. Some people meet and talk with their friends at the grocery store but others have dinner with their family. In winter, some people prefer to stay in a group around bonfire and roast sticky rice with bamboo before they disperse to bed. Sitting around bonfire is traditional way to warm oneself, to chew warm sticky rice, and to chat with friends or family members at night.

Pok Village has a more lonesome atmosphere than Pang Jum Pee Village because of its isolated location and small population. After giving alms to Buddhist monks and having breakfast, most people leave their house and move to work in the forest or orchards. There are only a few elderly and babies at home. People socialise and have dinner with friends or families when returning home from work in the evening. Teenagers usually live outside the village and seldom go home. In winter, warming and roasting sticky rice with bamboo in front of bonfires can be found the same as Pang Jum Pee Village.

Through year round, Pang Jum Pee villagers seasonally earn a living. July to September is the blooming bamboo shoot season that enables people to earn a substantial income. The average wholesale price is 12-30 baht per kilogram depending upon market price quoted by the middleman. The more harvest, the more income. Some people can get more than 100 kilograms per day. The selling of bamboo shoot has been banned from October to June by the rule of Pang Jum Pee Village so as to sustain the growth of young bamboo before the coming harvest season. December to February is the season for coffee harvesting. People who do not have a coffee orchard can work as an
employee gathering coffee seed at 4 baht per kilogram for heavy seed or 200 baht per day for light seed. Fresh coffee seed price sells for about 10-20 baht and dry coffee seed is about 80-120 baht. From November to May, most people make bamboo ropes for sale with different sizes: 1 x 35, 1x50, and 1x75 centimetres.

Most people also use their spare time to earn more income (see Pictures 3, 4, and 5): grilling banana leaves, making bamboo ropes, gathering forest plants, and working for wages. Some orchardists can harvest seasonal plants: banana, chilli, papaya, pomelo, and pea eggplant. A few people grow vegetable and raise animals such as cows, pigs, and chickens. Fish and frog ponds are found in some households especially nearby the banks of the Mae Lai Noi stream. Only three households are now rice farmers but there is paddy land in the Doi Sa Ket District, Chiang Mai. Most Pok and Pang Jum Pee Villagers accept that hard working people can earn a living in the village without difficulty. A person can take on several jobs: selling agricultural products, fixing houses, and mowing lawns.

Picture 3 Making bamboo ropes; photo taken December 2010

Picture 4 Grilling banana leaves; photo taken December 2010

Pictures 5 Collecting plant in the forest and at the edge of Mae Lai Noi stream; photos taken May 2011
In Pok Village, tea Leaf is a commercial plant. No one knows the origin of tea leaf orchards; people assume that the orchard was inherited from early settlers or ancestors. The plant grows naturally without any investment; it does not need water, fertilizer, or any particular treatment. The more people harvest, the more tea leaves grow. Before they were sold, tea leaves can be streamed, fastened, and fermented (see Pictures 6). Therefore, people can earn a living from them in the long term. The season for harvesting tea leaves begins in April and ends in December; May to July is the heavy production season. A handful of fresh tea leaves is fastened by a bamboo rope and sold for about 4.5 baht per bundle. People can obtain a better price with streamed and fermented tea leaves, about 7.5 per bundle. In general, tea leaves business provides a good income throughout the tea leaf season. People can earn at least 200-300 baht per day per person. Workers who harvest tea leaves in the village can earn 150 baht per day for woman and 200 baht per day for man. Worker who harvest tea leaves outside the village can earn more. Some people also sell small mature leaves with a strong green colour to the middleman for producing tea leaves pillows.

Photos 6 Streaming, fastening, and fermenting tea leaves; photos taken December 2010

The Royal Project, a government official, Teen Tok Branch, also promotes integrated crops on tea leaf orchards with coffee, persimmon, and Dog Ling Lao. However, only a few people succeed in integrated cropping. Coffee also grows well and becomes an economic plant in addition to tea leaves. From December to February, it is the season for coffee harvest. People who do not have coffee orchards can work as employees, similar to Pang Jum Pee Village. Dry coffee business is more widespread than fresh coffee business because people can gain more profit, at least 20 baht per kilograms. Peeling coffee machines from Pok Village have been provided at Pok Nai, Pok Klang, and Pok Nok. To make dry coffee seed, people need to peel the coffee skin with these machines, then

54Dok Ling Lao is the name of local plant which grows with violet and white bunches.
soak the coffee seed in water over night and wash it the next morning. After that, the coffee seed is dried with strong sunlight. It must avoid exposure to moisture or rain (see Pictures 7).

From January to April, numerous firewood and bamboo ropes are being prepared for the next tea leaf harvest season. Streaming tea leaves needs firewood and fastening bundles of tea leaves needs bamboo ropes. Hence, people have made two kinds of thin bamboo ropes; Tok Keb and Tok Rud as shown in Pictures 8. The former has size 0.5 x 50 centimeters which is used for fastening when people harvest tea leaves. The latter has size 3 x 35 centimeters which is used for fastening streamed tea leaves. In addition, Pok villagers can earn extra income such as working for a wage, selling forest plants, making brooms, and sewing tea leaf pillows.

*Pictures 7* Peeling coffee skin and drying coffee seed; photos taken December 2010

*Pictures 8* “Tok Keb” for fastening fresh tea leaves (left) and “Tok Rud” for fastening streamed tea leaves (right); photos taken December 2010
A few people have their own business in Pok and Pang Jum Pee Villages such as retail shop, food store, home stay, handyman service, and house renting. Some people work as contractors or as employees outside the villages such as a government official, for a private company or in a small shop. In brief, the seasonal pattern for earning a living in Pok and Pang Jum Pee Villages is:

<table>
<thead>
<tr>
<th>Month</th>
<th>Pok Village</th>
<th>Pang Jum Pee Village</th>
</tr>
</thead>
<tbody>
<tr>
<td>January to April</td>
<td>Prepare firewood for streaming tea leaves and making bamboo rope for fastening tea leaves</td>
<td>-</td>
</tr>
<tr>
<td>April to December</td>
<td>Harvest tea leaves</td>
<td>-</td>
</tr>
<tr>
<td>July to September</td>
<td>-</td>
<td>Harvest bamboo shoots</td>
</tr>
<tr>
<td>November to May</td>
<td>-</td>
<td>Make bamboo ropes for selling</td>
</tr>
<tr>
<td>December to February</td>
<td>Harvest coffee</td>
<td>Harvest coffee</td>
</tr>
<tr>
<td>Spare time in each month</td>
<td>Be a worker, Conduct business, Make brooms, Gather plant and fruit from the orchards and forest; mushroom, persimmon, Makor (hard peel seed), and Dok Ling Lao (local plant used for cooking local curry)</td>
<td>Be a worker, Conduct Business, Grill banana leaves, Gather seasonal plants and fruit from orchards and forest; chili, banana, mushroom, papaya, and pomelo</td>
</tr>
</tbody>
</table>

The report of Local Authority, Huay Kaew Sub-District in year 2011 indicated that the total income per annum in Pok Village and Pang Jum Pee Village is 3,719,950 baht and 8,698,875 baht, respectively. Total expenses per annum in Pok Village is 2,110,355 baht, and Pang Jum Pee is 6,130,630 baht. Debt record shows 525,500 baht per year at Pok Village and 3,038,600 baht per year at Pang Jum Pee Village.
Cultural Background

Pok and Pang Jum Pee villagers have maintained a cultural generosity. They always assist their neighbours in any special occasions: funeral ceremony, ordination, house-warming, and wedding day. For example, during a funeral ceremony, most villagers gathered at the host’s house to share their responsibility. They rotated to help for seven days until the ceremonies were completed. Men helped in hard-work jobs like cutting firewood, rigging up tents, and carrying tables and chairs. Women served food for guests or work in the kitchen: slicing vegetable, cooking, washing plates, and organising kitchen ware.

In addition, ninety nine per cent of Pok and Pang Jum Pee villagers are Buddhist. They follow northern Thai traditions, maintaining religious ceremonies or rituals. In general, daily offering of food and dedication to the monks are carried out independently (see Pictures 9). For instance, every morning some Pok villagers offer food and drink to a monk while he is walking from Pok Nok to Pok Klang. Pok Nai villagers agree to circulate food offerings every day and Pang Jum Pee villagers manage to provide a collective donation for the monks of 30 baht per month per household.

![Pictures 9 “Tum Boon” for monks, giving alms (left) or receiving an offering dedicated to monks at the temple (right); photos taken January 2011](image)

Most Buddhist villagers also go to temple whenever they want to consolidate personal beliefs and faith. They usually go to temple on Buddhist holy days for traditional ceremonies for Tum Boon\(^{55}\) and listening to the sermon. Some people socialise with their friends at the temple, especially elderly people. Some of them provide a meat dish, dessert, fruit, and drink for the monk at temple in the

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\(^{55}\) Tum Boon means giving food, money, or materials to monks without expectation of something in return. Buddhist people believe that Tum Boon will lead them to have a better rebirth.

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tradition of Tan Phee or Tan Kun Kao. In this sense, Mr Tong Yingyoach explained that, “Tum Boon showed a sense of gratefulness. Nothing is more important than doing something for the spirit of father and mother. It was a deception to convince people to do a good thing. Anyway, it is a personal belief.” Pok and Pang villagers also respect and worship guardian spirits to ask for blessing and protection in particular places; Sua Bann (the guardian spirit of village), Jao Ti (the guardian spirit of house), Jao Pa Jao Khao (the guardian spirit of forest), and the guardian spirit of cliff areas. Moreover, each month, Pok and Pang Jum Pee Villages annually celebrate Northern Buddhist ceremonies inherited from ancestors’ beliefs.

January

At Pang Jum Pee Village, there is “Tan Kao Mai” or an offering new rice ceremony on the day of the full moon about 29th or 30th January. On this day, people prepare paddy, rice, and cooked rice, which are put into four alms bowls of monks at the temple or monastery. In addition, they offer food and dessert in these bowls. This ceremony has been conserved as a reminder of the tradition of rice farming. Farmers believed that dedicating rice for god, soil, rain, and sky would increase rice production. This meant having enough rice for consumption until the next year. They usually showed respect to god by praying for rain that could provide enough water for growing rice. In contrast, during harvesting season, they prayed for sunny days. After the ceremony, merit rice was kept in a barn to protect it from insects, mold and diseases. Some farmers believed that putting merit rice on a buffalo’s back could ordain the fertility of rice.

