LOCAL KNOWLEDGE IN PHYSICAL DESIGN AND PLANNING: A CASE STUDY OF CHIANGMAI, THAILAND

by

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ABSTRACT

This study concerns "local knowledge" - the knowledge of local people - and the role it can play in improving development projects. The study adds to previous definitions of local knowledge, describes how Thai designers and planners treat this knowledge, and illustrates the consequences of including or excluding its consideration in planning development projects.

The research approach is a case study of design and planning in Chiangmai, a province in northern Thailand. Both primary data and secondary data were collected and analyzed. Primary sources were personal observations, individual interviews and focus group discussions. Secondary sources included others' studies of architectural knowledge and planning reports.

The existing literature, including literature in local knowledge, planning, citizen participation and social impact assessment, is still grappling with the issue of local knowledge and its inclusion or exclusion in development project planning. The study found that local people have a powerful base of information that is potentially valuable to the design and planning of development projects. Local knowledge can be technical, descriptive, explanatory, prescriptive, subtle, dynamic, scattered and holistic. An often ignored form of local knowledge is local people's perceptions and values which have been

made explicit through the impact that development projects have had on their social organization, their economy and their natural environment.

Although the knowledge held by local people could provide real benefit to the design and planning professions, it has been overlooked by many professionals who have a limited awareness of the richness and value of local knowledge. The study found that awareness and use of local knowledge are affected by professional training and by planning procedures.

This thesis concludes that for local knowledge to be appropriately and effectively involved in design and planning, procedures need to be restructured to require or encourage professionals to actively seek local knowledge, to respect this knowledge and its owners, and to include this knowledge in their professional work through consultation with local people. In order for this restructuring to be effective, design and planning education must include opportunities for students to learn how to gain and apply local knowledge in a respectful manner.

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CHAPTER ONE

INTRODUCTION

1.0 INTRODUCTION

Current development of the built environment in Thailand is often an affront to its cultural heritage and destructive of its local communities. New approaches to design and planning are necessary if this situation is to change. This dissertation examines the potential for improving design and planning in Thailand through the incorporation of local people's knowledge. Specifically, it identifies:

1) the nature of local knowledge that is relevant to physical design and planning;
2) how and why this knowledge is currently considered or not considered by professional designers and planners;
3) the consequences for local people and their environment; and,
4) the constraints and opportunities affecting a wider incorporation of this knowledge into the design and planning process.

This chapter provides an overview. It first discusses the definitions used in this research, the problem statement, and the thesis purpose. Then, the chapter states the research approach, the questions the research asks, and the methods used. The chapter concludes with an overview of each subsequent chapter.

1.1 DEFINITIONS

1.1.1 Physical Design and Planning

The term "physical design and planning" in this study is meant to encompass design and planning in architecture, landscape architecture, engineering, and construction. It includes design and planning for residential projects, housing, and tourism (hotel and resort development), for recreational facilities such as open space, pools and gardens, and for infrastructure facilities such as water supply systems.

1.1.2 Local Knowledge

Local knowledge emerges from people's experience with their environment, and is what Friedmann(1973) calls "personal knowledge". He defines "personal knowledge" as knowledge based on the direct experience of the knower. It is invariably rich in detailed observation (Friedmann 1973, 245).

Local knowledge is described by Keyes (1991, 3-5) as both the "everyday knowledge" people gain from their experiences in a place and the "specialized knowledge" of people which is the deep interpretations of their experience. Keyes (1991) sees local knowledge as a combination of ethno-scientific knowledge and indigenous conceptual systems. He describes ethno-science as knowledge created by the way people act in the natural world

and indigenous conceptual systems as the concepts people use for understanding their experiences.

Local knowledge includes common-sense notions which are part of any particular cultural system. According to Mollison (1990) common-sense knowledge, gained from everyday interaction with the environment, is the distinguishing feature of local knowledge systems. Geertz (1983, 92-93) states that common-sense itself can be identified as a cultural system.

Thrupp, in Warren et al. (1989, 151), prefers the term "local knowledge" to "indigenous knowledge" because it can be more broadly interpreted. He provides the interesting notion that "indigenous" is usually narrowly associated with "[long] tradition-based" knowledge among small aboriginal groups, such as tribes. This study uses the term "local knowledge" rather than "indigenous knowledge" because the knowledge of interest is that held by all residents (other than design professionals) of an area, not just those who are "aboriginal".

Chambers (1987, 83) broadens the definition of local knowledge. He makes a major contribution to the discussion by arguing that local knowledge should not be interpreted only as knowledge or information of a local environment; it should also be seen as a system of concepts, beliefs and ways of learning by local people about their environment. In this sense, Chambers' definition is similar to Keyes'.

The term "local knowledge" in this study refers to environmental, technical, and socio-cultural knowledge of local people. Local knowledge of interest to this research is that relating to both the built and natural environments. The natural environment includes climate, natural drainage patterns, and vegetation; the built environment includes the architecture, infrastructure, and land use of the area. Socio-cultural knowledge is attached to environmental and technical knowledge and includes the concepts and beliefs of local people as defined by Chambers (1987). This study is also interested in local people's knowledge of their own needs and wants in relation to their physical environment, and so extends Chambers' definition.

1.2 PROBLEM STATEMENT

Numerous studies in Thailand indicate that development projects using modern design and planning models have damaged the local environment and culture and have caused dissatisfaction among local people (Ekachai 1990, 1991; Dearden 1990; Saisang 1992; and Pholphoke 1992, among others). Modern planning in Thailand follows the mainstream planning model, which is permeated by professionalism and "expert-knows-best" views. Modern design is controlled by professionals and relies heavily on professional expertise. But what about local knowledge? Has it been excluded? If so, why, and what are the consequences?

The literature regarding local knowledge relating to physical design and planning in

Thailand is very limited (see Chapter Two). There are a small number of studies on traditional Thai houses by Thai architects, but these are not well known, even among Thai people. There is also a small amount of literature on the existence or use of local knowledge in current community and regional planning practices. As such, local knowledge needs more attention and documentation if it is to benefit design, planning, engineering, and construction practitioners.

The problem is that we do not have enough information about the knowledge that local Thai people possess that is relevant to modern planning and design. We do not know how much of this knowledge is included or not included in current development processes and with what consequences. Nor do we know enough about what opportunities are presented for the inclusion of local knowledge and what constraints work against its inclusion.

1.3 THESIS PURPOSE

The purpose of this thesis is to respond to the inadequate information about local Thai knowledge that is important to physical design and planning by: 1) revealing the existence and nature of this knowledge, 2) determining how this knowledge is used by professionals, 3) evaluating current developments which are sensitive or not sensitive to local knowledge, and 4) identifying the implications for improving design and planning.

The thesis documents some of the knowledge that some local people have about their houses and their fields. Such documentation offers a direct service to professionals who are open to using local knowledge in their practice and, more importantly, allows corroboration of more general findings about the nature and use of local knowledge. The thesis also documents the existence of important knowledge that has been previously overlooked, analyses its nature, and suggests the consequences when professionals are unaware of this knowledge. Finally, the thesis indicates some measures for more effective incorporation of local knowledge into physical design and planning.

1.4 RESEARCH APPROACH

To meet the thesis purpose, a study of local knowledge in relation to design and planning in Chiangmai Province was conducted.

Chiangmai,[1] in northern Thailand, was selected as a case study because it is a province rich in cultural resources. It reflects both a 700-year-old development and more recent changes to the environment. Chiangmai is neither as economically and technically advanced as Bangkok, nor as poor and undeveloped as many provinces. Its city (also called Chiangmai) is the second largest in Thailand.

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[1]It is also written as "Chiang Mai" by the Thai people.

Specific development projects in both urban and rural areas of Chiangmai, including hotels, resorts, shopping centres and residential developments, are investigated in detail. Many of these projects are related to tourism development (such as hotels and resorts) because, at present, tourism is a major economic activity in Chiangmai. However, this study is not concerned with tourism development as such. It only uses tourism development projects as cases for investigation of the use of local knowledge in design and planning.

1.5 RESEARCH QUESTIONS

Within the case study, four general research questions are posed: 1) what local knowledge relevant to design and planning exists? 2) how is it treated by professionals? 3) why so? and 4) what are the consequences of this treatment? These general questions are operationalised through specific questions as follows:

1) What local technical, environmental, and socio-cultural knowledge related to design and planning for development projects exists in the study area?

2) In what way, and to what extent, has local knowledge been considered in the physical design and planning processes for development projects in the study areas?

a) Who (professionals or local non-professional people) were involved in the design

and planning? Who provided the information about the local environment? Who were the decision makers?

b) What kind of techniques were applied for collecting data regarding the local physical environment in the design and planning processes? Did these techniques effectively access local knowledge?

c) Was this local knowledge excluded/included in the design and planning processes? Why or why not?

d) What problems and opportunities were encountered in incorporating local knowledge into the design and planning processes?

3) What were the consequences of excluding/including local knowledge in the design and planning processes for the development projects?

4) What are local people's concerns and ideas about the exclusion or inclusion of local knowledge?

5) What ideas do local people have for a process that would incorporate their knowledge into design and planning?

1.6 RESEARCH METHODS

Research methods used for gathering data within the case study were survey research, field research and unobtrusive research. Data collection techniques applied in this study include those used by others in the study of indigenous knowledge (Barsaga 1989) and those used in the study of physical environments (Lynch 1960; Hester 1984). These techniques were personal observation, individual interviews, and group discussions.

Data collection was accomplished using the above mentioned techniques and documentary research. Documentary research was used to obtain data on the development plans and projects studied. Personal observation was used at the beginning of the research to obtain an overview of the cases studied. Later, it was used to obtain detailed data for cross-referencing with data obtained from other techniques. Individual interviews were arranged with people involved in the studied projects including owners, professionals, bureaucrats and local people who reside near the studied projects and those who live within Chiangmai province area. Three focus group discussions were arranged: first, for Chiangmai urban residents; second, for rural residents; and third for specialists who are interested in issues related to local knowledge. Data collected from these techniques were analyzed by content and comparative analysis. Data collection and analytical techniques will be discussed further in Chapter Three.

This thesis contributes to the body of planning knowledge by showing that local

people have considerable knowledge that can benefit design and planning professionals in their work. This knowledge includes awareness of threats to social and natural environments that result from insensitive design. In general, Thai professionals do not respect local people's knowledge because their professional training has not taught them to appreciate the value of this knowledge. Furthermore, Thai design and planning processes fail to provide opportunities to include local knowledge. To overcome these failures, processes need to be revamped so that local people can contribute their knowledge to new projects. As well, the formal education of design and planning professionals needs to change so that these people can appropriately obtain, evaluate and use local knowledge.

1.7 AN OVERVIEW OF SUBSEQUENT CHAPTERS

The following chapter, Chapter Two, reviews relevant literature. This literature includes literature on local knowledge, planning, citizen participation and social impact assessment. Each body of literature is discussed both in general terms and with specific reference to Thailand's context. Finally, a conceptual framework based on the theories reviewed in the literature is developed for this study.

Chapter Three presents the research strategy and methods determined appropriate to meet the thesis purpose and to find answers to the research questions.

Chapter Four reviews current processes of development planning in Chiangmai and major plans. It focuses on the Master Plan for Chiangmai Tourism Development and the Chiangmai Policy-Based Action Plan for Historical and Environmental Preservation. This chapter also discusses the development process for projects from the outset of the process to the time that building permits are granted. Discussion focuses on key actors who control and work within the development process and on their data collection techniques.

Chapter Five presents and discusses local knowledge identified through the field research. The discussion includes an analysis of the nature and significance of local knowledge.

Chapter Six indicates which types of local knowledge are excluded or included in design and planning processes. It also looks at the reasons for and consequences of the exclusion or inclusion of local knowledge. The final section of this chapter presents local people's ideas on the inclusion of local knowledge.

The last chapter summarizes the findings of the study and draws general conclusions about the role of local knowledge in existing design and planning processes. This concluding chapter argues for increasing the incorporation of local knowledge into design and planning processes by changing the processes themselves and by revamping the formal education of design and planning professionals so that they are encouraged to use local knowledge in their practice.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter reviews the relevant literature on local knowledge, planning, citizen participation and social impact assessment. The review of literature on local knowledge deals with the literature relevant to physical design and planning in general and specifically to Thailand. This review also discusses the main issues raised in current studies of local knowledge. The review of planning literature focuses on theories of how professionals treat and should treat local knowledge in their planning process. For citizen participation and social impact assessment, the review focuses on their development in relation to local knowledge and planning.

2.1 LOCAL KNOWLEDGE

Local people's knowledge in the social, medical, ideological and agricultural fields has been studied for more than a century under a variety of labels - ethno-science, folk knowledge, traditional knowledge, and people science, as well as indigenous knowledge. The label "local knowledge" has gained a consensus at two major conferences on indigenous knowledge in 1988 and 1989 as the most appropriate term to cover these

bodies of knowledge. This label encodes "the fact that portions of such knowledge systems can be highly site-specific, and elaborated to fit a given agro-ecological, economic, socio-cultural and political context" (McCorkle 1989, 5).

Two basic approaches in the study of local knowledge can be identified. First, there are those analyses in a particular discipline which place an emphasis on recovering and utilizing local scientific and technical knowledge (Altieri 1983; Juma 1988). In these analyses, the recovery and utilization of local knowledge is seen as an instrument to empower local people. Second, there are studies of knowledge systems and processes of knowledge acquisition and usage (Marsden 1990, 265). A third, more recent approach in the use of local knowledge tries to unite the other two. This approach tries to bring together the work of natural and social scientists with that of outsiders and local people. For example, the work of Brokensha, Warren and Werner in 1980 introduced many forms of indigenous knowledge not only to agriculture, but also to general community and rural development. Their work demonstrates ways of linking the knowledge of ethno-scientists with those of development activists.

Many studies show that local people possess a great deal of valuable knowledge and that on certain matters they often know more than trained experts and professionals. A few examples include local knowledge of climatic phenomena and drainage patterns (Korten 1982), and local knowledge that makes self-help irrigation systems work better than

systems designed by outside experts (Lansing 1987, Cowley 1989, Fleuret 1985).

Chambers (1983), and Chambers, Pacey, and Thrupp (1989) point out that much inefficient rural development arises from the unreflective application of western scientific rationality. They argue for breaking down the professional and technical barriers which exclude local people from the development process. They assert that local people, typically the last people considered in the planning and development process, should be "the first". Development should start from where people are rather than from where the specialized experts would like them to be. Development approaches should be changed to be situation-specific and negotiated. This requires dialogue with different groups and cultures to ascertain local knowledge. Chambers, Pacey and Thrupp (1989) believe that traditional cultures should no longer be seen as problems for rural development, but as the basis for smooth and effective new development.

The need to incorporate cultural values and local knowledge into development efforts has been emphasized continuously in the social development literature. Conyers (1982), and Hardiman and Midgley (1982), have strongly supported this position. Cernea (1986) has published reviews of various literatures that describe ways of enhancing rural development projects by understanding and incorporating different cultural values and knowledge. Moody (1988) has supported this method of encouraging rural development and cautions that people may express their knowledge in a different language from that of western

scientists or professionals. Expressions may often be emotional in response to unsatisfactory situations, but the knowledge giving rise to emotional expression needs to be considered as significant information in the planning process.