March or May

In some years, the ceremony is held of Song Num Pra That or showering Pra That at Pang Jum Pee Village to ask for protection from supernatural beings. Pra That is a holy object constructed in temple area showing that supernatural beings have been there to protect the village and ordain prosperous and healthy villages. The first ceremony is generally performed as soon as the construction of Pra That is complete, being held during March or May in alternative years. Ancestors believed that Phra That had a heart and could fly. Every two or three years, a big glittering marble which resembled a lunar shape floated on sky and disappeared at the top of tree. People thought that this marble was buried within Pra That and emerged to show sanctity sometimes. Mr Tong Yingyoach, added that

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56 Tan Phee or Tan Kun Kao is northern traditional practice that is led by monk and is usually performed on Buddhist holy day, annual religious ceremonies or special occasions (birthday and house warming). People believe that this practice is a way to Tum Boon and to offer food, drink, gifts, and money to ancestral spirit with respect and gratitude.
“Soil, water, wind, and sky were the elements molded by Pra That. It was the place of sacred power protecting our village. A big marble was a sacred glare. It showed the sacred power of Pra That. Now, a few people believed in this marble and Pra That.” Moreover, after every after May, there are the ceremonies of Buat Pa or tree ordination and seub Cha Ta Rum Num or longer life ritual for water in the river or stream at the Local Learning Centre, Pang Jum Pee. These ceremonies aim to stimulate an awareness of forest and water conservation constantly.

**April**

Songkran or Thai Happy New Year is an annual festival from 13 to 16 April. To perform a ceremony, Pok and Pang Jum Pee villagers follow northern traditions and beliefs. The 13th April is the day of Wan Sang Kan Long or the end of the old year. Most villagers always travel around and splash water to each other. The 14th April means Wan Nao, Wan Jai, and Wan Sook Dib (shopping day). Food, drink, and offerings are prepared for monks during the next day. Wan Pra Ya Wan is the beginning of New Year, 15th April, which is the best day in a year. Most villagers go to temple to offer food, drink, money, and materials to monks and to listen to the sermon. Some of them carry sand to build castle and sprinkle water on a Buddha statue. Some households celebrate auspicious ceremonies such as wedding day and housewarming on this day. The last day is Wan Pak Pee, 16th April, is a good day for the performance of a ceremony. Young people show respect to elderly people by asking for blessing, and offering food, gifts, or money. Some households also perform a ceremony for the guardian spirit of houses since people believe that this performance will bring fortune and happiness to their houses.

**July**

Wan Kao Pan Sa or Buddhist Lent day is on the first day of the waning moon in July. It is the rainy season so monks cannot move to stay at other temples for three months except for particular events. Performance of the ceremony is held on the fifteenth day of the lunar calendar, the waxing of the moon. This ceremony resembles a Buddhist holy day that people go to temple for Tum Boon and listen to a sermon. However, essential belongings in the rainy season are offered to monks, for example, showering cloth and yellow robe. Some people also offer candle, lamp, gas, and electric light to monks because they believe that these offerings can promote foresight and intellectualism.

**September**

Pok villagers believed that the fifteenth day of waxing moon in September is Wan Ploy Pee or the independent day of soul, spirit, and ghost. In the morning, they go to temple for Tum Boon to ancient
spirits, strays, and hungry ghosts. After that, monks preach a sermon on morality. A woman believed that, “If anybody did not offer foods for own ancestral spirit, they would feel unhappy.” The other woman thought that “people need to offer food and things to the spirit and ghost because ghosts have waited for these gifts. If they did not receive anything, they will be shamed, and appear in the dreams of their descendants every night. If they received food and gifts, they would not disturb anybody.”

**October**

Wan Oak Pun Sa or the end of Buddhist Lent Day is held on the fifteenth day of the waxing moon in October at the end of rainy season. After this day, monks can travel and stay in other temples. For ceremonial performance, Pok and Pang Jum Pee Villagers go to the temple for Tum Boon offering food, drink, flowers, and money. Someone who was standing in front of Aramkuntavivek Temple told me that “Ignoring Buddhist Lent Day was not good. I would feel unhappy. People were waiting for Tum Boon on this day for next life.” In the morning, food, drink, dessert, flowers, and money are put into the Buddhist monks’ bowls before the Buddhist sanctuary. The performance leader then offers everything to the monks before leading a ceremonial performance of accepting Buddhist precepts and receiving the monks’ blessing. After that, monks preach a sermon.

**November**

Yee Peng or Loy Kratong festival occurs on day of the full moon in November; it aims to worship “Pra Mae Kong Ka” or the God of the river. People believed that praying and floating Kratongs or floating baskets into rivers can release grief and misfortune. However, Pok and Pang Jum Pee Villagers cannot float Kratong in the Mae Lai Noi stream because this stream is shallow and devious. Floating Kratongs is replaced by a big ceremony of Tan Ton Ngeun or offering money for developing temple. Each Pok creates its own “Ton Ngeun” or money tree and collects money to furnish this tree before offering it to monks at the temple (see Pictures 10). To raise funds, neighboring villages in Huay Kaew District are invited to participate in this ceremony. The representatives of each village donate their own money tree to the temple at Pok and Pang Jum Pee Villages. Next time, the representative of Pok and Pang Jum Pee Villages must reciprocate money donation to other villages which organise the same ceremony. Joyful activities are also arranged in the villages such as front of house decorations, balloon contests, and fireworks contests. Some households ignite candles in front of their houses and

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57 Kratong or floating basket can be made of various materials: banana leaves, bread, and foam.
release balloons to banish grief and misfortune. In the evening, there is socialisation; people get together and rotate to visit their neighbours.

Furthermore, villagers always participate in formal and informal activities that are organised at temples. The formal activities include a village meeting, a group meeting, and occupational training. The informal activities are cheerful occasions for a northern music play, a regional show, and a New Year party.

Societies and Politics

Social Relationship

There are two kinds of social relationships, formal and informal. The formal relationship refers to the hierarchic lines in the villages: village leader and villagers, member of the Community Committee and assistant village leader (see details in next subsection), and knowledgeable people and villagers. Normally, villagers respect the village leader who is nominated as master of the village. His obligation is to develop the village and rule the villagers to live in peace and happiness. He can admonish or fine somebody who badly behaves to villages, for example, fighting with one another and throwing rubbish into the Mae Lai Noi stream. However, the village leaders emphasis democratic principle; they allow villagers to vote for choosing his assistants and the Community Committee, including making decisions for regulating the village. Similarly, villagers respect members of the Community Committee and accept chairman of committees or groups established for particular purposes or activities. For instance, the coffee group manages productions and markets to gain profit for
members. The housewife group is composed of women members from each household. It is formed to help village activities and solve financial problems of members by raising funds for loans. In addition, villagers respect informal leaders as specialists who are knowledgeable and can give advice about harvesting and streaming tea leaves, collecting plants in the forest or stream, hunting and fishing, grilling banana leaves, making bamboo rope, and performing integrated agriculture. Monks, liaison, performance leader, and spiritual leader have also been accepted because people believe in spirituality. For example, Mr Noi Tornfoo and Mr Roj Nochai lead the performance to worship the guardian spirit of villages and pray for peace and happiness in the village. Mr Som Yindee prays to cure mild illness and promote mental health.

Next, the informal relationship is the horizontal interaction among family, relatives, and friends in daily life. For example, grandfather, grandmother, father, mother, son, daughter, uncle, aunt, sister, brother, son-in-law, or daughter-in-law have conversations together during dinner. Grocery stores in the villages function as social centres. Villagers always stop to buy food and talk with friends in a small or large group. Simultaneously, a few houses become centres of informal meetings. Every morning, several women sit in front of a house at Pok Nok while they are waiting to give food offerings to monks. They joyfully tease and ask each other about their sufferings and happiness. Some evenings, a few men and women gather and have dinner at another house. When there are festivals or special occasions in the villages, people visit and chat with friends. In addition, leisure activities unite people, for example, fishing and cooking at the edge of the Mae Lai Noi stream. Sometimes, people participate in social activities such as cleaning the village and the Mae Lai Noi stream, building fire breaks and bamboo weirs, annual festivals, and Buddhist ceremonies. In emergency events, some people gather to help, for example, taking victims from car accident to hospital, extinguishing forest fires, and cleaning water pipelines. This informal relationship appears in both villages because of fundamental genealogy. Settlers settled in and persuaded relatives, siblings, and friends to move in before extending their families in the villages. However, there are various original hometowns: Pian Village, Pang Hai Village, Pa Ngeo and Pa Fang Village in Doi Sa Ket District, Chiang Mai. Some people come from other provinces: Pichit, Chiang Rai, Lampang, and Nakornrachasrima. In addition, people have informal social connections with neighbouring villages, particular in Huay Kaew Sub-District. For example, they rotate to participate in social events of each village: wedding day, funeral ceremony, and religious event.

However, in reality, formal and informal relationships are so complicated and hard to identify within village society. Moreover, unequal relationships have appeared in the villages: employer and
employee; rich and poor people; capitalist and labourer; merchant and orchardist; prestigious and ordinary persons; high and low educated persons; and old and new lineage. Villagers also honour two main groups of visitors. The first group comprises researchers, students, or learners who are knowledgeable. This group usually shares experience of forest and water conservation with formal leaders which leads villagers to gain knowledge and income. The second group is representatives of government officials or private organisations. This group usually supports funding and information for village activity and development such as water supply, water management, fire protection, and forest conservation.

Village Administration

Under a democratic form of government with the King as head of State, electing a village leader is the right of villagers. In the past, a chosen person could hold the position of village leader for five years. Today, policy is changed; a village leader is allowed to perform his duty until retirement. However, he must report implementation and outcomes to villagers for evaluation every five years. Villagers have the right to demote a village leader who is problematic or defaults from his responsibility. They can then nominate a new village leader. In the administrative structure of the villages, there are five main leaders (see Figure 1 below).

1. Village Leader.
   The obligation of this position is to maintain peace in the village, to promote unity of villagers, to develop the village, and to cooperate with government and non-government organisations for village development.

2. Assistant Village Leader.
   This person takes a position of secretary and treasurer. If necessary, he can perform as a representative of village leader.
3. Community Committee.

This community is the most important sector in administrative structure of each village. The mantle of this committee is to advise and cooperate with the village leader for village development, including assisting in government affairs. The Community Committee comprises from 5-15 people with the village leader as chairman. Assistant village leaders are members of this committee and villager representatives are appropriately selected to manage each sector: the elderly, woman's affairs, agriculture, finance, public health, and environment.

4. Head of Pok.

The role for this position is similar to village leader: to rule and develop each Pok according to the performance of the village leader and Community Committee. At Pok Village, Head of Pok Nok, Pok Klang, and Pok Nai can be found. At Pang Jum Pee Village, there are heads of Pok Ta Sai, Pok Lai Num and Pok Jum Pee together, including Pok Ta Kien Tong and Pok Ban Pao together.

5. Members of Local Authority.

Each village has two members of Local Authority, Huay Kaew Sub-District. They cooperate with the village leader for village development and propose project needs or strategic plans of the community to the chairman and committee of local authority at Huay Kaew Sub-District, which authorises to subsidise funds.

There are three methods of gaining these positions: assistant village leaders, head of pok, and Community Committee. Firstly, the village leader nominates them before allowing villagers to make a decision. Next, each person nominates themself to villagers to decide a collective agreement. Finally, villagers nominate somebody and vote for that person. When the nominees are finalised, they must accept the position and responsibility. To select two members of local authority, every four years, an election is arranged. Commonly, villagers ask former members to be a candidate before voting them to become members of local authority.

In addition to the main structure, an ad hoc committee is set up to handle appropriately particular situations or government projects. For example, the forest and environmental protection committee focuses on water and forest management. The health care volunteer committee promoted good health to villagers for the prevention of serious diseases such as high blood pressure, diabetes, and dengue fever. Government organisations also establish groups in the village for particular purpose to promote occupation as a strategy to gain extra income of villagers. Most of these groups are
managed by the community committee led by the village leader. For example, Huay Hong Krai Royal Development Study Centre gives encouragement to pig group, bamboo group, and mushroom group. Local Authority, Huay Kaew Sub-District contributed flowering and ornamental plant groups. Teen Tok Royal Project supported a non-chemical vegetable group. Moreover, other organisations promoted several groups such as a community fund, forest conservation bank, woman’s affairs, care of the elderly, coffee cultivation, and beekeeping.

In general, leaders in administrative structure and ad hoc committee overlap. One person has more than one position because only a few people are ready to take on the extra tasks. For example, Mrs Pranee Toonkum is an assistant village leader, the head of Pok Ta Sai, and the head of housewife group. Mr Supol Chaitha takes the positions of the head of Pok Nai, and a member of the community fund committee and a member of Local Authority, Huay Kaew Sub-District. Importantly, participation is the principle of administration in Pok and Pang Jum Pee Village. All villagers are allowed to make collective decisions at village meetings for development plans, common problem solving, and any project implementation. For example, the villagers discussed and agreed with constructing bamboo weirs, arranging legal land titles, developing the Local Learning Centre at Pang Jum Pee Village, determining restricted fish and wildlife zones, protecting forest from fires, regulating forest and water conservation, and maintaining water supply.

**Collaborative Organisations**

Teen Tok Royal Project, Huay Hong Krai Royal Development Study Centre, and local authority at Huay Kaew Sub-District have main obligations of supporting Pok and Pang Jum Pee Village. They usually inform the village leaders about progress of project proposal applications. Most of them aim to solve water conflict, develop the water supply, improve education in conservation, grow nursery plants, and promote integrated agriculture and forest and water conservation. They discuss what project needs to be undertaken before making a proposal to donor organisations. If these organisations want to implement their projects in the villages, the Community Committees must prudently consider the advantages and disadvantages of each project beforehand. When approved, they implement their projects in the villages. Also, the village leaders and Community Committees cooperate with other government and non-government organisations to develop the villages continuously. For example, the Thailand Research Fund (TRF) supported the collective learning process to strengthen forest and water conservation, and the Thai Health Foundation encouraged funding for the ceremonies for forest and water.
Appendix B

Ethical Document
Invitation Letter
Invitation Letter

Dear (name of village leader),

My name is Katesuda Sitthisuntikul, PhD student, Edith Cowan University. On behalf of the university, I would like to invite residents of Pang Jum Pee Village to participate in a research project from October 2010 to September 2011. The project employs a grounded theory approach to examine the relationship between the meaning of water and sense of place in Thailand.

This project aims to investigate the relationship between the meaning of water and sense of place. The feelings and actions of people towards water and the place in which they live will be explored and described, leading to the development of a conceptual framework. Pok and Pang Jum Pee Village have been justified as potential areas for this study because of their relevant background stories between people, water, and place. Participating in this study will provide good opportunities for the villagers to express their understandings and the feelings about water in the Mae Lai Noi stream and the villages in which they live, through their stories relating to the meaning of water in their lifestyle; their economy, society and culture; and their environment. These opportunities will lead the villagers to increase their awareness of their stream and villages. Finally, the data collected in the field will be used for particular purposes such as water conservation and village development.

To collect data, I will live in the villages ten days a month observing all appropriate cultural and personal respects. Some villagers will be selected as potential participants to engage in in-depth interviews and focus groups. The contribution of each participant to this project will be completely voluntary; and an information letter with a clear explanation will be provided. The signature to a document or voice recording of agreement to participate in this project will be required. All participants are free to withdraw from this project at any time without any explanation and penalty. In addition, I will participate in any social activities and events in the village. A relevant data will be acquired naturally by observation of happenings such as lifestyle, particular behaviours, and actions towards the Mae Lai Noi stream and village life. Audio-visual procedures and personal recordings will be used during the period of data collection, these records and any data from the participants and observations being analysed and
repeated until this project is completed. Finally, the results of this study will be appropriately presented and published in a thesis and on other official occasions such as conference papers and journals.

I will contact you directly to explain clearly any additional information needed, and to ask for permission to enter your village. If you have any questions or require further information about the research project, please contact me at any time: Katesuda Sitthisuntikul (053) 140900 (Home), (085) 6157858 (Mobile).

This research project has been approved by the Human Research Ethics Committee at Edith Cowan University. If you have any concerns or complaints about the research project and wish to talk to an independent person, you may contact the Research Ethics Officer, Edith Cowan University, 100 Joondalup Drive, Joondalup, WA 6027. Phone: (08) 6304 2170. E-mail: research.ethics@ecu.edu.au

Thank you for your participation.

Kind regards,

Katesuda Sitthisuntikul

Chief Investigator
Information Letter and Consent Form
for Participants ≥ 18 years old
Miss Katesuda Sitthisuntikul
Chief Investigator
ECU Faculty of Computing, Health, and Science
School of Natural Sciences
270 Joondalup Dr
WA 6027
Email: k.sitthisuntikul@student.ecu.edu.au

Ass Prof Pierre Horwitz
PhD Supervisor
ECU Faculty of Computing, Health, and Science
School of Natural Sciences
270 Joondalup Dr
WA 6027
Email: p.horwitz@ecu.edu.au

Information Letter

This is an invitation to participate in a research project employing a grounded theory approach to investigate the meaning of water and sense of place in selected villages in Thailand. The aim is to explore and describe the feelings and the actions of people towards water and the place in which they live, leading to the development of a conceptual framework. This project is being undertaken as part of the requirements of a PhD at Edith Cowan University, Western Australia.

You have been identified as a potential participant in this project because you can share your feelings, stories, and experiences that involve water, people, and place. Participating in this project will be a good opportunity for you to express your understanding of, and feelings about the water flowing in the Mae Lai Noi stream and the village in which you live. You will be invited to tell your stories relating to the meaning of water, village lifestyle and its social life, the village economy and culture, and the environment. Moreover, your viewpoints may result in an improvement to water conservation and village development.

You will be expected to engage with me in an in-depth interview of about one hour’s duration, at a time and place convenient to you. During this interview, details of your expression and storytelling will be noted in my data diary, and your voice and your picture will be digitally recorded for later transcription. Some additional materials such as pictures, letters, maps, and documents, will be gathered. If necessary the interview will be repeated. In addition, you may be invited to participate in a focus group meeting of about two hours where your ideas with those of other participants will be discussed. Audio-visual recording will be made as it was for the interview procedure. Your viewpoints and information will be transformed into the transcriptions and you may be asked to recheck them. The confidentiality of your involvement will be ensured by secure storage and all information will be discarded five years after the thesis has been published. However, your viewpoints, stories, and statement with name may be reported as the result of this research project. This result will be
presented at appropriate conferences and will be published in the thesis and other official document such as journal articles and conference paper.

Your participation is completely voluntary. If you decide to participate in this project, you will be required to sign a consent form that is included in this communication. This signed form will be returned to chief investigator and a copy kept by you. You have the right to withdraw from any information or materials already collected, and you are free to discontinue your consent and participation at any stage of this project without any explanation and penalty.

This research project has been approved by the Human Research Ethics Committee at Edith Cowan University. If you have any concerns or complaints about the research project and wish to talk to an independent person, you may contact the Research Ethics Officer, Edith Cowan University, 100 Joondalup Drive, Joondalup, WA 6027. Phone: (08) 6304 2170. E-mail: research.ethics@ecu.edu.au

If you have any questions or require further information about the research project, please contact me at any time: Katesuda Sitthisuntikul (053) 140900 (Home), (085) 6157858 (Mobile).

Thank you for your participation.

Kind Regards,

Katesuda Sitthisuntilul

Chief Investigator
Consent Form

I, _____________________________________________ (please write your full name and surname in print letters) have been provided the information letter about the research project, a grounded theory approach to an examination of the meaning of water and sense of place in Thailand, undertaken by Katesuda Sitthisuntikul (chief investigator) and Associate Professor Pierre Horwitz (principal supervisor), Faculty of Computing, Health and Science, School of Natural Science, ECU. This information has been read and any questions have been clearly explained to my satisfaction.

I understand that the research project will involve an in-depth interview, a material collection, and an audio-visual recording. I may be invited to participate in a focus group and may be asked to recheck the information I provided. I am confident that my information will be treated as strictly confidential and it may be reported and published appropriately with my name as the result of this research project.

I freely agree to participate in this research project and realise that I have the right to withdraw my information, my consent, and my participation at any time without any explanation or penalty.

I have been provided with the contact details by the chief investigator and I am able to contact her at any time if I have any additional questions.

______________________________
Signature

______________________________
Date
Information Letter and Consent Form
For Participants < 18 years Old
Information Letter

This is an invitation to participate in the research project, a grounded theory approach to an examination of the meaning of water and sense of place in Thailand, which aims to explore and describe the feelings and the actions of people towards water and the place in which they live. This will lead to the development of a conceptual framework of the relationship between the meaning of water and sense of place. This project is being undertaken as part of the requirements of a PhD at Edith Cowan University (ECU), Western Australia.