Incorporating local knowledge into the planning process increases the information base which can help to develop effective projects. It also reduces risk. "People themselves are the best indicator of what will or will not work, what can be sustained and what cannot", noted Marsden (1990, 230) in commenting on efforts to integrate local knowledge into rural development strategies. Uphoff (1986) and Korten (1987) have a similar notion to Marsden and emphasize the use of local human resources and locally developed organizations for building effective development programs.

The study of local knowledge has increased concerns regarding gender issues. Norem, Yoder and Martin (1989) have recognized the contributions of women to agriculture that have been previously ignored. Jiggins (1986) has discussed the distinctive knowledge and interaction of women with their local environment. In addition, gender issues invariably become major issues in farming studies through consideration of the family as a unit of production and consumption (Marsden 1990, 231).

In conclusion, studies on local knowledge may take a variety of forms but all point to the appreciation and importance of local knowledge. They illustrate the need for understanding this knowledge, the values of the different actors in the development

projects, and the importance of accessing, incorporating, and using this knowledge in development planning.

2.1.1 Local Knowledge in Physical Design and Planning

Design and planning of the built environment can be seen as reflecting four traditions: the vernacular, high style, speculative, and participatory (Matthews 1994, 13). The vernacular tradition was developed by ordinary people and was used by them in their daily lives. It responds to the local climate and uses local materials. The high style tradition belongs to the elite. Its design does not often respond to a climate and site, and its materials can be imported from elsewhere. The speculative tradition concerns market demand and profit. Appealing to the buyer comes before the quality of the building; social amenity, local traditional character, and environmental impacts are not high priorities for consideration. The participatory tradition invites the users (who may be the specific users in the case of a housing complex or the general public in the case of a public building) to take part in the design. In this case, designers have more responsibility to satisfy users' needs and desires than in the other traditions (Matthews 1994, 13-27). Judging from the four traditions, the vernacular and participatory traditions show a linkage to local knowledge while the high style and speculative traditions show a tendency to reject local knowledge.

The general rules and design principles of the vernacular tradition strongly support local knowledge in physical design and planning. According to Matthews (1994, 16-17),

vernacular architecture is created by ordinary people or specialists within the community, and the use of local materials gives a strong local or regional character to the building. Its design focuses on the utilitarian, and the building itself is well adapted to the climate. Ritual and cultural symbolism have a strong influence in design but sometimes give way to practical needs.

Several books have become sources of inspiration for vernacular architecture. Among them are "Architecture without Architects" by Rudolfsky (1964), "House Form and Culture" by Rapoport (1969) and "Shelter, Sign and Symbol" by Olivier (1977). Recently, neo-vernacular architecture has been popularly applied in the design of housing, religious buildings and tourist resort complexes. Vernacular architecture has been criticized for its limited application especially in large scale projects and high-rise buildings (Powell and Ozkan 1989, 14). Frampton (1985) sees it as a form of cultural and political resistance.

Regionalism in architecture, which shares general rules and principles with vernacular architecture, also supports local knowledge in physical design and planning. According to Powell and Ozkan (1989, 10), regionalism is an alternative to or a rejection of International Modernism. "[It] goes beyond the simple reinterpretation of past patterns. It is a transformation, where a building is modern and yet retains the essence of a culture." However, Frampton (1985) comments that regionalism is a marginal practice existing

previously in those cultural interstices which are able to resist universal civilization. Sorkin (1986) asks whether regionalism has any authenticity in a global culture in which there is no region.

Participatory design, the most recent of the four traditions (Matthew 1994, 25), also shows the potential for including local knowledge in physical design and planning. Relevant literature includes participatory design, community design and architecture, democracy in design, and social design. The literature acknowledges that professional technical knowledge is often inadequate in solving problems and that professional technical knowledge itself sometimes creates problems worse than those which it was intended to solve (Comerio 1984, 227; Schon 1983, 3-20). The literature argues for more input from people affected by the design and planning processes. The argument has been promoted by a number of contributors since the 1960s. Jacobs (1961) states that successful neighbourhoods require a combination of locally appropriate physical, social, and economic ingredients. Goodman (1972) attacks experts in planning and architectural practices for their conceptual organizing system which is incapable of providing knowledge of actual human existence. Instead, he proposes the revolutionary notion that the community should determine what it requires. Alexander (1977) introduced 253 patterns of built environment to support his argument that local people can create and guide their own environments. Gratz (1989) asserts that the best experts in a city are its users. In short, these people argue that the vision of any built environment should come

from its residents.

Participatory design and planning have developed from the idea that everyone has a right to be represented in decisions made about his or her environment. According to Francis (1982), participatory design and planning can be characterized as a local, human-oriented and democratic process. Participatory design and planning practices place emphasis on process, particularly people's involvement in the design and planning processes (Sommer 1983, 21). Hester (1984) emphasized his five steps in planning for community physical development: 1) discussions with community leaders; 2) home interviews; 3) observation and participation in people's daily activities; 4) listing significant places, checking the lists with town board members, publishing the list and questionnaire in local newspaper and asking people to respond; and 5) publishing the results of the questionnaire and map in the newspaper and asking people to respond.

King (1989) also emphasized people involvement in the seven steps of his Co-Design process: 1) listing the task and process with participants; 2) taking participants for a walk around the site; 3) visualizing ideas from participants; 4) rating priorities; 5) producing a design concept; 6) exhibiting plans to the community; and 7) reporting on plans, feedback and process.

Community design and architecture developed from the belief that no one knows the community better than the people in the community (Wates and Knevitt 1987, 23).

According to Francis (1982), community design can be characterized as a local, user-oriented and bottom-up approach. Comerio illustrates this point with the proposition that:

- Community design focuses on the client type, rather than the building type. . . ;
- Community design problems are generated by a grassroots or bottom-up process; and
- Community design combines principles of empowerment with enabling products. (Comerio 1984, 237)

The field of "social design" developed from the recognition that designers must be accountable to the people affected by their works. Social design must include not only the clients, who pay the designers, but also the users and others who are unavoidably affected. Sommer describes social design in the following manner.

> Social design is working with people rather than for them; involving people in the planning and management of the spaces around them;...to generate, compile, and make available information about the effects of human activities on the biotic and physical environment, including the effects of the built environment upon human beings (Sommer 1983, 7).

One of the important findings in human-environment research is the realization that designers and users of the designers' products differ in terms of preferences, reactions to environments, and so on. Designers must realize that the users' meaning is more important than their own (Bonta 1979; Jencks 1980; Rapoport 1990; etc.). Hester (1984) made similar conclusions in his study of the development of Manteo, North Carolina where he described how professionals and local people differed in their vision of significant

places. For instance, a designer's inventory of sacred structures was less than half of the town people's inventory. The difference, he suggested, shows that local people possessed additional knowledge of significance to professionals. His study, in particular, makes a major contribution to the scarce documentation on the importance of local knowledge in physical planning for tourism.

Many writers strongly argue for the consideration of local people's interests in planning and design for tourism development. Murphy (1985) states that tourism planning must be introduced in ways which respect and reflect the culture and social structure of the local population. Haywood (1988) suggests that tourism development should be driven by resident aspirations and tourism planning must consider that planning is responsible for the future of the planned community. Dorward (1990) proposes that tourism development guidelines be established to reflect local values and interests and the thrust of his book indicates what those guidelines should be. Like those who advocate participatory planning and design in the creation of urban space, these writers advocate local participation in the planning and design process for tourism development.

2.1.2 Local Knowledge in Thailand

Literature on local knowledge in Thailand focuses on local wisdom, community wisdom, and Thai wisdom. Local wisdom in Thai is "phumipanya thongthin" or "phumipanya chaoban". According to Keyes, local wisdom, as the Thai people put it, is

equivalent to local value systems (Keyes 1991, 5). The term 'Thai wisdom' provides two levels of knowledge: ideological and practical. At the ideological level, the knowledge includes an ideology of development focusing on a vision of society as it is described by the people in that particular society. At the practical level, the knowledge includes a specific understanding of traditional medicine, traditional irrigation systems, and concepts of self-sufficiency among Thai villagers.

Studies related to local knowledge in Thailand have been available in the fields of medicine, agriculture, engineering, ecology, social organization, and community development. Banpasirichote (1989) notes that the studies in the medical field, which have the most developed literature, include the study of Thai massage, the principles and concepts of Thai classical medicine, and the study of Thai people's genesis and folk taxonomic structure. She also notes that there are studies in agriculture and irrigation including traditional irrigation systems in northern Thailand, indigenous technical knowledge, and community development.

Studies in community development to date have examined Thai concepts of self-reliance and self-sufficiency (Phongphit 1986; Phongphit and Bennoun 1988). Phongphit (1986) argues that development projects and programs must share not only villagers' problems and ideas but also their past and present, their struggles and aspirations; and must develop from the perspective of view of the villagers. His work in 1988 notes important villagers'

knowledge to support his previous argument. This local knowledge includes knowledge of integrated and self-reliant farming, forest-agriculture, irrigation systems, environmental conservation, and community development.

Tankimyong (1985) notes in Thai language that villagers in northern Thailand have developed an effective organization for their traditional irrigation systems. She explains that the success of the organizations stems from the respect of community rights and rules that establish fair allocations to all members.

From my continuous search for literature on local people's knowledge related to physical design and planning through libraries, colleges and interviewees, I must conclude that there is a small number of works on this issue. These works include "A Survey of Village Technologies in the Northeast of Thailand" in Thai language by the Research and Development Institute, Khon Khan University. This survey reveals considerable local knowledge concerning self-reliant technology in agriculture, village industries, and transportation and construction. The examples provided (rice storage structures, village house trash walls and roofs, bamboo gutters, and windmill pumps) show the breadth of practical technical knowledge available at the village level. "The Traditional Thai House" by Nimmanahaeminda (1969) is a small document showing elements of a traditional Thai house. "Thai Style" by Warren (1989) focuses on styles of house in various regions of Thailand. "Thai House" in Thai language by Nukul Chompoonich (1987) is a report on

conditions of contemporary houses mostly in southern Thailand. We can conclude from the small number of documents available that literature regarding local knowledge related to physical design and planning in Thailand is inadequate.

2.2 PLANNING

Mainstream urban planning has been dominated by what Hudson (1979) calls the rational comprehensive or synoptic paradigm, or what Friedmann (1987) calls the social reform and policy analysis traditions. This kind of planning relies heavily on technical and economic rationality, which stems from positivist philosophy as described by Schon (1983). This approach views planning as technical, scientific and value-free. Hudson (1979, 389) states that this approach looks at problems from a systems viewpoint, using conceptual and mathematical models that relate ends (objectives) to means (resources and constraints) with heavy reliance on numbers and quantitative analysis. Analysis within this approach, including cost-benefit analysis, systems analysis and forecasting research, relies solely on scientific and technical data and leaves out subjective data (Hudson 1979, 392). The rational comprehensive approach "tends to exclude subjective realities including social, cultural, aesthetic, environmental and ideological considerations" (Hudson 1979, 392).

Because mainstream planning practice focuses on technical and scientific considerations, it is blamed for attempting to solve social problems without adequate tools and vision

(Friedmann 1987, 321-325). Planners in this mainstream have perceived themselves as independent experts who fully recognize the implications of any plan (Gunton 1991, 107). Friedmann (1973, 85) criticizes the mainstream planners for being happier when others do not interfere with their calculations.

Grabow and Heskin criticize mainstream planning for its inability to incorporate local people's knowledge and for its fundamental resistance to other approaches. "Modern planning", they say "has elitist, centralizing and change resistant tendencies" (Grabow and Heskin 1973, 108). Elitism separates professional planners from other people and results in professional knowledge dominating the planning process. For these reasons, the rational comprehensive planning process can easily be a top-down procedure. Cook (1983, 25) argues that issues and procedures are too often set from "the top" and overlook "the bottom" (the citizens). In fact, there is rarely a significant flow of information upward from the people involved to the professionals.

The rational comprehensive approach is usually embedded in theories of the professional establishment. This "expert-knows-best" view leads professionals to make decisions based solely on their own knowledge and values. A number of critics, among them Jane Jacobs (1961), Roberta Gratz (1989) and Dolores Hayden (1980) have commented on the dangers of the "expert-knows-best" approach, and in 1989, H.R.H. The Prince of Wales brought the problem into public focus with his own criticism of post-war architecture in

London. He argued that the theories of the professional establishment have made ordinary people feel they do not have legitimate opinions, and "accused the members of British architectural establishment of having done more visual damage to London than the Luftwaffe (Nazi Germany's air force) had done during World War II" (Lim 1991, 12). The dangers of applying the so-called rational comprehensive model with its expert-knows-best view may be overcome by listening to local knowledge which has been previously been ignored.

2.3 CITIZEN PARTICIPATION

Citizen participation is usually discussed in relation to democracy with particular reference to the rights of citizenship (Pateman 1970; Bourchier 1987). Citizen participation can be defined simply as "providing citizens with opportunities to take part in governmental decisions or planning processes" (Glass 1979, 180). Connor (1985, 1) provides a more comprehensive definition: a systematic process of mutual education and co-operation that gives an opportunity for concerned citizens, experts and proponents to work together to formulate a plan. Parenteau (1988, 5) noted that citizen participation "assures a variety of forms depending on the goals the initiator of the process seeks to achieve and the goals the initiator attributes to the intended participants." He also notes that citizen participation, ideally, "could prompt significant social reforms involving more equal sharing of the costs and benefits of affluence." (Parenteau 1988, 4). Lang and Armour

(1980, 302) discuss the benefits of citizen participation and its ability to provide data, especially qualitative, on feelings, attitudes, goals and priorities from participants, particularly those who are potentially affected by a proposed plan or decision-making process. Participants' knowledge gained from experience in living in an area helps in understanding real issues and conditions, and result in better planning or decision-making. More open and responsive planning and decision-making help to inform citizens, obtain public input, and generate a better outcome. As a result, these activities strengthen political awareness and democracy (Lang and Armour 1980, 302). In conclusion, citizen participation has been used to obtain information on local people's feelings, attitudes, goals and priorities which are all parts of local knowledge. Thus, citizen participation can bring local knowledge into planning and decision-making processes.

2.3.1 Constraints and Problems of Citizen Participation

Citizen participation comes not only with benefits but also with costs. It may require longer planning time and cost more money. It may provide ideal alternatives or lead to conflicts, and even obstruct an action (Lang and Armour 1980, 302). Moreover, citizen participation does not assure that participants will benefit. As Arnstein (1969, 216) quotes a poster from student riots in Paris (in 1968):

> Je participe (I participate)
> Tu participes (You participate)
> Nous participons (We participate)

Ils profitent (They profit)

Citizen participation can be ineffective when the process is top-down because it can lead to a manipulation of the process by bureaucrats or experts. Cullingworth (1984, 6) notes that when the expert who dominates the process undermines the participation and contribution of individuals and citizen groups, participatory democracy turns into apathy. Kasperson and Breitbart (1974, 5) also note that effective participation does not occur when individuals are not involved in setting the agenda, defining the issues, or determining the acceptable outcome.

Citizen participation is even more ineffective when it operates only in order to legitimize decision-making or planning. Scaff (1975, 82) states that citizen participation can be used to provide a mask of legitimacy for elite decisions and the systems in which decisions are made. Kasperson and Breitbart (1974, 5) add that "participation is unreal when the motivation is legitimation and control rather than creation."