Your child has been identified as a potential participant in this project because he or she can share his or her feelings, stories, and experiences that involve water, people, and place. Participating in this project will be a good opportunity for your child to express his or her understanding and feelings about the water from the Mae Lai Noi stream and the village in which he or she lives. This will include telling his or her stories relating to the meaning of water, lifestyle, society, economy, culture, and environment. Moreover, his or her viewpoints may result in an improvement of water conservation and village development.

Your child may be expected to engage in an in-depth interview of about one hour at a time and place of your choice. During this interview, his or her expression and storytelling will be noted in the personal diaries, and voices and pictures will be digitally recorded for later transcription. Some additional materials; pictures, letters, maps, and documents, will be sought. The interview will be repeated if necessary. In addition, he or she may be invited to participate in a focus group of approximately two hours for exchanging ideas with other participants. Audio-visual recording will be involved following the same procedure as the interview. Your child’s viewpoints and information will be transcribed and then rechecked by him or her. Confidentiality of involvement will be ensured by the secure storage and all information until it is discarded five years after the thesis has been published. However, his or her viewpoints, stories, and statements may be reported with name as the result of this research project. The results of this research will be published in a doctoral thesis and
other official documents such as journal articles and conference papers to be presented at appropriate conferences.

Your permission is completely voluntary. If you allow your child to participate in this project, you will be required to sign the consent form included in this communication. This signed form will be returned to chief investigator and a copy sent to you. You have the right to withdraw information or materials already provided by your child, and you are free to discontinue your consent for your child’s participation at any stage of this project without any explanation and penalty.

This research project has been approved by the Human Research Ethics Committee at Edith Cowan University. If you have any concerns or complaints about the research project and wish to talk to an independent person, you may contact the Research Ethics Officer, Edith Cowan University, 100 Joondalup Drive, Joondalup, WA 6027. Phone: (08) 6304 2170. E-mail: research.ethics@ecu.edu.au

If you have any questions or require further information about the research project, please contact me at any time: Katesuda Sitthisuntikul (053) 140900 (Home), (085) 6157858 (Mobile).

Thank you for your participation.

Kind Regards,

Katesuda Sitthisuntikul
Chief Investigator
Consent Form

I, _____________________________________________ (please write your full name and surname in print letters), the parent or guardian of _____________________________________________ (please write full name and surname of your child in print letters) have been provided with an information letter about the research project, a grounded theory approach to an examination of the meaning of water and sense of place in Thailand, undertaken by Katesuda Sitthisuntikul (chief investigator) and Associate Professor Pierre Horwitz (principal supervisor), Faculty of Computing, Health and Science, School of Natural Science, ECU. This information has been read and any questions have been clearly explained to my satisfaction.

I understand that my child will be involved in an in-depth interview, a materials collection procedure, and an audio-visual recording. My child may be invited to participate in a focus group discussion and may be asked to recheck the information he or she provided. I am confident that my child’s information will be treated as strictly confidential and it may be reported and published appropriately with my child’s name as the result of this research project.

I freely agree to allow my child to participate in this research project and realise that I have the right to withdraw my consent and discontinue my child’s involvement in this project at any time without any explanation or penalty.

I have been provided the contact details from the chief investigator and I am able to contact her at any time if I have any additional questions.

___________________________________________

Signature

___________________________________________

Date
Appendix C

The List of Participants
A Non-Official Staff

1. Mr Panitee Boonsa used to be research counsellor or facilitator to encourage collective learning process through community-based research project supported by Thailand Research Fund (TRF), Community-Based Research Division. I had conversation with him about how to facilitate this process and benefits at 10.00 a.m. 11 Feb 12 and 2.00 p.m. 28 May 12.

Pok Village

Pok Nok

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Age</th>
<th>Occupation</th>
<th>Time in the village</th>
<th>Role in the village</th>
<th>Interview Date and time</th>
<th>Topic of Conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Mr Vichit Injun</td>
<td>41</td>
<td>Orchardist, merchant, and domestic worker</td>
<td>More than 34 years</td>
<td>The village leader</td>
<td>12.30 p.m. 9 Nov 2010, 5.00 p.m. 27 Mar 11, and 5.00 p.m. 20 June 12</td>
<td>Exploring the village, managing the village, earning a living, change in the village, village development, spiritual beliefs, and forest and water management</td>
</tr>
<tr>
<td>3</td>
<td>Mrs Juree Injun</td>
<td>47</td>
<td>Orchardist and doing business with tea leaves</td>
<td>More than 37 years</td>
<td>Head of village fund and woman’s group</td>
<td>1.30 p.m. 8 Nov 2010, and 1.30 a.m. 27 Mar 11</td>
<td>Use of water, village change, spiritual beliefs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>4</td>
<td>Mr Roj Nochai</td>
<td>60</td>
<td>Harvesting tea leaves</td>
<td>Grew up in the village</td>
<td>Liaison</td>
<td>7.00 p.m. 9 Nov 2010, 9.00 a.m. 23 May 11, and 9.00 a.m. 21 July 11</td>
<td>History and settlement of the village, spiritual beliefs, worship of guardian spirit of the village, using herbs, and experience of traditional lives before development</td>
</tr>
<tr>
<td>5</td>
<td>Mr Sompong Prompeng</td>
<td>48</td>
<td>Agriculturalist</td>
<td>Grew up in the village</td>
<td>A member of the Community Committee</td>
<td>7.30 p.m. 9 Nov 2010, 9.00 a.m. 27 Mar 11, 10.00 a.m. 16 Apr 11, and 1.00 p.m. 26 June 11</td>
<td>Using water and integrated agriculture, experience of traditional lives before development, and village development</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Age</td>
<td>Occupation</td>
<td>Time in the village</td>
<td>Role in the village</td>
<td>Interview Date and time</td>
<td>Topic of Conversation</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
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<td>---------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>Mr Suk Prompeng</td>
<td>53</td>
<td>Harvesting tea leaves and domestic worker</td>
<td>More than 36 years</td>
<td>A villager</td>
<td>10.30 p.m. 10 Nov 2010, and 8.00 a.m.27 mar 11</td>
<td>Earning a living, spiritual beliefs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>7</td>
<td>Mr Intha Injun</td>
<td>47</td>
<td>Harvesting tea leaves, Cropping coffee, and vendor</td>
<td>More than 25 years</td>
<td>Formerly a member of the Community Committee</td>
<td>6.30 p.m. 18 Nov 2010</td>
<td>Earning a living, spiritual beliefs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>8</td>
<td>Pra Boonlek Aspo</td>
<td>60</td>
<td>Monk</td>
<td>More than 3 Years</td>
<td>The abbot of Pok Nok Monastery and leader of herb and forest conservation</td>
<td>12.00 p.m. 30 Jan 11, and 3.00 p.m. 20 July 11</td>
<td>Role of the monk, herb, and forest conservation</td>
</tr>
<tr>
<td>9</td>
<td>Mrs Warajin Injun</td>
<td>33</td>
<td>Harvesting tea leaves and cropping coffee</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>6.00 p.m. 26 Mar 11, and 11.00 a.m. 23 May 11</td>
<td>Earning a living, use of water, spiritual beliefs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>10</td>
<td>Mrs Ratchanee</td>
<td>51</td>
<td>Domestic worker</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>11.00 a.m. 27 Mar 11</td>
<td>Earning a living, spiritual beliefs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>11</td>
<td>Mr Chaithanakorn</td>
<td>50</td>
<td>Merchant</td>
<td>More than 40 years</td>
<td>A member of the Community Committee and the village fund</td>
<td>4.00 p.m. 22 May 11</td>
<td>Earning a living and building cooperation in social events or activities</td>
</tr>
<tr>
<td>12</td>
<td>Mr Somsak Chaitha</td>
<td>53</td>
<td>Harvesting tea Leaves</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>5.00 p.m. 20 July 11</td>
<td>Earning a living and cooperation in social events or activities</td>
</tr>
</tbody>
</table>