2.3.2 Models of Citizen Participation

To improve effectiveness, citizen participation has to move from so-called, "non-participation" to full participation. Arnstein (1969) provides an eight-rung ladder of citizen participation. The two bottom rungs, "manipulation" and "therapy", are non-participation which only inform citizens about decision already made. The next two

levels, "informing and consultation", are token forms of participation. "Placation" allows participants to give advice while "partnership" provides participants some power to negotiate with decision-makers. The two top levels, "delegated power" and "citizen control", give real power to citizens.

Four broad approaches to citizen participation, as noted by Lang and Armour (1980, 302-305) and adapted from Bregha (n.d.), can be identified as information-feedback, consultation, joint planning, and delegated authority. The **information-feedback** approach can provide significant information to citizens and planners. Planners have a lot of processed knowledge which is statistical and scientific but little personal knowledge from first-hand experience. Citizens have experiential knowledge but lack statistical and scientific information. Techniques for the information-feedback approach include: newsletters, brochures, exhibits, films, and slides presentation. **Consultation** means planners interact with citizens in an organized way to increase knowledge for better decision-making and planning. Consultation techniques include 1) public meetings which allow public involvement but which can be dominated by organizers; 2) open houses which provide a two-way communication, allow flexibility and avoid confrontation, but which are also expensive and time consuming. **Joint planning** creates a partnership between citizens and planners. Techniques for this approach include: 1) working advisory committees which allow direct interaction among members and in-depth information on issues even though the committees may overlook some other citizens' views. 2)

workshops that provide an opportunity for participants to work out values and priorities but require careful preparation and experienced leaders. **Delegated authority** is citizen control of planning, decision-making and even management. This approach requires appropriate administration, expertise, and management.

Kasperson and Breitbart (1974), Cooley (1992) and Potapchuk (1991) criticize Arnstein's ladder because it is not flexible enough to acknowledge realities in the operation of citizen participation. In response to these criticisms, Connor (1988, 252) constructed a new ladder. From the bottom, the rungs include: education, information feedback, consultation, joint planning, mediation, litigation, and resolution/prevention. More recently, Potapchuk (1991, 163) suggested five levels of shared decision-making: 1) government decides, 2) government consults with individuals and decides, 3) government consults with a representative group and decides, 4) government works with a representative group and they jointly decide, and 5) government delegates decision to others. He believes that this typology can move away from models that struggle with power to a model that incorporates means of balancing power (Potapchuk 1991, 160).

Currently, partnership (Arnstein 1969), joint planning (Lang and Armour 1980; and Connor 1988) and joint decision-making (Potapchuk 1991) are used as the basis for co-management of resources. The definitions and techniques of partnership and co-management are still under debate (Berkes 1991).

2.3.3 Limitations of Citizen Participation in Thailand

Citizen participation is limited by the character of society. Characteristics in society which can limit citizen participation include centralization and paternalism, patronage, and persistent social habits. Third world societies, including Thailand, have often been described as highly centralized and paternalistic (Christensen 1993; Muscat 1994). Initiatives and decisions are usually made according to knowledge at "the top". Local people are treated as followers, not because local people are apathetic or because local knowledge is inferior, but because people, both at the top and at the bottom, become accustomed to the top-down model and accept it as a way of life (Rigg 1991, 201). Patronage and patron-client relationships exist in every country. But in third world countries, including Thailand, it exists to a higher degree (Muscat 1994). The patron-client relationship can explain why certain individuals or communities do or do not participate in certain activities (Rigg 1991, 204).

Just as every country has patronage, every society has persistent social habits. A characteristic of Thai society is the avoidance of confrontation. In Thailand, people who disagree with what is being said on their behalf are likely to remain silent and will probably only reveal their doubts in private (Rigg 1991, 203). This characteristic of society constrains citizens from bringing information into design and planning and needs to be taken into consideration in any participatory process.

Citizen participation is seldom built into Thai planning processes, and when it is, it usually seems to be ineffective. In national planning, Prasith-rathsint (1987, 36) found from his studies on Development Sections of the Fifth and Sixth Five-Year National Plan (1982 and 1987) that the plans were designed solely by a "maverick" group within the National Economic and Social Development Board.[1] Tourism development plans at the national and provincial level generally have not had effective public participation in the planning process. Tongcumpou and Harvey (1994, 291) note that the lack of public participation in environmental impact assessment in Thailand causes conflict between the public and proponents. In the case of a Bangkok expressway which was protested by the public, they argue that if there had been public participation, the protest might not have taken place. The low degree of citizen participation in Thai planning is thus a result of both culture and government procedures.

2.4 SOCIAL IMPACT ASSESSMENT

Social impact assessment (SIA) is a systematic process that aims to determine impacts on the quality of life of persons whose environment is affected by development projects and policy (Burdge and Robertson 1990, 88). SIA was promoted in the 1970s when it became clear that considering the social aspects of development was a necessary part of

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[1]A government office responsible for preparing the national development plans.

Environmental Impact Assessment (EIA).[2] In many countries, EIA was explicitly set out by law and by regulation, including the United States in 1969, Canada in 1973 (Lang and Armour 1981, 11) and Thailand in 1975 (Tongcumpou and Harvey 1991, 273).

2.4.1 Approach of SIA

At present, there are two approaches for conducting SIA: a technical model and a political model (Lang and Armour 1981, 113). Assessment using the technical model involves social scientists applying their methods to predict and evaluate the potential impacts of a project in theory while considering its alternatives and alternative futures (Lang and Armour 1981, 140). The political model focuses on empowering people who might be affected by a proposed project so that they can effectively express their relevant attitudes, beliefs, values and needs. In this model, Melser (1983, 8) notes that practitioners not only produce SIA reports describing tangible impacts but also have to ensure that the report reflects local attitudes and conflicts in the development process.

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[2]SIA still plays a minor role in EIA. Craig (1990, 41) reviewed over eighty EIS's in the first decade after the National Environmental Policy Act (NEPA) in 1969. She found that less than ten percent of the studies mentioned social relationships and that most studies focused on economic and technical considerations to the exclusion of social factors.

The debate over technical and political approaches continues. Craig (1990, 43) notes that the two approaches demonstrate conflicting opinions on scientific knowledge and the role of experts and the public. There are two different views regarding the role of the expert. One is that the assessor should be a neutral expert who identifies impacts and lays out alternatives (Nelkin 1984). The policy-maker then evaluates the impacts and chooses the alternatives. The other interpretation is that an assessor should be an involved participant (Bronfman 1991, 69) who must be aware of and responsive to the dynamics of values and forces which the affected people are facing.

SIA studies have not established explicit linkages to the study of local knowledge. The political approach, in practice, exhibits greater sympathy for local knowledge than the technical approach because the latter studies but does not involve local people, and analyses their knowledge (if at all) in terms of professional categories, while the political approach gives voice to local knowledge. But even political SIA is only beginning to appreciate the full depth or extent of local knowledge that is relevant to impact assessment, and, in particular, the assessment of physical designs.

2.4.2 Problems of SIA

Existing formal impact assessment approaches are reactive and added on to the design and planning of development projects. Rees (1980, 371) and Boothroyd and Rees (1984, 11), for example, note that impact assessments have been merely a reactive add-on to

project proposals. In this role, impact assessment has a very limited opportunity to bring information such as local knowledge into design. Nevertheless, even reactive impact assessment can bring some local knowledge to the attention of decision-makers. If and when impact assessment becomes more integrative with design, the potential value of local knowledge to planning and decision-making will be greater.

2.4.3 Examples of Local Input to SIA

There are some good examples of planning processes that have created significant opportunities for bringing local knowledge through SIA into design and planning. The Mackenzie Valley Pipeline Inquiry conducted by Justice Thomas Berger in 1977 was asked to query potentially affected residents and prepare a report on the terms and conditions for granting a pipeline right-of-way. He provided all parties access to all studies and reports relevant to the inquiry and organized two types of hearings. Formal hearings provided expert evidence about the proposal, and all participants had an opportunity to challenge and cross examine the experts. Community hearings in each settlement in the affected area allowed people to speak in their own language about their views on the pipeline. Berger found that the community hearings could provide significant technical knowledge such as seabed ice scour and the biological vulnerability of the Beaufort Sea (Craig 1990, 50). The key successes of Berger's work reflected the sensitivity and flexibility of the inquiry and the co-operation and trust of the community

involved.

Another example, the study of the proposed Polar Gas Pipeline in the District of Keewatin, was intended to inform local residents about the proposed project, to obtain their beliefs, ideas, and concerns, and to evaluate potential consequences as much as possible. Local residents were informed through information packages, regular newsletters, films, in-depth discussions, public meetings, and community radio and phone-in programs. Collecting information on the possible effects was accomplished through personal in-depth discussions, questionnaires and a literature review (Tester, 1979,7). The strength of this study was the contribution of an advisory committee composed of representatives from each community. This committee monitored the progress of the study and, more importantly, tracked participants studied in order to incorporate the views and concerns of the potentially affected residents. Both the Polar Gas and the Mackenzie Valley Pipeline examples show that SIA can add local knowledge to technical expertise and citizen participation can bring information to SIA.

Unfortunately, these two SIA examples are unusual in the detailed attention they gave to local knowledge. While other SIA's in the resource development sector have, to some degree, emulated the Berger and Polar Gas studies, it is hard to find urban and physical planning SIA's that pay much attention to local knowledge at all.

2.4.4 SIA in Thailand

According to Tongcumpou and Harvey (1994, 271, 291), more than 3000 environmental impact assessment documents have been prepared and officially submitted in Thailand, but for the most part these documents have given inadequate attention to SIA and have lacked public input. They note that the process of informing the public about a development project usually occurs after the decision has already been made. Thus, impact assessments are not based on information about or knowledge from potentially affected residents or the general public. In the two cases[3] they investigated in depth, Tongcumpou and Harvey (1994, 291-292) showed that even after the public raised concerns about a project's impacts, the Thai government continued to rely on the consultants' impact assessments to make their decisions to approve the projects. Therefore, SIA which reflects the local people's personal knowledge and concerns about impacts has had little or no opportunity to be included in the impact assessment and planning process. Studies to understand and overcome this situation are needed. The new National Environmental Quality Act in 1992 recognizes impacts on both the environment and people's lives. It allows (but does not necessitate) public participation in the assessment and decision-making processes. Thus,

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[3]The Second State Expressway in Greater Bangkok and the Pak Mun Hydroelectric Dam Project in the Northeast Region.

SIA has the potential to play a more important role in planning and in major project development.

2.5 CONCLUSION

The literatures reviewed in this chapter make a number of significant points which are useful for establishing a conceptual framework relating local knowledge, citizen participation, SIA and physical design and planning. As Figure 2.1 illustrates, local knowledge has the potential to contribute to design and planning through sensitive professionals accessing this knowledge directly, and through citizen participation and SIA processes. Figure 2.2 shows that according to the literature, this potential contribution of local knowledge is not yet being realized in Thailand today.

The literature on local knowledge expresses the importance of respecting that knowledge. Recent studies have tried to bring local knowledge into various fields of development planning that previously have overlooked this source of information. For local knowledge related to physical design and planning, the literature acknowledges that relying only on professionals is dangerous. To be more effective, professionals need to have input from local people, and some writings suggest ways of incorporating local knowledge through participatory processes.

Figure 2.1. Conceptual Context of the Study

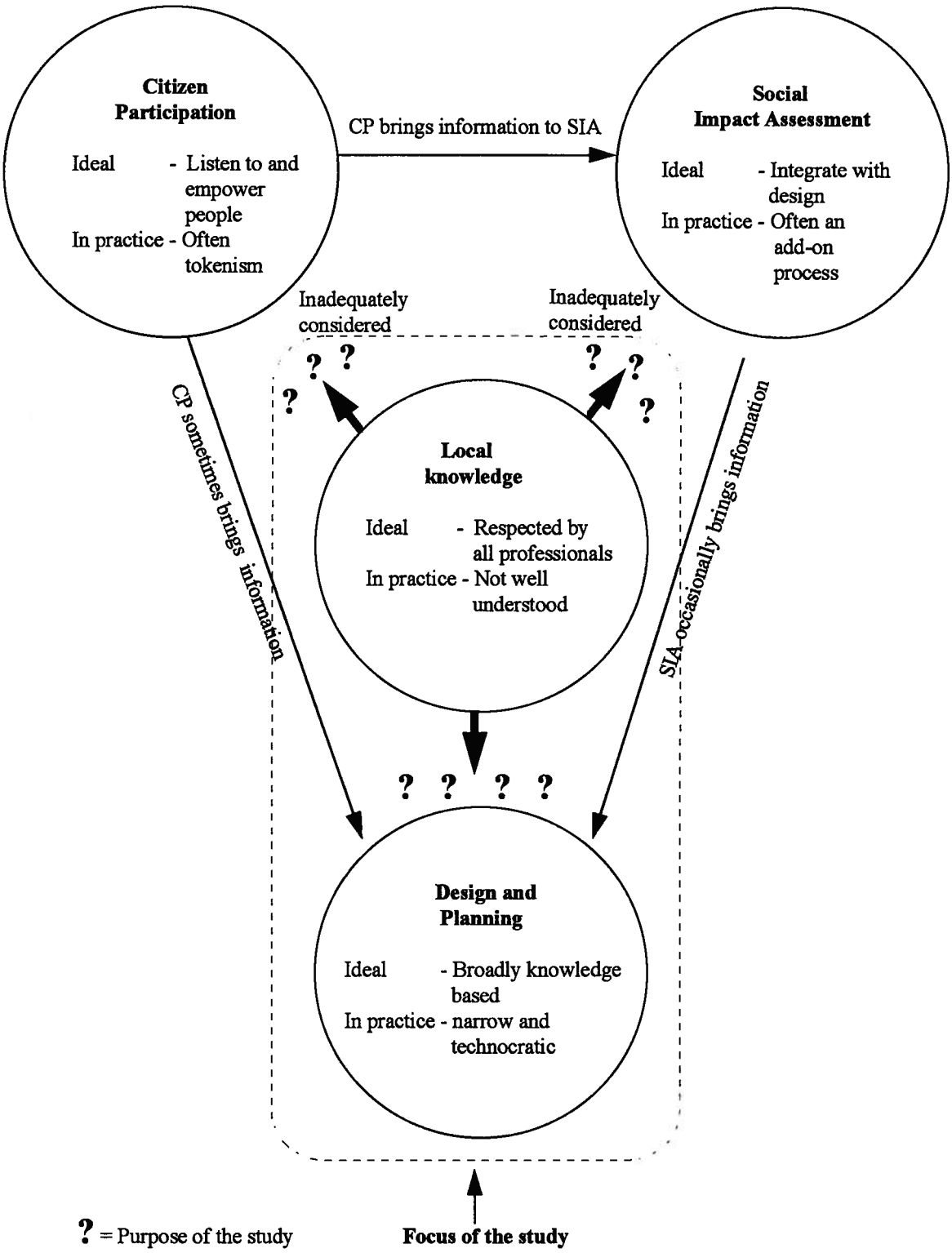
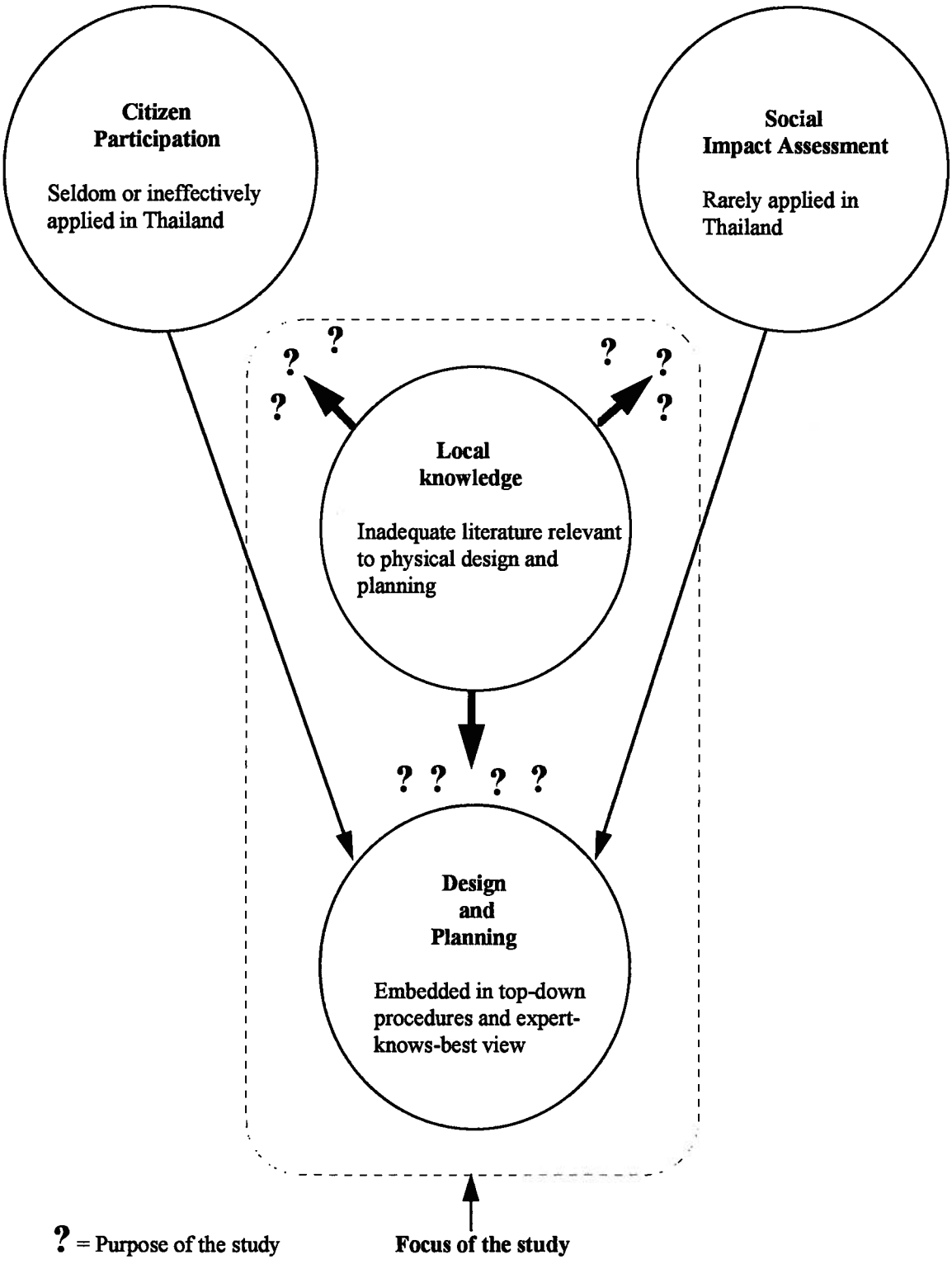


Figure 2.2. Thai Context of the Study



In Thailand, studies of local knowledge are available in medicine, agriculture, engineering, social organization and community development. There is, however, inadequate literature regarding local knowledge in physical design and planning.

Planning theory literature points out that planning has been dominated by professionals who apply the so-called rational comprehensive approach. Because this approach is imbued with the "expert-knows-best" view, design and planning can often be top-down procedures that ignore local people. As a result, design and planning are loaded with professional technical knowledge but leave out local knowledge. This problem has been observed in western countries, but not yet well studied in Thailand.

Citizen participation literature shows, first, that participation can be used as a process to get data for planning from non-professionals and is particularly valuable for obtaining qualitative information such as feelings, values and views. Western countries, despite constraints and problems, often have relatively effective citizen participation processes. In Thailand, however, citizen participation seldom occurs, and, when it does, it is usually ineffective. Second, the literature on citizen participation shows the lack of clearly developed methods of searching for local knowledge relevant to physical design, and thus the potential of such knowledge for informing planning is far from maximized even in the West, let alone Third World countries such as Thailand. Research on such local knowledge in relation to citizen participation is thus needed.

SIA literature identifies the potentials and current limitations of SIA as a tool for providing information on the impacts of development projects. SIA tends to react rather than contribute to design. In any event, it is rarely applied in Thailand. The literature on SIA makes little reference to the forms and depth of local knowledge although those espousing the political approach do recognize the importance of such knowledge and the need to give a voice to local people. Because the linkages between local knowledge and SIA are not well developed in the literature, they require further explanation.

This thesis responds to the gaps identified between the potential of local knowledge to contribute to physical design and planning through professionals directly and through citizen participation and SIA on the one hand and, on the other hand, the reality in Thailand today. The thesis: 1) reveals the existence and nature of local knowledge related to physical design and planning in the case of Chiangmai; 2) determines how design and planning in Chiangmai deal with local knowledge, why, and with what consequences; and 3) identifies means for expanding the presently limited incorporation of local knowledge into design and planning.

CHAPTER THREE

RESEARCH METHODS

3.0 INTRODUCTION

This chapter begins with an explanation of the research strategy employed in studying the relationship between local knowledge and physical design and planning in Chiangmai. Then Chiangmai, the study area, is introduced. Data collection techniques are discussed in detail because these were crucial for gaining a broad base of information. The framework for analyzing data obtained from the field is also explained.

3.1 RESEARCH STRATEGY

The case study approach was employed because it seems to be the most appropriate for the thesis purpose. The case study approach can include a variety of research methods and data collection techniques in order to understand the totality of a phenomenon in its context (Yin 1988, 23). This study applied survey research, field research and unobtrusive research methods. It also used participatory data collection techniques including those effectively used in the study of indigenous knowledge by Barsaga (1989), and in the study of perceptions on physical environments by Lynch (1960) and Hester (1984).

3.2 CHIANGMAI

Chiangmai is a culturally and naturally rich province in northern Thailand about 750 kilometres north of Bangkok, the capital city of Thailand. Chiangmai province has a total area of 20,107 square kilometres. Most of the area in the province is covered by mountains and forest. The remaining area is agricultural land where the *lanna*[1] people reside. The province is divided into nineteen *amphoe* (districts) and *ging-amphoe* (sub-districts). The total population is 1,226,616 inhabitants; about 12 percent or 148,772 residents live in the municipality of Chiangmai (Institute of Environmental Research of Chulalongkorn University 1989a).

The centre of Chiangmai is the ancient city where settlement started 700 years ago. It is approximately three square kilometres in size, and contains many distinctive historical and cultural features. The ancient city is located in the middle of the city with the Ping river on the east side and Suthep Mountain on the west side. The mountainous scenery and cultural heritage of Chiangmai are important attractions for the tourism industry.

Recently, Chiangmai has experienced the effects of Thailand's rapid economic growth. Tourism, a major industry for Chiangmai, has contributed to many changes in the area. As

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[1]*Lanna* refers to a plain in northern region of Thailand. The meaning is "one million rice fields".

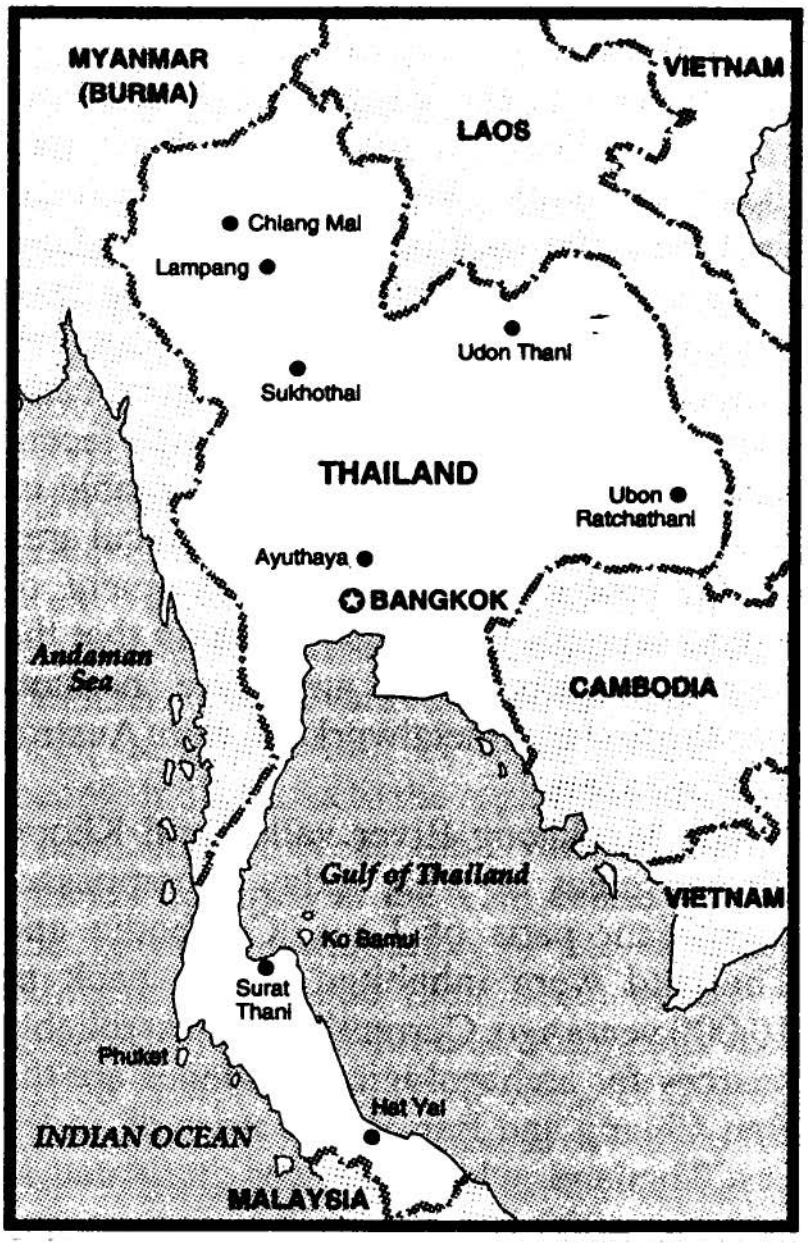

Figure 3.1. Map of Thailand

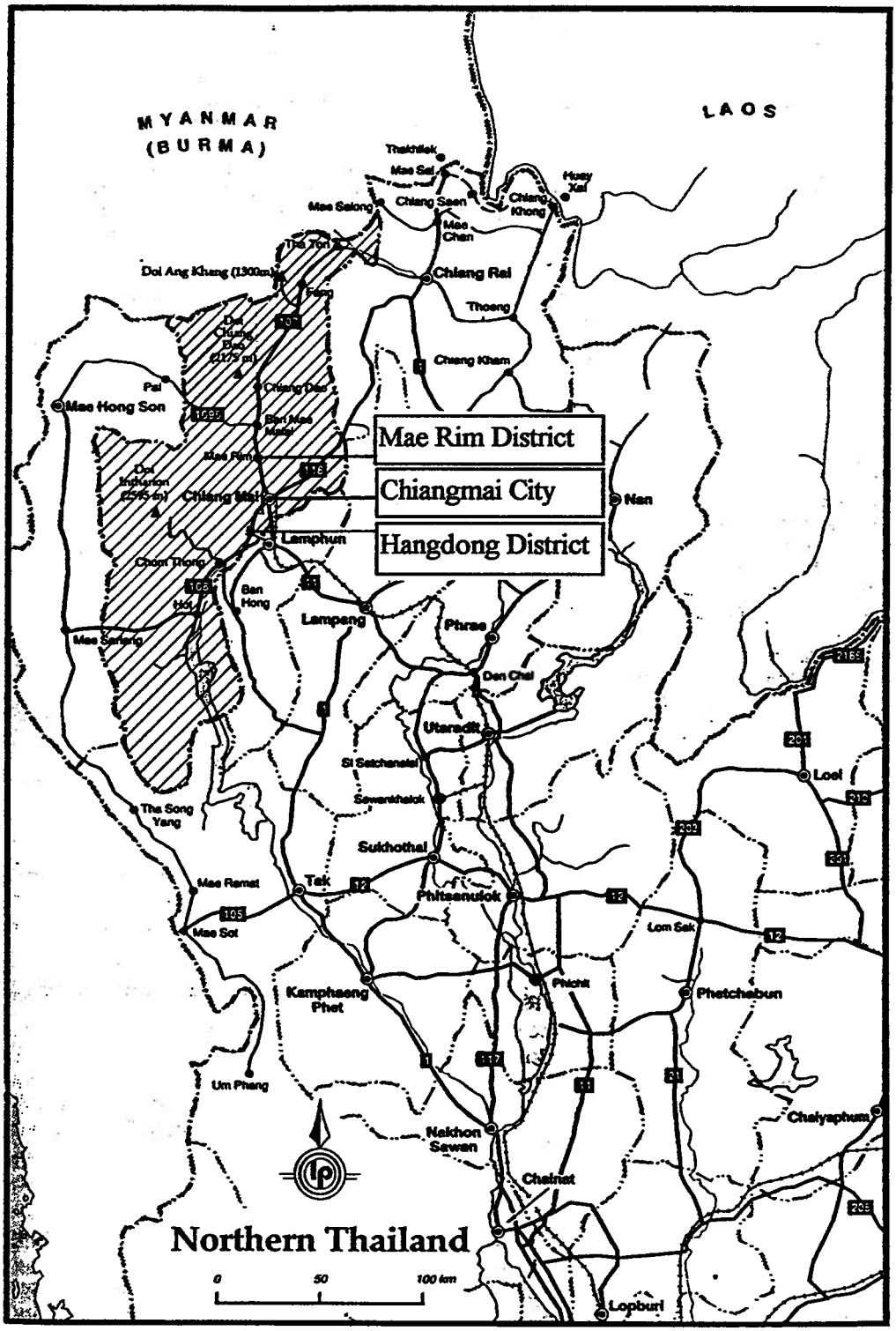

Figure 3.2. Map of Northern Thailand

well, a master plan for tourism development of Chiangmai, prepared by professional designers and planners, has resulted in significant negative impacts on the local environment. From 1987 to 1991, a large number of development projects have been constructed in Chiangmai including: 110 residential development projects; 52 condominiums; 32 large hotels; 29 resorts; and 11 golf courses (Bank of Thailand, Northern Branch January 1991).