Pok Klang

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Age</th>
<th>Occupation</th>
<th>Time in the village</th>
<th>Role in the village</th>
<th>Interview Date and time</th>
<th>Topic of Conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Mr Sawas Katiya</td>
<td>50</td>
<td>Harvesting tea leaves and</td>
<td>More than 17 years since moving from</td>
<td>A member of the Community Committee</td>
<td>6.00 p.m. 8 Nov 2010, 7.00 p.m.13 Dec 10, 10.00 a.m. 28</td>
<td>Change in the village, cooperation in social event or activities, use of water, exploring streams, and</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Age</td>
<td>Profession</td>
<td>Grew up in the village</td>
<td>Occupation</td>
<td>Dates</td>
<td>Contributions</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------</td>
<td>-----</td>
<td>-------------------------------------------------</td>
<td>------------------------</td>
<td>---------------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>14</td>
<td>Mrs Petch Chaitha</td>
<td>54</td>
<td>Domestic worker</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>5.00 p.m. 12 Dec 10, and 8.00 a.m. 24 May 11</td>
<td>Earning a living, spiritual beliefs, use of water, and cooperation in social events or activities</td>
</tr>
<tr>
<td>15</td>
<td>Mrs Suchada Kuntawong</td>
<td>41</td>
<td>Domestic and outside worker</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>6.00 p.m. 12 Dec 10, and 6.00 p.m. 15 Apr 11</td>
<td>Experience of traditional lives before development, use of water, and cooperation in social events or activities</td>
</tr>
<tr>
<td>16</td>
<td>Mrs Kaew Katiya</td>
<td>48</td>
<td>Domestic worker</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>5.00 p.m. 13 Dec 10, 7.00 p.m. 15 Apr 11, and 3.00 p.m. 23 May 11</td>
<td>Experience of traditional lives before development, spiritual beliefs, use of water, cooperation in social events or activities, conservation, and ceremonies for forest and water at Pang Jum Pee Village</td>
</tr>
<tr>
<td>17</td>
<td>Mr Udom Chaitha</td>
<td>50</td>
<td>Harvesting tea leaves and orchardist</td>
<td>Grew up in the village</td>
<td>Head of Pok Klang</td>
<td>9.00 p.m. 30 Jan 11, 8.00 a.m. 28 Mar 11, and 8.00 a.m. 17 Apr 11</td>
<td>History and settlement of the village, experience of traditional lives before development, use of water, and cooperation in social events or activities</td>
</tr>
<tr>
<td>18</td>
<td>Mr Prapan Yoinchai</td>
<td>44</td>
<td>Harvesting tea leaves and gatherer</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>10.00 p.m. 30 Jan 11</td>
<td>Earning a living, use of water, and cooperation in social events or activities</td>
</tr>
<tr>
<td>19</td>
<td>Mrs Wai Nikornta</td>
<td>79</td>
<td>Harvesting tea leaves</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>2.00 p.m. 30 Jan 11</td>
<td>Spiritual beliefs</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Age</td>
<td>Occupation</td>
<td>Time in the village</td>
<td>Role in the village</td>
<td>Interview Date and time</td>
<td>Topic of Conversation</td>
</tr>
<tr>
<td>-----</td>
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<td>----------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>20</td>
<td>Mrs Maew Tiasuntia</td>
<td>40</td>
<td>Harvesting tea leaves, gatherer, and domestic worker</td>
<td>More than 10 years</td>
<td>A villager</td>
<td>3.00 p.m. 16 Apr 11</td>
<td>Experience of traditional lives before development, spiritual beliefs, use of water, and cooperation in social events or activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pok Nai</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Mrs Sopin Chaiwut</td>
<td>68</td>
<td>-</td>
<td>More than 40 years</td>
<td>A villager</td>
<td>11.00 p.m. 10 Dec 10</td>
<td>History and settlement of the village, village change, and spiritual beliefs</td>
</tr>
<tr>
<td>22</td>
<td>Mr Kumpun Leuklab</td>
<td>60</td>
<td>Orchardist</td>
<td>More than 42 years</td>
<td>Leader of community fund and a former village leader</td>
<td>2.00 p.m. 10 Dec 10, 1.00 p.m. 29 Jan 11, 2.00 p.m.28 Mar 11, and 7.00 p.m. 20 July 11</td>
<td>History and settlement of the village, village change, experience of traditional lives before development, spiritual beliefs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>23</td>
<td>Mrs Umpun Satikuntilert</td>
<td>55</td>
<td>Orchardist</td>
<td>More than 50 years</td>
<td>A villager</td>
<td>4.00 p.m. 10 Dec 10, and 7.00 p.m. 28 Jan 11</td>
<td>History and settlement of the village, experience of traditional lives before development, spiritual beliefs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>24</td>
<td>Mrs Tongbai Paytumud</td>
<td>57</td>
<td>Domestic worker</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>6.00 p.m. 10 Dec 10</td>
<td>Spiritual beliefs, herbs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>25</td>
<td>Mr Prasit Matha</td>
<td>59</td>
<td>Orchardist</td>
<td>Grew up in the village</td>
<td>An assistant village leader</td>
<td>9.00 a.m. 11 Dec 10, 2.00 p.m. 29 Jan 2011, 4.00 p.m. 26 Mar 11, 4.00 p.m. 26 Mar 11, 3.00 p.m. 15</td>
<td>Exploring the village and streams, history, settlement, change in the village, experience of traditional lives before development, spiritual beliefs, cooperation in social events or activities</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Age</td>
<td>Occupation</td>
<td>Years</td>
<td>Role</td>
<td>Events and Activities</td>
<td></td>
</tr>
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<tr>
<td>26</td>
<td>Mr Prommuang Chaiwut</td>
<td>71</td>
<td>Orchardist</td>
<td>More than 49 years</td>
<td>Formerly a village leader</td>
<td>Apr 11, 6.00 p.m. 20 July 11, and 2.00 p.m. 14 Feb 12</td>
<td>events and activities, and forest and water management</td>
</tr>
<tr>
<td>27</td>
<td>Mrs Tiplnthanon</td>
<td>82</td>
<td>-</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>6.00 a.m. 11 Dec 10, and 2.30 p.m. 14 Feb 12</td>
<td>History and settlement of the village, spiritual beliefs, and change in the village</td>
</tr>
<tr>
<td>28</td>
<td>Mrs Noi Kuma</td>
<td>84</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>9.00 a.m. 12 Dec 10</td>
<td>Spiritual beliefs</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Mrs Srilai Kuma</td>
<td>47</td>
<td>Grocery shop owner</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>12.00 p.m. 12 Dec 10</td>
<td>Use of water and village changes</td>
</tr>
<tr>
<td>30</td>
<td>Mr Somboon Satikuntilert</td>
<td>55</td>
<td>Orchardist</td>
<td>Grew up in the village</td>
<td>Leader of tourism group</td>
<td>2.00 a.m. 12 Dec 10, 6.00 p.m. 28 Jan 11, and 4.00 p.m. 24 May 11</td>
<td>Orchard management, history and settlement of the village, experience of traditional lives before development, use of water, cooperation in social events and activities, and forest and water management</td>
</tr>
<tr>
<td>31</td>
<td>Mr Som Yindee</td>
<td>75</td>
<td>Orchardist</td>
<td>More than 49 years</td>
<td>Liaison</td>
<td>8.30 a.m. 12 Dec 10</td>
<td>Spiritual beliefs and ceremonial performances</td>
</tr>
<tr>
<td>32</td>
<td>Mr Saward Kunkeauw</td>
<td>55</td>
<td>Orchardist</td>
<td>Grew up in the village</td>
<td>Liaison</td>
<td>6.00 p.m. 29 Jan 11, 5.00 p.m. 16 Apr 11</td>
<td>Herbs, spiritual beliefs, and ceremonial performances</td>
</tr>
<tr>
<td>33</td>
<td>Mrs Pimpa Kuma</td>
<td>66</td>
<td>Orchardist and domestic worker</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>9.00 p.m. 29 Jan 11</td>
<td>Management of water use and spiritual beliefs</td>
</tr>
<tr>
<td>34</td>
<td>Mr Somchai Detkoonmark</td>
<td>53</td>
<td>Orchardist</td>
<td>More than 26 years</td>
<td>3.00 p.m. 29 Jan 11</td>
<td>Use of water and cooperation in social events and activities</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Mr Tum Maneechai</td>
<td>56</td>
<td>Growing vegetables</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>1.00 p.m. 28 Mar 11, 3.00 p.m. 15 Apr 11</td>
<td>Growing vegetable gardens, and use of water</td>
</tr>
</tbody>
</table>
### Pang Jum Pee Village
#### Pok Ta Sai

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Age</th>
<th>Occupation</th>
<th>Time in the village</th>
<th>Role in the village</th>
<th>Interview Date and time</th>
<th>Topic of Conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>Mr Inwan Noinchai</td>
<td>54</td>
<td>Orchardist</td>
<td>Grew up in the village</td>
<td>A former assistant village leader and head of forest conservation</td>
<td>6.00 p.m. 28 Mar 11</td>
<td>History and settlement of the village and management of forest and water</td>
</tr>
<tr>
<td>37</td>
<td>Mr Paiboon Prompeng</td>
<td>43</td>
<td>Harvesting tea leaves and orchardist</td>
<td>Grew up in the village</td>
<td>An assistant village leader</td>
<td>5.00 p.m. 22 May 11</td>
<td>History and settlement of the village, spiritual beliefs, and cooperation in social events and activities</td>
</tr>
<tr>
<td>38</td>
<td>Mr Kunkaew Pajomtit</td>
<td>54</td>
<td>Harvesting tea leaves and orchardist</td>
<td>More than 30 years</td>
<td>An assistant leader of Bee Group(honey sales and forest conservation)</td>
<td>8.00 p.m. 23 May 11</td>
<td>Managing the honey Bee Group, and advantages of forest protection</td>
</tr>
<tr>
<td>39</td>
<td>Mr Tanom Taveewan</td>
<td>64</td>
<td>Harvesting tea leaves</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>6.00 p.m. 23 May 11</td>
<td>Earning a living, and herbs</td>
</tr>
<tr>
<td>40</td>
<td>Mr Leaun Paytumud</td>
<td>64</td>
<td>Harvesting tea leaves and orchardist</td>
<td>More than 30 years</td>
<td>A villager</td>
<td>6.30 p.m. 23 May 11</td>
<td>Earning a living, herbs, spiritual beliefs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>41</td>
<td>Mr Aekarart Paytumud</td>
<td>33</td>
<td>Domestic worker</td>
<td>More than 20 years</td>
<td>A villager</td>
<td>7.00 p.m. 23 May 11</td>
<td>Earning a living, and cooperation in social events or activities</td>
</tr>
<tr>
<td>42</td>
<td>Mr Supol Chaitha</td>
<td>47</td>
<td>Harvesting tea leaves and coffee orchardist</td>
<td>Grew up in the village</td>
<td>A member of the Community Committee, and Head of Pok Nai</td>
<td>6.30 p.m. 20 July 11</td>
<td>Changes in the village, experience of traditional lives before development, and village development</td>
</tr>
<tr>
<td>43</td>
<td>Mrs Nongluk Udkum</td>
<td>46</td>
<td>Orchardist, selling fruit,</td>
<td>More than 23 years since</td>
<td>A villager</td>
<td>1.30 p.m. 23 Oct 2010, 9.00 a.m. 16</td>
<td>Earning a living, spiritual beliefs, use of water, and cooperation in</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Age</td>
<td>Profession</td>
<td>Marital Status</td>
<td>Occupation</td>
<td>Time</td>
<td>Event Details</td>
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<tr>
<td>44</td>
<td>Mr Chamnan Udkum</td>
<td>46</td>
<td>Hunter, gatherer, and domestic worker</td>
<td>Married</td>
<td>Hunter, gatherer, and domestic worker</td>
<td>Dec 10, and 11.00 p.m. 13 April 2011</td>
<td>Earning a living, spiritual beliefs, use of water, hunting, cooperation in conservation and ceremonies for forest and water, experience of traditional lives before development, and experience in the era of deforestation</td>
</tr>
<tr>
<td>45</td>
<td>Mr Pichet Jomkum</td>
<td>35</td>
<td>Domestic worker, handyman, and gatherer</td>
<td>Single</td>
<td>Domestic worker, handyman, and gatherer</td>
<td>7.00 p.m. 25 Oct 2010, 10.00 a.m. 16 Dec 10, 10.00 a.m. 14 Mar 11, 4.00 p.m. 12 Feb 12, and 7.00 p.m. 29 May 12</td>
<td>Earning a living, prudent use of water, and cooperation in social events or activities</td>
</tr>
<tr>
<td>46</td>
<td>Mr Tha Sukuntho</td>
<td>74</td>
<td>Orchardist</td>
<td>Single</td>
<td>Orchardist</td>
<td>2.00 p.m. 23 Oct 2010</td>
<td>Earning a living, spiritual beliefs, water use, cooperation in social events or activities, and experience of traditional lives before development</td>
</tr>
<tr>
<td>47</td>
<td>Mr Dom Ruaenkaew</td>
<td>57</td>
<td>Hunter, gatherer, and orchardist</td>
<td>Single</td>
<td>Hunter, gatherer, and orchardist</td>
<td>3.30 p.m. 23 Oct 2010, and 10.30 a.m. 17 Mar 11</td>
<td>Earning a living, spiritual beliefs, use of water, cooperation in social events or activities and conservation, and experience of rice farming</td>
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<tr>
<td>48</td>
<td>Mrs Boonyouang Ruaenkaew</td>
<td>51</td>
<td>Gatherer, orchardist, and domestic worker</td>
<td>Married</td>
<td>Gatherer, orchardist, and domestic worker</td>
<td>3.00 p.m. 23 Oct 2010, and 10.00 a.m. 17 Mar 11</td>
<td>Earning a living, spiritual beliefs, use of water, cooperation in social events or activities and conservation, and experience of traditional lives before development</td>
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<tr>
<td>49</td>
<td>Mr Nopadol Ruaenkaew</td>
<td>22</td>
<td>student</td>
<td>Single</td>
<td>student</td>
<td>3.45 p.m. 23 Oct 2010</td>
<td>Opinion and feeling about the village, and cooperation in social events or activities</td>
</tr>
</tbody>
</table>