This study investigated development projects in both urban and rural areas of Chiangmai. The urban area was the Chiangmai municipal area and included the ancient city of Chiangmai, which has been the prime site for development since settlement began. Development in this area is guided by government's development plans including the Master Plan for Chiangmai Tourism Development and the Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation. The area is also impacted by many private development projects encouraged by these plans.

In the urban area the specific development projects studied were the Diamond Riverside Hotel and the Chiangmai Garden Hotel which are representative of hotels with modern style buildings, and the Rim Ping Garden Hotel and River View Lodge which are representative of hotels with local style buildings (see Figure 3.3 and 3.4). These projects were used as sub-cases for detail investigation and acted as reference projects so that

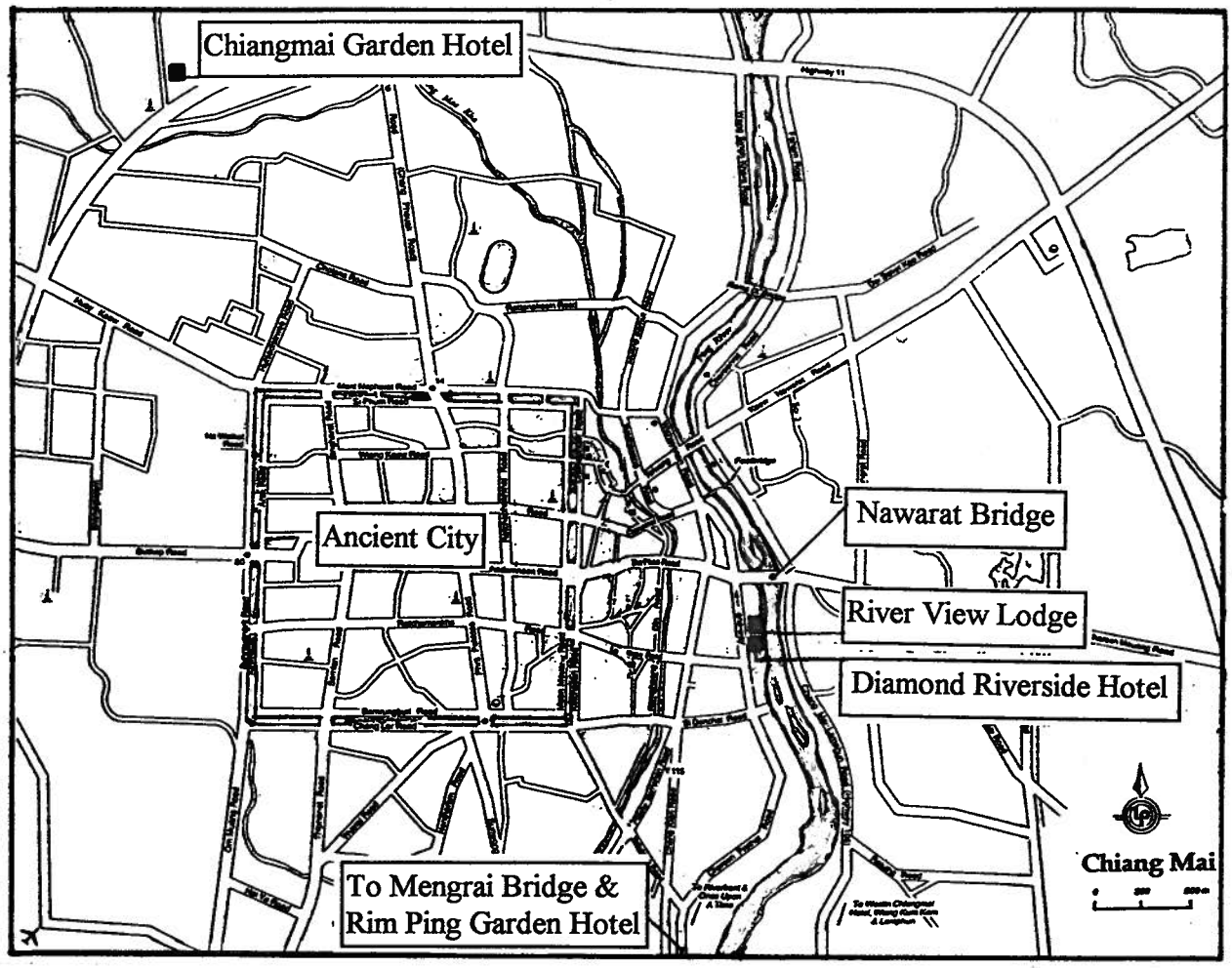

Figure 3.3. Chiangmai City Map

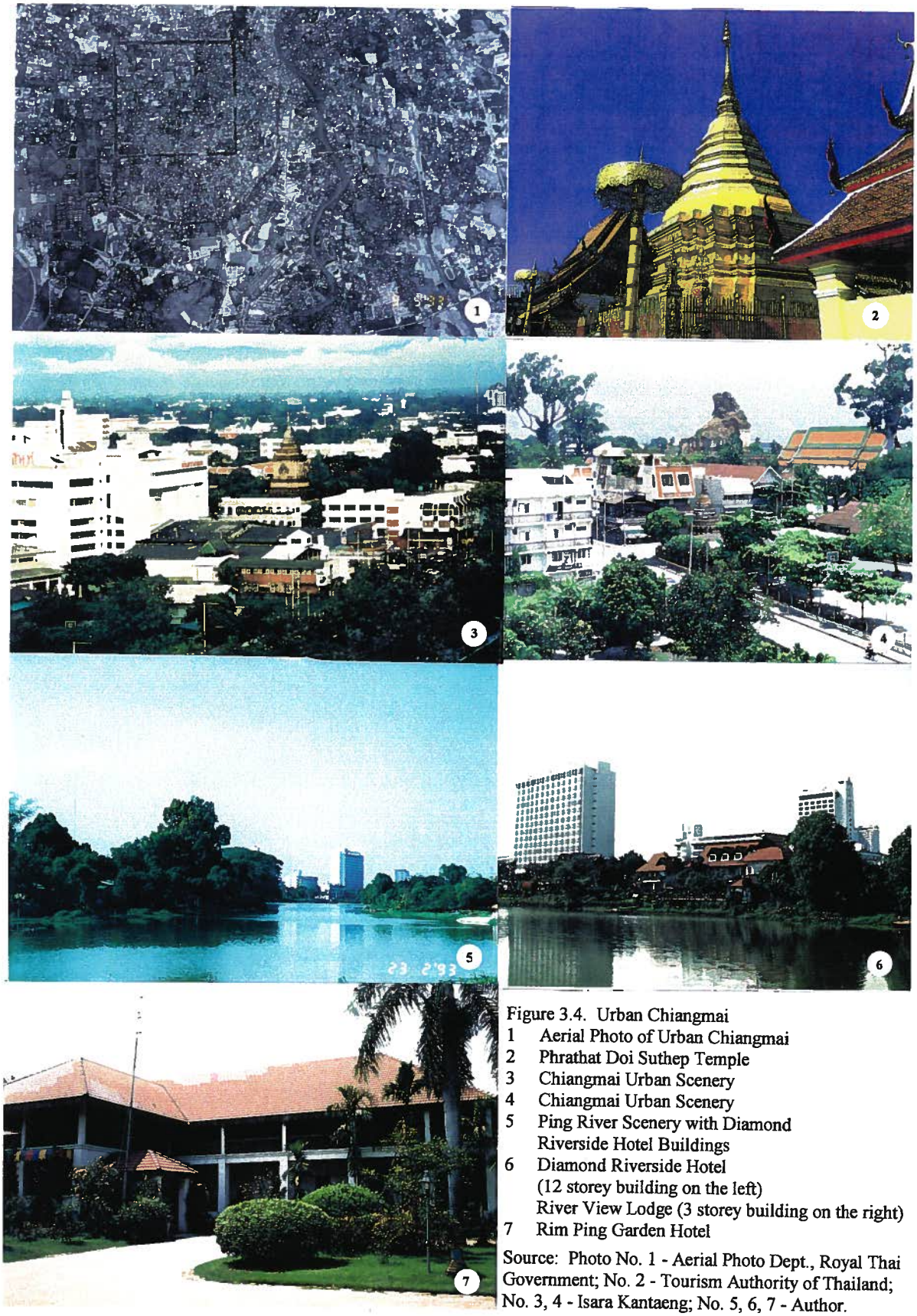

Figure 3.4. Urban Chiangmai
1 Aerial Photo of Urban Chiangmai
2 Phrathat Doi Suthep Temple
3 Chiangmai Urban Scenery
4 Chiangmai Urban Scenery
5 Ping River Scenery with Diamond Riverside Hotel Buildings
6 Diamond Riverside Hotel (12 storey building on the left) River View Lodge (3 storey building on the right)
7 Rim Ping Garden Hotel

Source: Photo No. 1 - Aerial Photo Dept., Royal Thai Government; No. 2 - Tourism Authority of Thailand; No. 3, 4 - Isara Kantaeng; No. 5, 6, 7 - Author.

research respondents would know what projects were being referred to in discussion.

The rural area studied is typical of rural northern communities. The area most intensively studied was the Pong Yaeng Nok village of Pong Yaeng Sub-district in the Mae Rim District. This area is an active tourism development area. Many developments were established under the recommendation of the Master Plan for Chiangmai Tourism Development. The specific development projects studied at Pong Yaeng Nok village were: the Erawan Resort, a western style resort; the Pongyaeng Garden Resort, a local style resort; and the Lanna Garden Resort, a local style resort at Banpong Sub-district in Hangdong District (see Figure 3.5 and 3.6).

3.3 DATA COLLECTION

Social science data collection methods can be classified as: experimental, survey, unobtrusive research, and field research (Babbie 1991, 234; Singleton et al. 1993, 179).[2] Experimental research requires control over the research surroundings to examine the relationship of causes and effects (Singleton et al. 1993, 181). As there was no control

[2]Babbie also noted a fifth, category of data collection methods (evaluation research), which is suitable for evaluating social intervention. He, however, thinks it refers to the research purpose rather than the method.

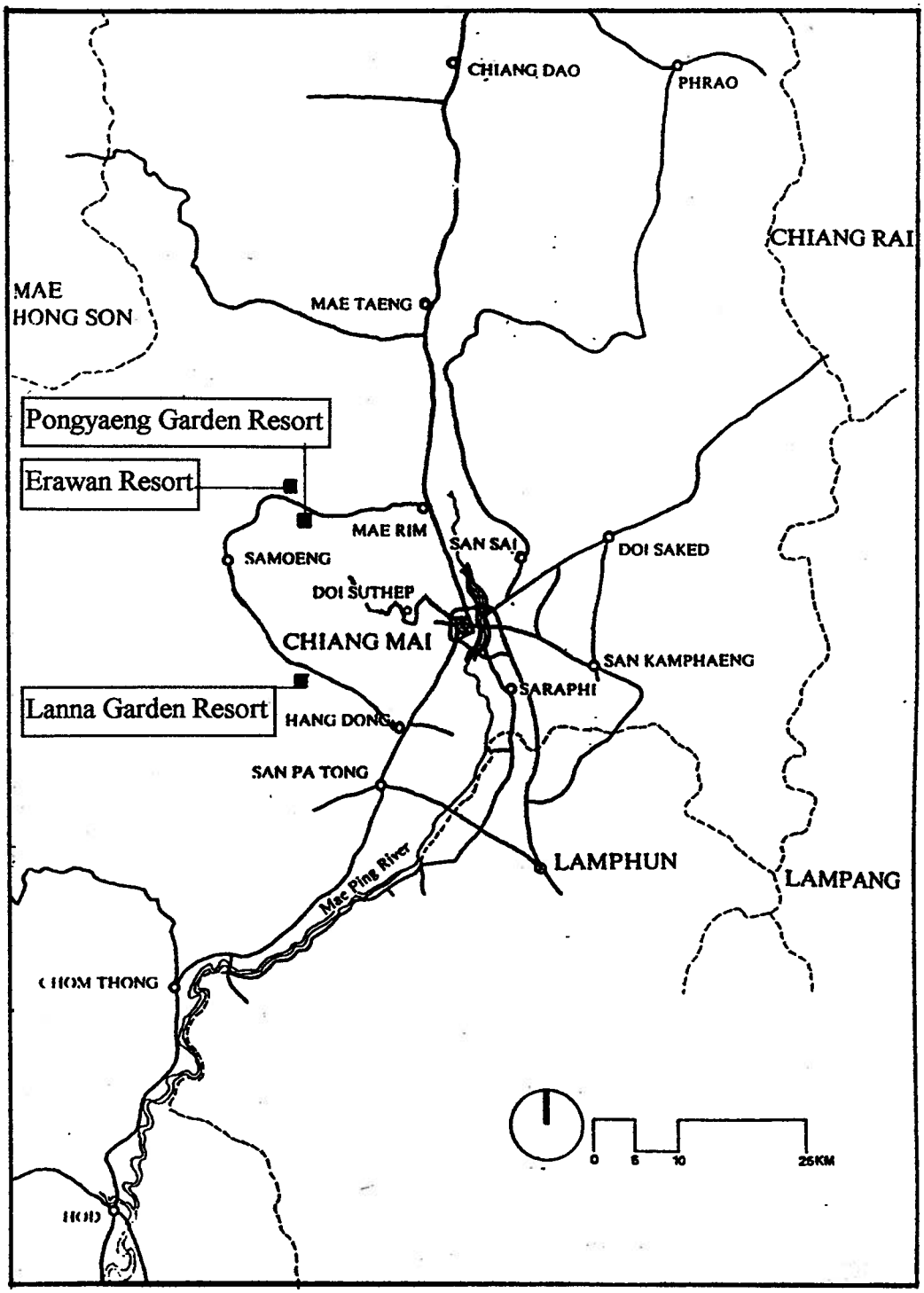

Figure 3.5. Specific Projects Studied in Rural Chiangmai

Figure 3.6. Rural Chiangmai
1 Pong Yaeng Nok Village Scenery
2 Pong Yaeng Nok Village Scenery
3 Erawan Resort
4 Accommodation at Erawan Resort
5 Pongyaeng Garden Resort
6 Accommodation at Pongyaeng Garden Resort
7 Lanna Garden Resort

Source: Author.

over participants in the Chiangmai design and planning processes studied, experimental research was clearly not appropriate.

Survey research is used when the research population is too large to investigate fully (Babbie 1991, 262). Survey research with appropriate sampling techniques can provide valuable data. Data are normally collected from representative samples through questionnaires and interviews (Jackson 1988, 32). In this study, a semi-structured interview which emphasized qualitative data (Fontana & Frey 1994) was conducted with professionals and local people.

Unobtrusive research studies social behaviour without disturbing it (Babbie 1991, 342) and typically relies on available information or secondary data (Singleton et al. 1993, 387). The unobtrusive research method was used to obtain background on the Master Plan for Chiangmai Tourism Development, the Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation, and the projects studied (i.e., hotels and resorts in Chiangmai).

Field research studies social events in normal settings (Guy et al. 1987, 25; Singleton et al. 1993, 349) and typically deals with qualitative data for an in-depth understanding of the

subject matter (Babbie 1991, 285). Because the goal of this study was to understand phenomena related to the incorporation of local knowledge in design and planning processes in Chiangmai under normal conditions, field research was an appropriate approach.

As well as the data collection methods just described, data collection techniques developed by Barsaga (1989), Lynch (1960) and Hester (1984), were used in the field research.