*Grew up in the village*
<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Age</th>
<th>Occupation</th>
<th>Experience</th>
<th>Role/Committee</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>50</td>
<td>Mrs Vilai Yingyoach</td>
<td>56</td>
<td>Orchardist and gatherer</td>
<td>More than 40 years</td>
<td>A member of village fund committee</td>
<td>10.00 a.m. 24 Oct 2010, 16 Dec 10, 24 Feb 11, 9.00 a.m. 15 Mar 11, 8.00 a.m. 5 May 11, 5.00 p.m. 24 May 11, 4.00 p.m. 24 June 11, 9.00 p.m. 11 Feb 12, 4.00 p.m. 30 May 12, 6.00 p.m. 14 Apr 12, 9.00 a.m. 21 June 12, and 4.00 p.m. 19 July 12</td>
</tr>
<tr>
<td>51</td>
<td>Mr Tong Yingyoach</td>
<td>54</td>
<td>Orchardist, hunter, and gatherer</td>
<td>Grew up in the village</td>
<td>A member of the Community Committee</td>
<td>3.00 p.m. 24 Oct 2010, 6.00 p.m. 16 Dec 10, 8.00 p.m. 14 Mar 11, 8.00 a.m. 5 May 11, 6.00 p.m.24 May 11, and 4.00 p.m. 25 June 11</td>
</tr>
<tr>
<td>52</td>
<td>Miss Sasitorn Saejao</td>
<td>24</td>
<td>Domestic worker</td>
<td>More than 4 years</td>
<td>A villager</td>
<td>5.30 p.m. 21 Nov 2010</td>
</tr>
<tr>
<td>53</td>
<td>Miss Pranee Toonpeng</td>
<td>42</td>
<td>Orchardist and domestic worker</td>
<td>More than 40 years</td>
<td>An assistant village leader, head of Pok Ta Sai, head of housewife group, and a member of village fund committee</td>
<td>7.00 a.m. 22 Nov 2010, 8.30 a.m. 18 Mar 11, and 9.30 a.m. 6 May 11</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Age</td>
<td>Occupation</td>
<td>Time in the village</td>
<td>Role in the village</td>
<td>Interview Date and time</td>
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<tr>
<td>54</td>
<td>Mr Veerasak</td>
<td>22</td>
<td>Gatherer and orchardist</td>
<td>Grew up in the village</td>
<td>A villager and formerly a member of the youth group working for village development</td>
<td>4.00 p.m. 18 mar 11</td>
</tr>
<tr>
<td></td>
<td>Suwansee</td>
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<td></td>
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<td></td>
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<tr>
<td>55</td>
<td>Mr Tanakorn</td>
<td>23</td>
<td>Domestic worker</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>10.00 a.m. 15 mar 11</td>
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<tr>
<td></td>
<td>Somjaidee</td>
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<td></td>
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<tr>
<td>56</td>
<td>Mr Kowin</td>
<td>36</td>
<td>Hunter, gatherer, and orchardist</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>1.00 p.m. 15 mar 11, 1.00 p.m. 26 May 11</td>
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<tr>
<td></td>
<td>Mongploy</td>
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<tr>
<td>57</td>
<td>Mrs Jundee</td>
<td>56</td>
<td>Domestic worker</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>10.00 a.m. 25 Oct 2010</td>
</tr>
<tr>
<td></td>
<td>Jumin</td>
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<tr>
<td>58</td>
<td>Mrs Buajeep</td>
<td>35</td>
<td>Selling local vegetables and food</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>9.00 a.m. 25 Oct 2010</td>
</tr>
<tr>
<td></td>
<td>Mantun</td>
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<td>outside the village</td>
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<tr>
<td>59</td>
<td>Mr Noi Tornfoo</td>
<td>73</td>
<td>-</td>
<td>Grew up in the village</td>
<td>Liaison worker</td>
<td>10.30 a.m. 26 Oct 2010</td>
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<tr>
<td>60</td>
<td>Mrs Sripun</td>
<td>65</td>
<td>Domestic worker and orchardist</td>
<td>More than 40 years</td>
<td>A villager</td>
<td>8.30 a.m. 22 Nov 2010, 4.00 p.m. 15 mar 11, 2.00 p.m. 13 Apr 11, 5.00 p.m. 17 Feb 12, and 6.00 p.m.</td>
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<tr>
<td></td>
<td>Soichana</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>No.</td>
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<td>Occupation</td>
<td>Details</td>
<td>Time and Date</td>
<td>Summary</td>
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<tr>
<td>61</td>
<td>Miss Manerrin Kaensuwan</td>
<td>16</td>
<td>Student</td>
<td>Grew up in the village, A villager</td>
<td>4.30 p.m. 20 Nov 2010</td>
<td>Opinion and feeling about the village and conservation, and cooperation in social events or activities</td>
</tr>
<tr>
<td>62</td>
<td>Mr Jetnarin Tornfoo</td>
<td>18</td>
<td>Student</td>
<td>Grew up in the village, A villager</td>
<td>5.00 p.m. 20 Nov 2010</td>
<td>Opinion and feeling about the village and conservation, and cooperation in social events or activities</td>
</tr>
<tr>
<td>63</td>
<td>Mr Suthep Soichana</td>
<td>72</td>
<td>Orchardist</td>
<td>More than 20 years, A villager</td>
<td>1.00 p.m. 17 Dec 10, 5.00 p.m. 15 Mar 11, and 6.00 p.m. 8 May 11</td>
<td>Earning a living, using water well, herbs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>64</td>
<td>Mrs Patrawingyoach</td>
<td>45</td>
<td>Orchardist and domestic worker</td>
<td>Grew up in the village, A villager</td>
<td>2.00 p.m. 20 Nov 2010, 4.00 p.m. 17 Mar 11, 8.00 a.m. 4 May 2011, and 6.00 p.m. 12 Feb 12</td>
<td>Earning a living, spiritual beliefs, traditional irrigation, cooperation in social events or activities, experience of traditional lives before development, lives in the era of deforestation, and opinions about conservation</td>
</tr>
<tr>
<td>65</td>
<td>Mr Thanakorn Katiya</td>
<td>45</td>
<td>Agriculturalist</td>
<td>Grew up in the village, Head of Royal Project Centre for vegetable garden and a member of the Community Committee</td>
<td>1.00 p.m. 26 Jan 11, 6.00 p.m. 15 Mar 11, 8.00 a.m. 8 May 11, and 5.00 p.m. 17 Feb 12</td>
<td>History and settlement of the village, spiritual beliefs, vegetable garden, experience of traditional lives before development, lives in the era of deforestation, participating in collective learning process, building cooperation in conservation, and managing ceremonies for forest and water</td>
</tr>
<tr>
<td>66</td>
<td>Mrs Tineerat Tornfoo</td>
<td>45</td>
<td>Domestic worker and gatherer</td>
<td>Grew up in the village, A villager</td>
<td>6.00 p.m. 26 Jan 11, 7.00 p.m. 13 Apr 11, 3.00 p.m. 29 May 11, and 7.00 p.m. 18 July 11</td>
<td>Earning a living, use of water, experience of traditional lives before development, cooperation in social events, and ceremonies for forest and water</td>
</tr>
<tr>
<td>67</td>
<td>Mr Surin Tornfoo</td>
<td>42</td>
<td>Hunter, orchardist</td>
<td>Grew up in the village, A villager</td>
<td>7.00 p.m. 26 Jan 11, 1.00 p.m. 17</td>
<td>Hunting, experience of traditional lives before development, lives in the era of</td>
</tr>
<tr>
<td>No.</td>
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<td>Age</td>
<td>Occupation</td>
<td>Years in Occupation</td>
<td>Role</td>
<td>Dates</td>
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</tr>
<tr>
<td>68</td>
<td>Mrs Darunee Tornfoo</td>
<td>40</td>
<td>Domestic worker, orchardist, and gatherer</td>
<td>More than 10 years</td>
<td>A villager</td>
<td>Mar 11, 7.00 p.m. 6 May 11, 10.00 a.m. 19 July 11, and 9.00 a.m. 11 Feb 12</td>
</tr>
<tr>
<td>69</td>
<td>Mrs Aree Katiya</td>
<td>49</td>
<td>Agriculturalist</td>
<td>More than 25 years</td>
<td>A member of Royal Project Centre for vegetable gardens</td>
<td>2.30 p.m. 17 mar 11, 6.00 p.m. 7 May 11, and 6.00 p.m. 7 May 11</td>
</tr>
<tr>
<td>70</td>
<td>Mrs Savitee Katiya</td>
<td>43</td>
<td>Agriculturalist</td>
<td>More than 10 years</td>
<td>A member of Royal Project Centre for vegetable gardens</td>
<td>9.00 p.m. 18 mar 11</td>
</tr>
<tr>
<td>71</td>
<td>Mr Tongchai Auiwai</td>
<td>31</td>
<td>Domestic worker</td>
<td>Grew up in the village</td>
<td>A villager and former leader of Youth Group working for village development</td>
<td>6.00 p.m. 17 mar 11</td>
</tr>
<tr>
<td>72</td>
<td>Mrs Manatchaya Srivichai</td>
<td>34</td>
<td>Selling food</td>
<td>More than 20 years</td>
<td>A villager</td>
<td>2.00 p.m. 17 mar 11</td>
</tr>
<tr>
<td>73</td>
<td>Mr Boon Auiwai</td>
<td>58</td>
<td>Gatherer</td>
<td>More than 21 years</td>
<td>A villager</td>
<td>2.00 p.m. 14 Apr 11, 2.00 p.m. 26 May 11, and 7.00 p.m. 15 Feb 12</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Age</td>
<td>Occupation</td>
<td>Time in the village</td>
<td>Role in the village</td>
<td>Interview Date and time</td>
</tr>
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<tr>
<td>74</td>
<td>Mr Yingyod Duangnumkum</td>
<td>30</td>
<td>Outside worker</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>6.00 p.m. 4 May 11</td>
</tr>
<tr>
<td>75</td>
<td>Mr Kum Katiya</td>
<td>62</td>
<td>Agriculturalist</td>
<td>More than 20 years</td>
<td>A villager</td>
<td>2.00 p.m. 15 May 11</td>
</tr>
<tr>
<td>76</td>
<td>Mr Chalerm Marntun</td>
<td>41</td>
<td>Merchant</td>
<td>Grew up in the village</td>
<td>A member of the Community Committee and head of Pok Lai Num</td>
<td>3.00 a.m. 6 May 11</td>
</tr>
<tr>
<td>77</td>
<td>Mrs Kao Jaima</td>
<td>73</td>
<td>-</td>
<td>More than 40 years</td>
<td>A villager</td>
<td>9.30 a.m. 23 Nov 2010, and 9.00 a.m. 18 Dec 10</td>
</tr>
<tr>
<td>78</td>
<td>Mr Prasert Jomekun</td>
<td>47</td>
<td>Orchardist</td>
<td>More than 40 years</td>
<td>An assistant village leader, a member of the Community Committee, and head of Local Learning Centre</td>
<td>8.30 a.m. 17 Dec 10, 2.00 p.m. 17 Jan 11, 1.00 p.m. 10 May 11, 2.00 p.m. 25 May 11, 8.30 a.m. 26 June 11, 1.00 p.m. 18 Feb 12, and 9.00 a.m. 24 June 12</td>
</tr>
<tr>
<td>79</td>
<td>Mrs Buakum Jaima</td>
<td>69</td>
<td>-</td>
<td>More than 40 years</td>
<td>A villager</td>
<td>9.30 a.m. 23 Nov 2010, and 18 Dec 10</td>
</tr>
<tr>
<td>80</td>
<td>Mrs Sompit Reauankaew</td>
<td>40</td>
<td>Grocery store owner</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>2.00 p.m. 26 Jan 11</td>
</tr>
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Pok Jum Pee (Pok Klang)
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Age</th>
<th>Occupation</th>
<th>Time in the village</th>
<th>Role in the village</th>
<th>Interview Date and time</th>
<th>Topic of Conversation</th>
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<tbody>
<tr>
<td>81</td>
<td>Mrs Pun Jomekun</td>
<td>72</td>
<td>Gatherer</td>
<td>More than 50 years</td>
<td>A villager</td>
<td>10.00 a.m. 27 Jan 11</td>
<td>History and settlement of the village, spiritual beliefs, experience of traditional lives before development, and cooperation in social events or activities</td>
</tr>
<tr>
<td>82</td>
<td>Mr Chaiwat Pankaew</td>
<td>32</td>
<td>Domestic worker</td>
<td>More than 5 years</td>
<td>A villager</td>
<td>8.00 p.m. 17 Dec 10, 10.00 a.m. 26 Jan 11</td>
<td>Spiritual beliefs, use of water, and cooperation in social events or activities</td>
</tr>
<tr>
<td>83</td>
<td>Mr Uoonreun Chaiwan</td>
<td>59</td>
<td>Domestic worker</td>
<td>More than 20 years</td>
<td>A villager</td>
<td>6.30 p.m. 4 May 11</td>
<td>Water management and cooperation in social events or activities</td>
</tr>
<tr>
<td>84</td>
<td>Mr Song Jaima</td>
<td>51</td>
<td>Orchardist and gatherer</td>
<td>40 years</td>
<td>A villager</td>
<td>9.00 a.m. 10 May 11</td>
<td>Hunting, spiritual beliefs, cooperation in conservation, and ceremonies for forest and water</td>
</tr>
<tr>
<td>85</td>
<td>Mr Somyod Reaunkaew</td>
<td>50</td>
<td>Grocery store owner</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>9.00 a.m. 26 May 11, 10.00 a.m. 22 May 12 2.00 p.m. 24 June 12, and 3.00 p.m. 20 July 12</td>
<td>Spiritual beliefs, cooperation in conservation, ceremonies for forest and water, and experience of lives in the era of deforestation</td>
</tr>
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</table>