Barsaga (1989) discussed research techniques applied to access indigenous knowledge in third world countries. These include participant observation, focused group discussions and in-depth interviews. These techniques were all applied in the field research conducted for this study.

Lynch (1960), in his study of physical environments, found that professional observation techniques that assess people's perception can provide almost the same information as verbal interviews of local people and much more information than sketch maps. In contrast, Hester (1984) found that, in order to discover what places are considered important and what people's needs are related to these places, individual interviews and group discussions with local people can provide twice as much information as professional observation. Therefore, individual interviews with local people and group discussions were primarily applied in this study.

Figure 3.7 summarizes the data collection techniques employed for each type of information sought.

3.3.1 Documentary Research

Documentary research was used to obtain data on the plans and projects studied. The following documents were analyzed: 1) development plans including the Preliminary Study for Planning of Chiangmai Tourism Development, the Master Plan for Chiangmai Tourism Development, and the Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation; 2) development project brochures, and project press releases including brochures of Kad Suan Kaew Shopping Centre, Diamond Riverside Hotel, Erawan Resort, and Pongyaeng Garden Resort; 3) articles, reports and newsclippings about the projects studied (e.g., Lanna Garden Resort), and about impacts on the areas (e.g., flooding at Kad Suan Kaew Shopping Centre in local newspapers); 4) archival records (i.e., the geographical and demographic characteristics of previous and current conditions in the area obtained from Chiangmai governor's office, municipal office and district office) and; 5) photographic records of the areas studied from personal, university and college collections.

Figure 3.7. Information Sought and Research Techniques Employed

Information Sought	Research Techniques
• Background, process and outcomes of the existing planning and building design	• Secondary data gathered from plans and project brochures • Individual interviews with people involved in the design and planning process
• Types of local knowledge	• Individual interviews with local people • Focus group discussions • Personal observation
• Consideration of local knowledge in design and planning (ways and reasons for consideration, lack of consideration or ignorance of)	• Individual interviews with professionals and local people involved in the design and planning process • Focus group discussions with people interested in local knowledge
• Impacts of existing planning and building design with reference to the consequences of the attention or lack of attention to local knowledge	• Interviews with local people • Focus group discussions • Personal observation
• People's ideas about design and planning	• Secondary data on the design and planning education and process • Interviews with professionals and local people • Focus group discussions

3.3.2 Personal Observation

Personal observation refers to field visits to the area studied for the purpose of understanding both the phenomena and the context of the research. Whyte (1979) suggests that the observer must be an active collaborator in building good relationships with the communities studied. Following this suggestion, I actively joined community meetings, e.g., a meeting for solving problems of the Ping River and for locating a university auditorium. At the initial stage of this research, personal observation was used to provide a greater familiarity with Chiangmai, its development projects and its community in order to develop an efficient field research design. I visited and observed projects which key informants had identified as projects that included or excluded local knowledge. Later, the same technique was used regularly to obtain detailed information and to cross-reference data obtained from individual interviews and group discussions. By photographing the projects and taking notes on site, I observed the projects mentioned by interviewees and participants in group discussions in order to understand and analyze data in detail.

3.3.3 Individual Interviews

In-depth interviews with both closed and open-ended questions were used to study the perceptions, attitudes and motivation of the interviewees (Patton 1980, 199). Open-

ended questions, of course, allow interviewees to respond flexibly and to offer their own perceptions of conditions and events. These questions are different from closed and highly structured questions where interviewees have to adapt their responses to previously determined answers (Folch-Lyon 1981, 445). In this study, individual in-depth interviews were conducted using open-ended questions to acquire data about the incorporation of local knowledge and its outcomes in the design and planning process. Closed questions were asked to obtain factual information (e.g., age and length of residence in Chiangmai).

3.3.3.1 Interviewees

Two categories were used to select the interviewees: people who were involved in the planning and design of projects studied and people who were not. Interviews with people involved in planning and design of projects studied were used to obtain detailed data about the design and planning process. Interviews with people not involved in design and planning were used to gain local knowledge, to obtain their ideas about the design and planning process, and to learn about the impacts of the studied projects.

Interviewees in the first category were people who were involved in creating the plans and projects studied. People involved in creating the plans studied included professional

planners and a few local people who had participated in the various planning processes.[3] Six planners and three local people who were involved in preparing the planning documents were interviewed. Interviewees who were involved in the design of the projects studied included architects, project owners, and authorized government officials who participated in the design and building of the various hotels and resorts studied.[4] Five architects of seven projects studied, seven owners and four authorized government officials were interviewed. In total, twenty-five people were interviewed in this category.

The second category consisted of interviewees who were not involved in the plans and projects studied. These were local people who varied in age, sex, education, and occupation. There were two groups of interviewees in this category: locals affected by or knowledgeable about the projects because they lived in the community where the projects were located; and individuals who lived in Chiangmai and were interested in issues related to local knowledge.

Interviewees in the first group included Chiangmai urban residents who live close to the Diamond Riverside Hotel, the Rim Ping Garden Hotel and the River View Lodge, and

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[3]The plans studied included the Preliminary Study for Planning of Chiangmai Tourism Development, the Master Plan for Chiangmai Tourism Development, the Chiangmai Policy-Based Action Plan for Historic and Environmental Protection.

[4]Diamond Riverside Hotel, Chiangmai Garden Hotel, Rim Ping Garden Hotel, and River View Lodge in Chiangmai urban area, and Erawan Resort, Pongyaeng Garden Resort, and Lanna Garden Resort in rural area.

Pong Yaeng Nok villagers who live in the area where the Erawan Resort and the Pongyaeng Garden Resort are located. For Chiangmai urban residents, interviews with one person from each street block were conducted. These interviewees were selected from recommendations by people who knew a lot of people in that particular block (e.g., grocery shop and coffee shop owners). Twenty-one key informants were interviewed. For Pong Yaeng Nok villagers (see Figure 3.8), the method used for selecting interviewees was random sampling. Using house number multiples (1, 11, 21 to house number 211), one person from each address was interviewed. However, when people from addresses designated were unwilling to answer interview questions, neighbours recommended by these persons were interviewed. Nineteen people from the 212 households compassing Pong Yaeng Nok village (see Figure 3.9) were interviewed in this manner.

Interviewees in the second group were residents of Chiangmai who were interested in issues related to local knowledge. These interviewees were recommended by formal leaders, informal leaders (e.g., religious leaders) and researchers whose interests are related to local knowledge (e.g., researchers in northern architecture). Recommended interviewees included monks, senior citizens, students, teachers, government officials, private employees, and home-makers. In total, thirty-two key informants interested in local knowledge but not necessarily affected by the projects studied were interviewed.

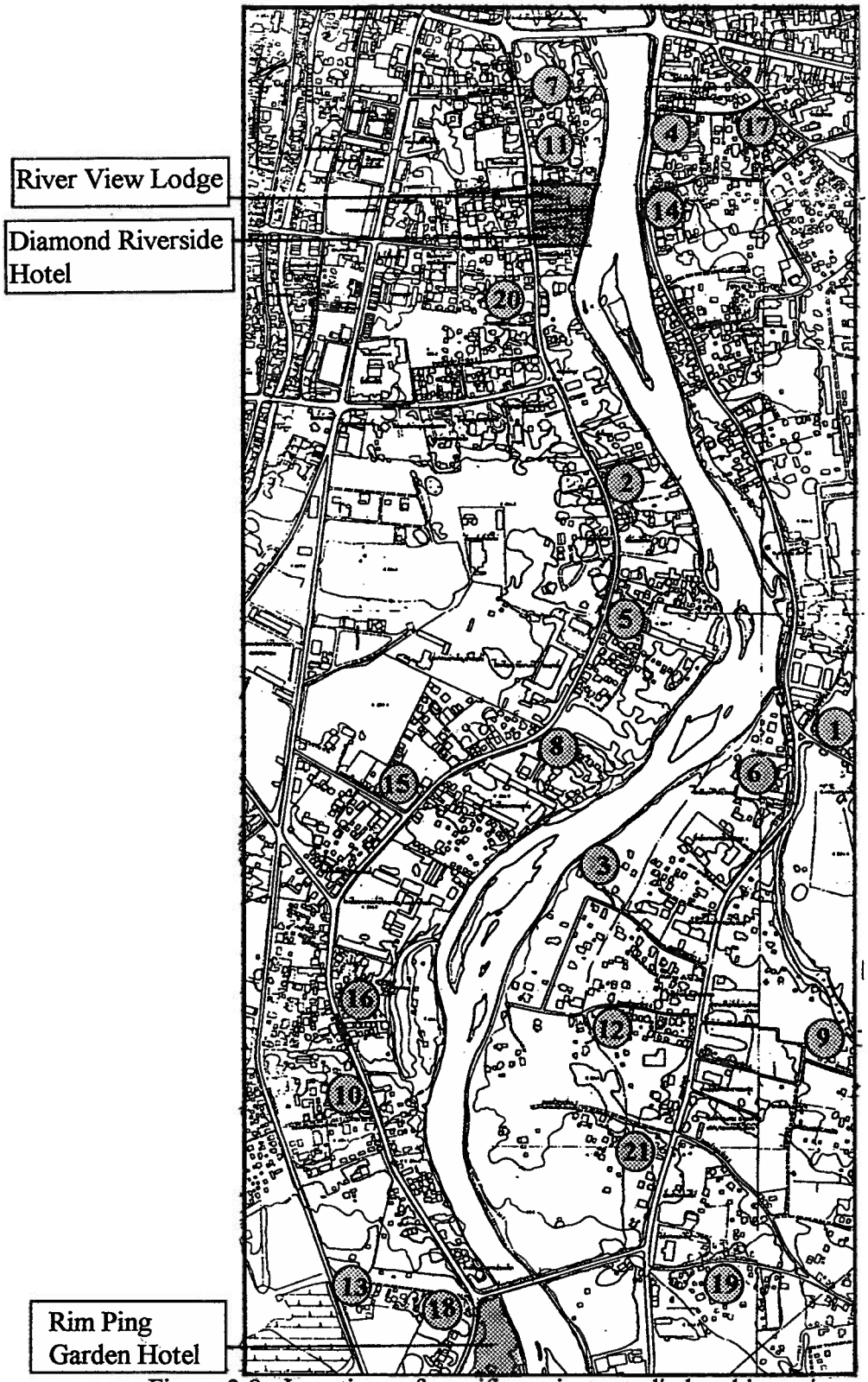

Figure 3.8. Locations of specific projects studied and interviewees' homes in urban area. (1) - (21) are interviewee numbers in Appendix 1: Chiangmai Urban residents.

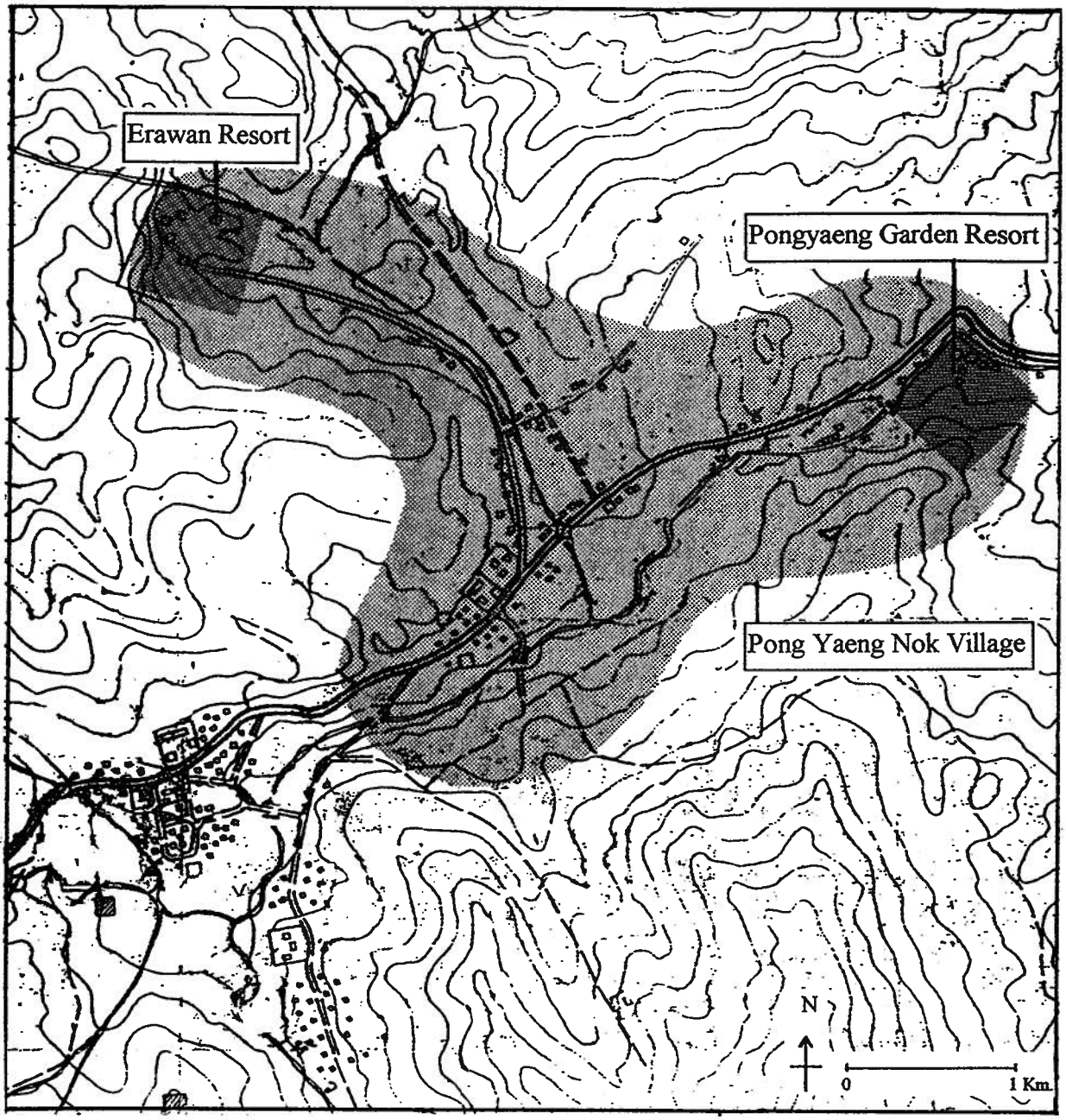

Figure 3.9. Locations of specific projects studied and Pong Yaeng Nok village.

3.3.3.2 Interview Procedure

The interviews were conducted by myself and an assistant. The assistant, who speaks the local dialect fluently, was trained by accompanying me for the first two weeks of interviews. In each interview, the interviewees were asked to fill in personal information, and then the interviewer asked a series of open-ended questions (see Appendix 6, 7). The interviews were recorded by audio tape; short notes of any significant answers were also made.

3.3.4 Focus Group Discussions

The group session is an interview technique where a small group of informants, guided by a moderator, discuss research issues freely and spontaneously. The discussion is held among participants who are chosen from a larger target group and have similar ages, educational and socio-economic backgrounds. In some cultural contexts, such as in Africa, India, and Thailand, spontaneously-initiated group discussions develop because friends and neighbours join in informal groups to discuss their ideas (Scrimshaw and Hurtado, 1987). This practice made it fairly simple to initiate group discussions where conversation flowed freely and easily around selected issues.

The advantage of the focus group is that it allows the moderator to observe the process of

interaction among participants as well as their perceptions and attitudes. The disadvantages of the technique are its unnatural setting and, very often, the loss of control over the subject under discussion (Morgan 1984, 262). However, from a participatory research perspective, this disadvantage can be a strength because it reduces the researcher's dominance and enables participants to play more active roles.

Another advantage is that focus group discussion "encourage participants to disclose behaviour and attitudes that they might not consciously reveal in an individual interview situation" (Folch-Lyon 1981, 445). This happens because "participants often feel more comfortable and secure in the company of people who have similar opinions, attitudes, and behaviour" or "simply because they become carried away by the discussion" (Folch-Lyon 1981, 115).

In this study, group discussions were arranged on three separate occasions. These focus group discussions were arranged the same way as workshops. Participants were encouraged to actively exchange their ideas, to accomplish the task of the discussion which was to reveal the existence of local knowledge, and to provide their ideas about incorporating such local knowledge in design and planning. The first group discussion was held in the Chiangmai urban area, and the second was conducted in a rural area with Pong Yaeng Nok villagers. The intention of these two discussions was to gain local people's knowledge related to the following research issues: the existing local knowledge

related to physical design and planning; the processes used in the development projects; the lessons they learned from the projects; and their ideas for future development. The third group discussion targeted people who were interested in or who actually studied local knowledge. The purpose here was not only to gain the same information as in the first two group discussions but also to obtain other insights from the participants' own experiences regarding the existence and accessibility of local knowledge and its incorporation into project design and planning.

3.3.4.1 The First Group Discussion

a) Group Selection

The first group discussion was arranged for residents in the Chiangmai urban area. Seven key informants were invited to participate. These informants were selected from people recommended by other interviewees in this research, and were long term residents of the city who had various occupations and an interest in the local knowledge of the people of Chiangmai. These key informants included a monk, a teacher, a university instructor, a government official, a business person, a descendent of a former Chiangmai ruler, and a company employee who was also a home-maker (see Appendix 2). During brief interviews with these key informants, they mentioned that they would attend a seminar on "*Lanna* Art and Architecture" arranged by the Social Research Institute of Chiangmai University and it would be convenient for them if my group discussion occurred in

conjunction with this seminar. Subsequently, the staff who organized the seminar invited me to conduct my group discussion at their small group session because their seminar topic and my study topic were closely related. I accepted their invitation because it would be convenient to the selected informants and because the seminar location, Jedi Luang Temple, is a well-known temple situated at the centre of Chiangmai city. Because the temple is a neutral place, all people are welcome. The seminar, therefore, would gather people who are interested in local art and architecture and would bring more participants to my group discussion.

b) Participants

Twenty-six people participated in this group discussion. Seven were selected key informants and nineteen were people attending the seminar who were either invited by myself or encouraged to join the discussion by posted signs and by announcements during the seminar. These nineteen participants were from government services and included teachers, researchers, tourism planners, preservationists, and university instructors in history, education, communication, fine arts, agriculture, and other sciences. The private sector was also represented with a tourist agent, an employee and a home-maker.

c) Group Discussion Process

The first group discussion was held on April 3, 1993, in a ground floor classroom of the Jedi Luang temple and lasted three hours. I described my research purpose and the

issues for discussion and then asked questions based on a discussion guideline developed from questions prepared for individual interviews (see Appendix 6). The participants' responses were noted on a board. One assistant collected participants' names and other pertinent data and took notes on the main points of the discussion, on participants' answers and on the general discussion atmosphere. Another assistant controlled the tape recorder and took pictures.

3.3.4.2 The Second Group Discussion

a) Group Selection

The second group discussion was arranged for local people in Pong Yaeng Nok village. Invitations were extended to ten people whose names were recommended by four sources. The first source was individual interviewees in Pong Yaeng village. The second source was the Village Head and his assistant. The third source was a group of government officials who were community development workers in the area. The fourth source was the village grocery shop owner who knows and is familiar with all the villagers. All ten invited villagers attended the second group discussion.

b) Participants

The participants in the second group discussion included the Village Head, the Assistant Village Head, the dam chief, and villagers who were long time residents of the village.

Almost all of the participants were born in the village. The participants worked in agriculture which is the occupation of most of the villagers. Some participants had a second occupation in carpentry, for example, or in sales (see Appendix 3).

c) Group Discussion Process

The second group discussion was held on April 20, 1993, and lasted almost three and a half hour. The discussion took place at the village head's working area in front of his house. This area is usually used as a meeting place for villagers because it is located next to the grocery shop which villagers also use as a common meeting place.

The process for this group discussion was similar to the first group discussion. I moderated the discussion and two assistants took notes, recorded the discussion on tape, and photographed the participants. The participants were asked to write down basic personal information about themselves (age, occupation, etc.) and answer some questions. Because some participants did not feel comfortable about writing anything down, the session continued using verbal communication only.

After the session ended, refreshments were served. My assistants and I had the opportunity to continue the discussion with participants who had mentioned significant issues in the session. The participants were still excited by the discussion and provided more detailed information. This discussion also provided opportunities for participants

who do not want to confront other participants in the formal session to express their ideas informally. This after-session time, therefore, provided an opportunity to obtain more significant data for this research.

3.3.4.3 The Third Group Discussion

a) Group Selection

The third group discussion was arranged to discuss research issues in-depth with professionals, experts or researchers whose work is related to local knowledge in both Chiangmai urban and rural areas. Participants were selected through a screening process of brief interviews with key informants recommended by interviewees in this research. Eight key informants were invited.

b) Participants

Seven of eight invited key informants participated in the third group discussion because one invited key informant, a specialist in local dialogue, was ill. The seven participants included a senior architect who is actively involved both in his profession and in local society, an architect who specializes in local architecture, an urban planner who is interested in balancing development and conservation, a geography professor whose research interest is local irrigation, an urban designer and instructor in geography, an environmental designer and instructor in fine arts, and a trained development planner who

is presently a NGO leader (see Appendix 4).

c) Group Discussion Process

The third group discussion was held on April 28, 1993, at a restaurant on the Chiangmai University campus and lasted a little over three hours. The process was generally similar to the first and second group discussions. Because the participants in this group were familiar with the research issues, less time was spent introducing the subject matter and more time was spent in discussion on several issues that the participants were asked to answer in written form (e.g., types of local knowledge). Then, the moderator pointed out answers which were similar and those which were different. This technique helped to save time for the discussion of common answers.

At the end of the discussion, dinner was served. While participants had dinner, I continued to ask questions on points that had emerged from the discussion. The discussion was informal and allowed participants to avoid confrontation and talk informally. As a result, much information was obtained over dinner. As with the second group discussion, this after-session time was valuable in gathering more data for the study.

3.4 ANALYTICAL METHODS

Data analysis for this research included content analysis and comparative analysis. Content analysis is particularly suited to answering classic research questions: "who says what, to whom, why, how and with what effect?" (Babbie 1991, 314). Data collected from the field handles the "what" questions and the analysis of data collected answers the "why and with what effect" questions. Content analysis is used to analyze data including 1) data about local knowledge that identifies its significance and characteristics; 2) the design and planning process studied that identifies people who dominate the process, whose knowledge is included or excluded in the process, the ways of including and excluding local knowledge, and the reasons and outcomes of exclusion or inclusion of this knowledge.

Comparative analysis is used to discover common patterns that recur on different occasions and in different places (Babbie 1991, 312). Comparative analysis was applied to compare the consequences of exclusion and inclusion of local knowledge to show the impacts of considering local knowledge in the design and planning process. The analysis not only compares sub-cases in Chiangmai but in some cases also compares some of these with reported cases elsewhere.

This study focused on the collection and analysis of qualitative data because the

purpose is to indicate the potential of local knowledge to contribute to physical design and planning. This study is interested in the nature and context of local knowledge. Thus, it searches for the kind of knowledge local people have rather than looking for the numbers of people or types of people having various kinds of knowledge. In other words, this study is interested in the taxonomy of knowledge rather than the incidence of knowledge holding. Interviews and discussions were conducted with a large number of people (98 interviewees and 43 participants in three group discussions) in order to gain a broad base of knowledge rather than to gain adequate samples for statistical analysis. Data from interviews and group discussions were analyzed by inductively categorizing the kinds of knowledge they reported.[5]

3.5 CONCLUSION

The discussion in this chapter shows why and how the case study method was applied. By and large, the research methods applied - field research questionnaire surveys and unobtrusive research - were appropriate for the Chiangmai case study. Likewise, the data

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[5]Names are reported for people who provided expertise based on local or professional knowledge. This gives credit where credit is due. Names are withheld for most people being quoted who participated in group discussions because they may not have always been expecting their comments to be cited exactly. Some interviewees' comments are not attributed to named people where it seems such attribution might be embarrassing for the person. Full names and titles are given for names of persons interviewed at the first time mentioned. After that, the first name is dropped. Where interviewees are also cited as authors, they are referenced in the standard way.

collection techniques used - documentary research, personal observation, individual interviews and group discussions - provided enough detail to use both content and comparative analysis effectively. The research respondents chosen through key informants, random sampling and spontaneous informal means provided a broad range of people who were well-informed either about the design and planning process or about local knowledge pertinent to the case study.

The discussions after the formal session of the second and third group discussion provide significant information to the research. These discussions allowed participants who avoided confrontation in the formal group discussion to talk informally. Future researchers of local knowledge should plan to allow such informal sessions at the end of formal discussions.

CHAPTER FOUR

EXISTING PLANNING AND BUILDING DESIGN IN CHIANGMAI

4.0 INTRODUCTION

This chapter reviews the development planning and design process for building projects in Chiangmai. It traces the background of these projects, and reviews the people or agencies that initiated them. It looks at the input of professionals and local people who participated in the planning and design projects and analyses the planning and design process itself with particular reference to the data collection process. The chapter also discusses outcomes of the process and any specific concerns regarding these outcomes.

The review starts by analyzing three plans for tourism development. The first is a Preliminary Study intended to gather essential information for the Master Plan Tourism Development of Chiangmai.[1] The Master Plan itself and the Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation are landmarks in planning for

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[1]The title "Master Plan Tourism Development of Chiangmai" is used in this thesis as it has been translated by Thai planning staff. Western usage would be "Master Plan for Chiangmai Tourism Development" and this title will be used in this thesis from this point.

Chiangmai, and many programs and projects derive from recommendations in these Plans. The Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation is Chiangmai's most recent comprehensive plan and was prepared by international experts. After analyzing these plans, the chapter reviews the development process of existing building projects from the time that the designer was hired until the building permit was granted.

The information discussed in this chapter was gathered in two ways: first, from a documentary analysis of the plans themselves and of articles written about the plans; second, from interviews with people involved in the planning and design processes and with people affected by the plan.[2] The discussion answers the research questions "In what way and to what extent has local knowledge been considered in design and planning?".

4.1 PRELIMINARY STUDY FOR CHIANGMAI TOURISM DEVELOPMENT

Because the Master Plan for Chiangmai Tourism Development relies heavily on the Preliminary Study, it is useful to describe the Preliminary Study in some detail. Following recommendations from the first National Tourism Development Plan in 1976, the Tourism Authority of Thailand (TAT) conducted tourism development plans for individual

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[2]Documents referred to in this dissertation are in English except where otherwise indicated. Thai documents and interviews have been translated by myself.

provinces. TAT's planning process for individual provinces involves the following stages: preliminary survey, preliminary study, master plan, and feasibility study for tourism development. The preliminary survey and study collect data from a field survey, analyze the data, and present information from the analysis. The information provided by the Preliminary Study was used in preparing provincial Master Plans.

4.1.1 The Study Group of The Preliminary Study

The Tourism Authority of Thailand (TAT) asked the Thailand Institute of Scientific and Technological Research (TISTR), a central government agency located in Bangkok, to do a preliminary study for the Master Plan for Chiangmai Tourism Development. TISTR spent a total of 10 months (February to December 1979) on this study. The study is available in both Thai and English. The English translation was done by the study group.

All personnel on the study group belonged to the staff of TISTR. The study group consisted of 1) a project manager, 2) an assistant project manager, 3) two experts in the study of physical features, 4) five experts in the study of socio-economic conditions, 5) six experts in the study of tourist markets, 6) seven experts in the study of tourist attractions and land use, 7) four engineers and experts in the study of environmental conditions, 8) seven experts in administration and production (TISTR 1979, i-iii).

The study group worked together with the representatives from the central government

agencies. The working group was led by the Director and staff of the Planning Division of TAT. The representatives included officials from the Department of Town and Country Planning, the Department of Public Works, the Office of the National Economic and Social Development Board, and the Office of the National Environment Board (TISTR 1979, iii). No local agencies were included in the working group.

4.1.2 Study Process of the Preliminary Study

The study was performed solely by TISTR staff. Local people involved in the process responded only to structured questionnaires designed by the study group. Briefly, the process can be described as follows: the collection of information, analysis of data and, finally, suggestions for directions and patterns of development. The study group investigated the following six major topics (see Figure 4.1):

1) Physical characteristics of the study area were analyzed in order to identify the physical constraints influencing the development of tourism. The impacts of tourism development on physical characteristics of the site were also identified.