**Pok Ta Kien Tong**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Age</th>
<th>Occupation</th>
<th>Time in the village</th>
<th>Role in the village</th>
<th>Interview Date and time</th>
<th>Topic of Conversation</th>
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</thead>
<tbody>
<tr>
<td>86</td>
<td>Mr Dang Taboonyoung</td>
<td>71</td>
<td>Gatherer</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>12.00 a.m. 25 Oct 2010, 17 Dec 10, and 3.00 p.m. 14 mar 11</td>
<td>History and settlement of the village, experience of traditional lives before development, spiritual beliefs, and ceremonies for forest and water</td>
</tr>
<tr>
<td>87</td>
<td>Mrs Tongwai Jaima</td>
<td>47</td>
<td>Gatherer, domestic worker, and griller of banana</td>
<td>More than 30 years</td>
<td>A villager</td>
<td>9.00 a.m. 26 Oct 2010, and 6.00 p.m. 17 Dec 10</td>
<td>Grilling banana leaves, spiritual beliefs, and cooperation in social events or activities</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Age</td>
<td>Occupation</td>
<td>Experience</td>
<td>Role</td>
<td>Dates</td>
<td>Comments</td>
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<tr>
<td>88</td>
<td>Mr Sujit Jaima</td>
<td>53</td>
<td>Orchardist</td>
<td>More than 44 years</td>
<td>The village leader</td>
<td>10.00 a.m. 26 Oct 2010, 5.00 p.m. 17 Jan 11, 6.00 p.m. 25 Jan 11, 2.00 p.m. 14 Mar 11, 4.30 p.m. 8 Apr 11, 9.00 a.m. 4 May 2011, 10.00 a.m. 7 May 11, 9.00 a.m. 29 May 11, 1.00 p.m. 18 Feb 12, 5.00 p.m. 27 May 12, and 6.00 p.m. 16 Apr 12</td>
<td>History and settlement of the village, water management, spiritual beliefs, experience of traditional lives before development, lives in the era of deforestation, participation in collective learning process, building cooperation in conservation, managing the Local Learning Centre, and origin and management of ceremonies for forest and water</td>
</tr>
<tr>
<td>89</td>
<td>Mrs Luksamee Meekul</td>
<td>42</td>
<td>Orchardist and gatherer</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>2.30 p.m. 27 Nov 2010, 3.00 p.m. 27 Jan 11, 4.00 p.m. 4 May 11, 9.00 a.m. 13 Feb 12, 9.00 a.m. 23 June 12, and 5.00 p.m. 11 July 12</td>
<td>Experience of traditional lives before development, lives in the era of deforestation, use of water, cooperation in conservation and social events, spiritual beliefs, and ceremonies for forest and water</td>
</tr>
<tr>
<td>90</td>
<td>Mrs Yupin Udyuang</td>
<td>56</td>
<td>Orchardist and gatherer</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>3.00 p.m. 16 Dec 10, 3.00 p.m. 26 Jan 11, 4.00 p.m. 5 May 11, and 6.00 p.m. 15 Feb 12</td>
<td>History and settlement of the village, earning a living, use of water, herbs, experience of traditional lives before development, spiritual beliefs, and ceremonies for forest and water</td>
</tr>
<tr>
<td>91</td>
<td>Mrs Leauw Daowadwong</td>
<td>74</td>
<td>Domestic worker</td>
<td>More than 65 years</td>
<td>A villager</td>
<td>2.00 p.m. 16 Dec 10</td>
<td>Spiritual beliefs and traditional lives before development</td>
</tr>
<tr>
<td>92</td>
<td>Mrs Pen Sangta</td>
<td>55</td>
<td>Griller of banana</td>
<td>More than 40 years</td>
<td>A member of community</td>
<td>2.00 p.m. 17 Dec 10, 4.00 p.m. 25</td>
<td>Spiritual beliefs, use of water, experience of traditional lives before</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Age</td>
<td>Occupation</td>
<td>Years</td>
<td>Role</td>
<td>Event Dates</td>
<td>Comments</td>
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<tr>
<td>93</td>
<td>Mr Kreangkum Udkum</td>
<td>64</td>
<td>Orchardist, gatherer and domestic worker</td>
<td>25</td>
<td>A villager</td>
<td>Jan 11, and 2.00 p.m. 23 June 12</td>
<td>development, cooperation in social events, and ceremonies for forest and water</td>
</tr>
<tr>
<td>94</td>
<td>Mr Thavorn Jina</td>
<td>54</td>
<td>Orchardist and domestic worker</td>
<td>Grew up in the village</td>
<td>A performance leader of ceremonies and a member of the community committee</td>
<td>3.00 p.m. 17 Dec 10, and 1.30 p.m. 6 May 11</td>
<td>Spiritual beliefs, water management, and experience of traditional lives</td>
</tr>
<tr>
<td>95</td>
<td>Pra Suthep Janatharo</td>
<td>47</td>
<td>Monk</td>
<td>17</td>
<td>The abbot of Aramkuntavivek temple</td>
<td>5.00 p.m. 27 Jan 11, 3.00 p.m. 27 May 11, 11.00 a.m. 23 June 12, and 9.00 a.m. 10 July 12</td>
<td>Spiritual beliefs and ceremony performance of forest and water</td>
</tr>
<tr>
<td>96</td>
<td>Mr Moon Jomekun</td>
<td>74</td>
<td>-</td>
<td>More than 60 years</td>
<td>A villager</td>
<td>12.00 p.m. 27 Jan 11, and 9.00 a.m. 16 Mar 11</td>
<td>History and settlement of the village, and origin of ceremonies for forest and water</td>
</tr>
<tr>
<td>97</td>
<td>Mr Intorn Daowadwong</td>
<td>56</td>
<td>Orchardist</td>
<td>Grew up in the village</td>
<td>A member of Community Committee and leader of water committee (managing water supply and water conservation)</td>
<td>5.00 p.m. 16 Mar 11, 5.00 p.m. 24 June 12, and 7.00 p.m. July 12</td>
<td>Spiritual beliefs, managing ceremonies for forest and water, managing water in the village, and building cooperation in conservation</td>
</tr>
<tr>
<td>98</td>
<td>Mr Buakaew Udtamung</td>
<td>57</td>
<td>Gatherer and griller of banana leaves</td>
<td>More than 30 years</td>
<td>A villager</td>
<td>1.00 p.m. 6 May 11</td>
<td>Earning a living and cooperation in social events</td>
</tr>
<tr>
<td>99</td>
<td>Mr Udorn Maneewan</td>
<td>48</td>
<td>Merchant</td>
<td>More than 10 years</td>
<td>A villager</td>
<td>10.30 a.m. 8 May 11</td>
<td>Cooperation in conservation, and ceremonies for forest and water</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Age</td>
<td>Occupation</td>
<td>Time in the village</td>
<td>Role in the village</td>
<td>Interview Date and time</td>
<td>Topic of Conversation</td>
</tr>
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</tr>
<tr>
<td>100</td>
<td>Mr Sompet Thosungneaud</td>
<td>39</td>
<td>Domestic worker, hunter, gatherer, and orchardist</td>
<td>Grew up in the village</td>
<td>A member of the Community Committee</td>
<td>7.30 p.m. 27 May 11</td>
<td>Herbs, hunting, and building cooperation in conservation</td>
</tr>
<tr>
<td>101</td>
<td>Mrs Sureeporn Thosungneaud</td>
<td>33</td>
<td>Gatherer and orchardist</td>
<td>Grew up in the village</td>
<td>A member of community health volunteers (working for health improvement and promotion), and treasurer of housewife group</td>
<td>7.00 p.m. 25 May 11</td>
<td>Earning a living, and cooperation in conservation</td>
</tr>
<tr>
<td>102</td>
<td>Mrs Noi Keaunsuwan</td>
<td>43</td>
<td>Agriculturalist and domestic worker</td>
<td>More than 2 years</td>
<td>A member of Royal Project Centre for vegetable gardens</td>
<td>10.00 a.m. 18 Mar 11, 4.00 p.m. 26 May 11</td>
<td>Using water for vegetable gardens, and cooperation in conservation and social events</td>
</tr>
<tr>
<td>103</td>
<td>Mrs Aornkum Jomekun</td>
<td>53</td>
<td>Agriculturalist, gatherer, and griller of banana leaves</td>
<td>Grew up in the village</td>
<td>A villager</td>
<td>2.00 p.m. 8 Apr 11</td>
<td>Use of water, experience with the Mae Lai Noi stream, cooperation in conservation, and ceremonies for forest and water</td>
</tr>
<tr>
<td>104</td>
<td>Mr Prasong Tongkumfoo</td>
<td>53</td>
<td>Agriculturalist</td>
<td>More than 10 years</td>
<td>A villager</td>
<td>1.00 p.m. 4 May 11</td>
<td>Use of water, spiritual beliefs, and cooperation in conservation and social events</td>
</tr>
<tr>
<td>105</td>
<td>Mr Pitsanu Keaunsuwan</td>
<td>54</td>
<td>Agriculturalist</td>
<td>36</td>
<td>A villager</td>
<td>7.00 p.m. 28 May 11</td>
<td>Cooperation with conservation and ceremonies for forest and water</td>
</tr>
</tbody>
</table>
Appendix D

Muang Fai

(Northern Traditional Irrigation System)
In the past, to build a new weir, farmers considered its width and height. The width needed to fit with the width of the stream and the height of weir needed to fit with the depth of Park Muang (the gate of main irrigation ditch connecting with the weir). The weir needed to be higher than the irrigation ditch so that water would flow well along it to rice fields. For example, Mr Tong Yingyoach and other farmers used to help build a big dam, size around 10 metres in width and 5 metres in height. Thirty to forty big logs were cut and piled layer by layer; then, more than 10,000 lengths of bamboo were used to hold these logs on the Mae Lai Noi stream (see figure below). When the next season for rice farming came, the farmers sacrificed their time to repair the weir collectively.

For first year building the “Rong Muang” (see figure of Muang Fai in the next page), the farmers helped to dig at two sides of the weir on a mounded area so that water was able to flow by gravity from the higher land to the lower and into paddy fields. During the next year, they only removed sediment and rubbish from ditches to enable the water to flow freely. To trap rubbish and control the water volume from the irrigation ditches to the paddy fields, several woven bamboo gates were used at Park Muang as the gates of the main irrigation ditches which connected to the weir, and as Park Tang, the gate connecting each rice field to the main irrigation ditch. In June, after plowing paddy fields, farmers discussed the water allocation needed for their own rice fields and estimated the water requirements. The width of their own rice field gate was usually used for measuring the water volume. For example, Mr Tong Yingyoach explained that if there were 100 litres of water for five farmers and each farmer needed 20 litres of water, the width of each rice field gate would be 20 centimetres so the water volume was equally divided. Water allocation for rice farming required cooperation because the farmers realised that inadequate water volume would affect rice growth and any

**Source:** This information provided by Mr Tong and Mrs Vilai Yingyoach.
overflow water would cause damage to the paddy fields which cost plenty of time to be repaired. Mr Tong concluded:

Everybody needed to help each other to control water flow and volume. On the day of water allocation, all farmers were at each irrigation gate. If water volume was insufficient, they widened irrigation gates to allow water flow into rice fields. If there was too much water, they covered irrigation gates to prevent overflow water into rice fields. The farmers also helped block water over the weir to increase water pressure in case of having insufficient water for everybody.

"Muang Fai" or traditional irrigation system

Source: This information provided by Mr Tong and Mrs Vilai Yingyoach.
Appendix E

Cooperation in Rituals for Forest and Water

(Buat Pa or Tree Ordination and Seub Cha Ta Rum Num or Longer Life Ritual for River)
Based on conversation and participatory observation at Pang Jum Pee Village, before the ritual day of Buat Pa and Seub Cha Ta Rum Num, the Community Committee discussed planning and management of the ritual performances: date, program, supporting funds, and individual roles. Each member of the Community Committee was obligated or volunteered to manage any collective jobs with the villagers. For example, Mr Sujit Jaima had an obligation to connect with donor agencies and Mr Prasert Jomekhun was selected to be the leader of the ritual performance. The rest of the jobs were shared: 1) Mr Prasert Jomekhun - announcement, village cleaning, site preparation, and general tasks; 2) Mr Sujit Jaima - invitation letter for neighboring villages and external agencies; 3) Mr Chalerm Mantan - car service for monks and guests, and moving objects; 4) Mr Thavorn Jina - preparing religious offerings, and leading the ceremony performance; 5) Mr Inthorn Daowadwong – performing Tod Pa pa or religious tradition for raising funds; 6) Mr Thavorn Jina - preparing religious offerings, and leading the ceremony performance; 5) Mr Inthorn Daowadwong – performing Tod Pa pa or religious tradition for raising funds; 6) Mr somyod Reaunkaew - security tasks such as traffic and car park; 7) Mr Pranee Toonpeng - food offerings for monks and essential appliances; 8) Mr Thankorn Katiya - welcoming guest and security tasks; 9) Mr Tong Yingyoach - general tasks.

After that, the Community Committee conducted the village meeting to communicate their agreement and manage the ritual performance with the villagers. Based on participatory observation at 1.00-3.00 p.m. on 8 May 2011, the village leader played an important role in leading the meeting and providing the information; “...This year we will have the ceremony on 28 May 2012. We named it “Seub Heat San Hoi Rum Num Mae Lai Noi...”58. In this meeting, everybody was able to discuss any issues, provide suggestions, and help consider collective agreements. For example, the date was determined to share collective activities:

Before ritual date

15 May 2011 cleaning village and the Local Learning Centre (lunch provided)

22 May 2011 site preparation at the Local Learning Centre (lunch provided)

27 May 2011 preparing offerings for the ceremony performance, food and offerings for monks, including the essential appliances for visitors at the Local Learning Centre (lunch provided)

Ritual Date

28 May 2011 catering for visitors at lunch time provided by each household, at least five wrapped food items per household

58Seub Heat San Hoi Rum Num Mae Lai Noi means maintaining the tradition of longer life ritual for the Mae Lai Noi stream.
On the day of cleaning the village, 15 May 2011 (see the set of Pictures 11), more than 70 people, including children, teenagers, middle-aged, and elderly, had been divided into two groups. Group 1, Pok Ta Sai and Pok Lai Num villagers, cleaned along both sides of main road from T-junction at Mae Takrai National Park Office to Pang Jum Pee Village and Group 2, Pok Jum Pee and Pok Ta Kien Tong villagers, cleaned the road to the Local Learning Centre, the Mae Lai Noi stream, and Ta Bun Dai water fall. Everybody brought their own tools such as a land mower, a chopping knife, a hoe, a harrow, a spade, a broom, and a big sack. People freely choose to work in role whatever they were skillful: mowing grass, cutting thick plants, sweeping road, and eradicated leaves and rubbish. Some people made a bamboo harrow to swipe leaves away from road. Whoever finished their job could help other people until 4.00 p.m.

Simultaneously, on the day of site preparation, 22 May 2011, people gathered before moving off to work with a range of jobs at the area of the Local Learning Centre, Pang Jum Pee Village (see the set of Picutres 12). Men mainly performed hard jobs such as carrying chairs, cutting logs, repairing a wood bridge and roof, and building a wood stage, a chair, a bench, a table, or bamboo fences. Some women swept leaves and piled them for compost, while others sewed mattresses and pillows for guests. The rest preferred cooking, making bamboo rope, and weaving bamboo baskets. In addition, on 27 May 2011, at this centre, most women especially elderly helped prepare major food and offerings for the ritual performances (see the set of Picutres 13).
Pictures 12 Several activities on site preparation; photos taken on 22 May 2011

Pictures 13 Preparation of ceremony offerings; photos taken on 27 May 2011