2) Socio-economic conditions in the study area were analyzed to identify social and economic constraints on tourism. Following this procedure, the possible positive

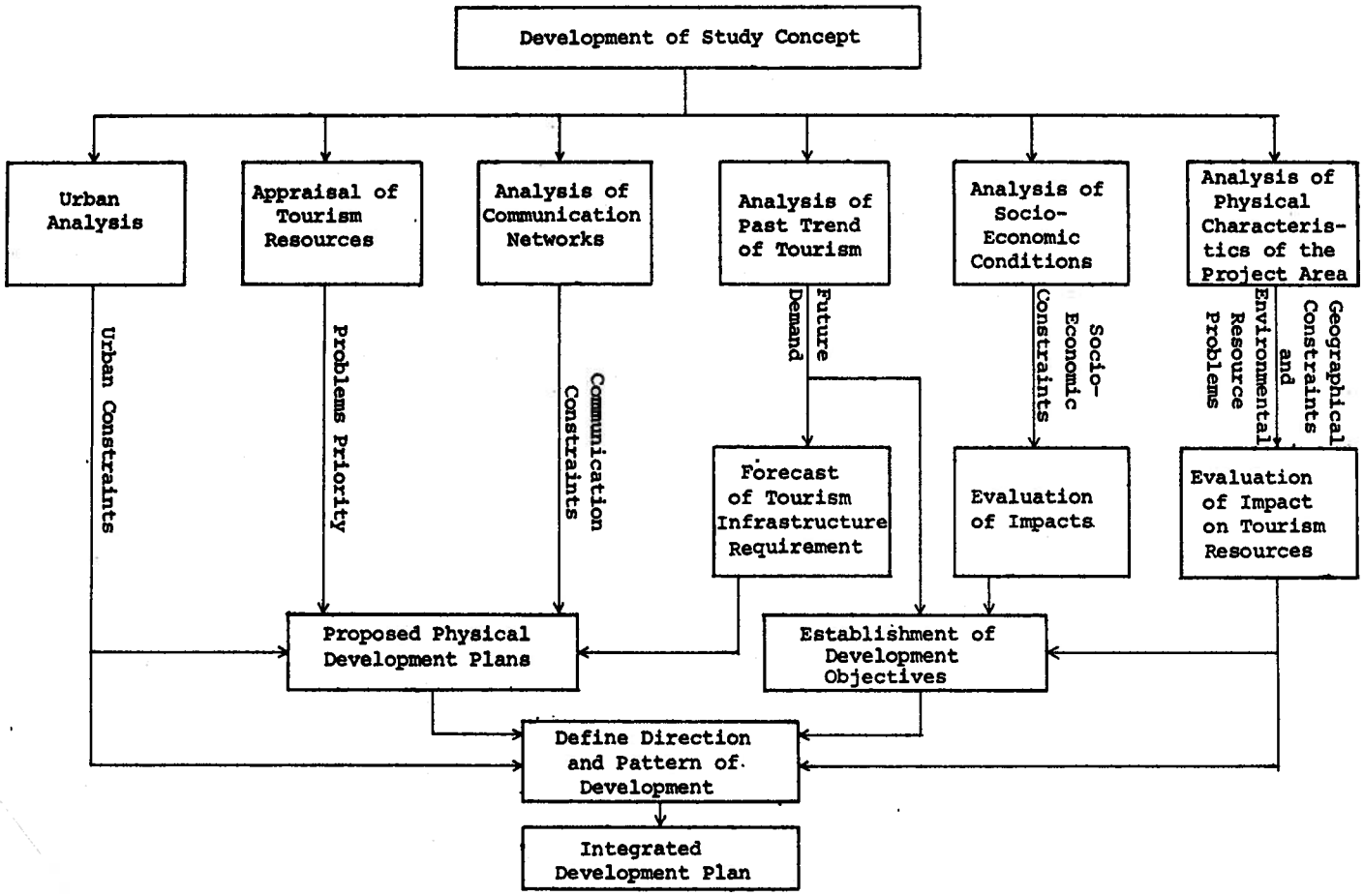

Figure 4.1. The Study Process of the Preliminary Study (for Chiangmai Tourism Development)
Source: Thailand Institute of Scientific and Technology Research (1979, 1-5).

and negative impacts of tourism on the social and business structure of the study area were assessed.

3) Past market trends in tourism demand were analyzed. Then future trends, in terms of the number of tourists, were forecast.

4) The communication and transportation network linking Bangkok and Chiangmai was analyzed. This analyses included gathering information about the present conditions of trains, buses, planes, and telecommunications services to assess the quality and quantity of existing services as well as future demand for these services.

5) Existing tourist resources were surveyed in order to appraise their present conditions, identify the major characteristics attracting tourists, identify the problems in development, and evaluate their development potential.

6) Surveys and studies were made of various existing urban infrastructures, such as land use patterns, road networks, electricity supply, water supply and traffic conditions in order to evaluate Chiangmai's suitability as a tourism centre (TISTR 1979, 2-1 - 8-26).

4.1.3 Data Collection Methods of the Preliminary Study

According to Mr. Anucha Lekskuldilok,[3] a trained planner who participated in preparing the Preliminary Study, data collection methods for the preliminary study were based primarily on documentary research. Most of the data relied upon secondary data from various government agencies in Bangkok and within the study area. However, TISTR also conducted field research to gather primary data in order to verify the reliability of the information and to gain essential information about specific topics such as water pollution.

As part of their field research, as noted by TISTR (1979, 1-3), the study group conducted site surveys of tourist spots in terms of distinctive features and infrastructure. They looked at particular problems that may affect tourism development, especially accessibility, land use, environmental degradation, security, and public amenities and services. In order to get information about tourists' needs and preferences, the study group prepared questionnaires for both Thai tourists and foreign tourists. The questionnaires were intended to gather information about the profile of tourists and their behaviour. The study group also conducted a field survey to investigate other essential topics including water pollution, flooding and traffic congestion. The field survey was

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[3]Interviewed on January 26, 1993 .

done mainly in the city area in order to identify the readiness and constraints of the city for tourism development.

The data collection methods of the Preliminary Study were insensitive to local people. Most data relied on secondary data from government offices. The site survey of tourist spots focused on physical conditions required for tourist facilities development rather than on impacts of tourist development on local communities. In addition, the questionnaire was designed for collecting data from Thai and foreign tourists not local people.

4.1.4 Outcomes of the Preliminary Study

The Preliminary Study investigated a number of physical features, socio-economic and tourism conditions in the Chiangmai area and provided information for future tourism planning. The information provided in the Preliminary Study was dominated by professional knowledge. This domination occurred for three reasons: 1) all study group members were staff of TISTR which is located in Bangkok. Some of them may have lived in Chiangmai but have now moved to Bangkok. There is, therefore, a high possibility that they lacked current local knowledge; 2) the process limited local people's involvement; and 3) data collection methods were insensitive to local people. The information included:

1) physical features including terrain and climatic conditions, surface and ground water resources, existing land use, and natural disaster areas.

2) socio-economic conditions including economic factors, safety services, the provision of safety and public health services, and the provision of religious services.

3) the tourist market in Chiangmai in terms of its past and present condition and future growth trends.

4) communications and transportation including present service, and problems, as well as future demands for tram, bus and air services.

5) tourist resources in terms of the significance of tourist attractions and their existing problems and development constraints.

6) urban infrastructure in terms of the readiness for tourism including the utility system (communications, water supply, drainage systems, electricity supply, and solid wastes disposal), and traffic (number of vehicles, traffic conditions, causes of the traffic problem, and its impacts on tourism) (Thailand Institute of Scientific and Technological Research 1979, 1-2, 1-4).

Although the Preliminary Study lacked the input of local knowledge, it was used as the foundation for developing guidelines for the preparation of a master plan for the development of tourism in the project area.

4.2 MASTER PLAN FOR CHIANGMAI TOURISM DEVELOPMENT

After the Preliminary Study for Chiangmai Tourism Development was finished and approved in 1980, TAT hired four private consulting firms from Bangkok to prepare the Master Plan for Chiangmai Tourism Development with co-ordination and supervision by TAT. The main objective was to draw up a master plan which would achieve two goals. First, the plan would guide development of tourism in Chiangmai in harmony with the existing natural resources. Second, it would create economic benefits that were not at variance with the local social conditions, culture and traditions, or with the conservation and enhancement of the natural resources in the project areas. To assure that tourism development planning for Chiangmai would achieve these objectives, the consulting firm used the following concepts to guide their work (Sumet Jumsai Associates et al. 1981, 3-1 - 3-2).

1. Develop tourist clusters in Chiangmai in such a way as to show distinctive tourist features in the natural beauty, architecture, arts, culture, and traditions of the area.

2. Accord equal development opportunity to all tourist clusters by regarding the investment ability of the government and the readiness of each cluster to market tourist resources.

3. Plan all tourist activities at the tourist clusters in accordance with the conditions of the respective area.

4. Develop a public utility system adequate in both quality and quantity for all tourist clusters.

5. Plan measures to protect against the destruction of local arts, culture, traditions and natural environments.

The Master Plan was accepted in 1981 by TAT. It was written in Thai first and translated later into English by the working group.

4.2.1 The Working Group of the Master Plan

Personnel in the working group were mainly employees of the four Bangkok consulting firms: Sumet Jumsai Associates, M.H. Planning and Development, Four Aces Consultants, and Asian Engineering Consultants. The working group also included specialists from universities in Bangkok such as specialists in law, socio-economics, marketing, arts and culture, and finance. The working group consisted of two people in project management, four specialists in socio-economics, four specialists in marketing and finance, four specialists in infrastructure, ten physical planners, one environmental specialist, three specialists in arts and culture, and one legal specialist (Sumet Jumsai Associates et al.

1981, 0-2).

TAT had also appointed a special committee to work together with the working group. Committee Members were mainly government officials and included only four local representatives (Sumet Jumsai Associates et al. 1981, 0-5).[4]

4.2.2 Planning Process of the Master Plan

The working group started a draft of the Master Plan for Chiangmai Tourism Development by gathering data, mainly from the Preliminary Study, and then progressing through site visits and data analysis to writing the Master Plan (see Figure 4.2). The

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[4]Representatives from TAT included the Governor of TAT, the Deputy Governors of Marketing and of Planning and Development, the Directors of Planning and Development, of TAT Chiangmai, and of the Project Planning Division, and a planner from the Project Planning Division. Representatives of the Central Government included the Governor of Chiangmai Province, representatives from the Highway, Royal Forest, Land, Aviation and Fine Arts, Public Works, and Town and Country Planning Departments, representatives from the Ministry of Finance, from the National Economic and Social Development Board, from the National Environment Board, from the Budget Bureau and from the Office of Policy and Planning. The four local representatives were the Lord Mayor of Chiangmai Municipality, the Chairman of Chiangmai Provincial Council, the Chairman of Chiangmai Municipality Council and the Chairman of Tourism Promotion Society.

Planning Process for the Master Plan for Chiangmai Tourism Development

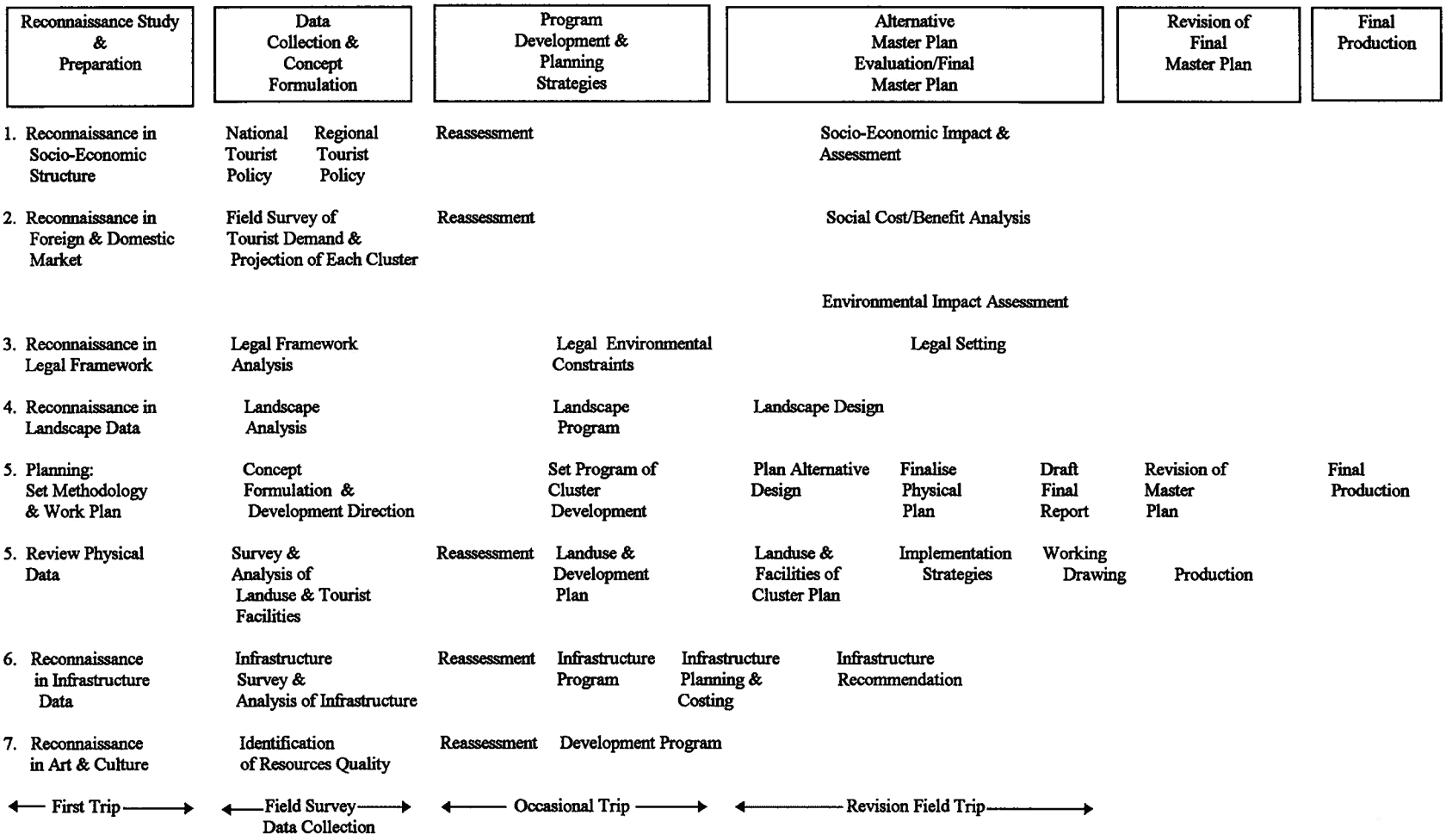

Figure 4.2 Planning Process for the Master Plan for Chiangmai Tourism Development
Source: Sumet Jumsai Associates et al. 1981, p. 1-7.

writing was finished in 1981. The activities performed by the working group included surveying information on the numbers of, and demand by, foreign and Thai tourists coming to Chiangmai. This information served as the basis for estimating tourist demand. The working group surveyed the infrastructure of the study areas and analyzed this information. The information analyzed included interconnecting communication systems at the local regional and national levels, waterworks, disposal of garbage and polluted water, electricity, irrigation and flood protection. The information on culture and traditions that was collected and analyzed included local handicrafts. The working group also surveyed physical data and environmental problems in the tourist clusters. They analyzed these data to prepare a specific plan for each tourist cluster and to prioritize tourist clusters for development.

After this analysis had been completed, the group presented its strategy for tourism development. The presentation included tactics for the implementation of the development plan with respect to the law, to administration, to investment and budgetary allocation, and to the various organizations involved. The presentation concluded with an estimate of the increase in economic development employment from tourism development efforts (Sumet Jumsai Associates et al. 1981, 1-2 - 1-5).

4.2.3 Data Collection Methods of the Master Plan

The Master Plan relied heavily on data from the Preliminary Study which was intended

to be the data base for the Master Plan. For purposes of analysis, the project management team for the Master Plan arranged site visits for the working group to show them the tourist sites. This group included personnel from four Bangkok consulting firms, specialists from Chulalongkorn University in Bangkok, and the committee established by TAT.

Specialists and staff who had to work closely on the sites visited the site frequently for a short period of time during the first three months of the working period.[5] To ensure that the proposed development was suitable to the sites, the working group had a short visit to the sites again before finishing the final draft.[6] There is no evidence that they worked with the local people during these trips.

The data collection methods of the Master Plan were insensitive to the local people and to local issues. The Master Plan is based heavily on data obtained from the preliminary study which lacked local knowledge. Moreover, short site visits limited interaction with local people so that there were few opportunities for the professionals to sensitize themselves to local issues even if they wished to do so.

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[5]Interview with Assoc. Prof. Decha Boonkham, project physical planner, March 23, 1993.
[6]Interview with Mr. Supalerk Mallikamas, architect and Project Management staff, May 13, 14, 1994.

4.2.4 Outcomes of the Master Plan

Given the process for preparing the Master Plan, the recommendations could not be expected to significantly reflect local knowledge. With limited local knowledge, the Master Plan proposed the development of tourist clusters according to their attractiveness in the tourist market. These tourist clusters included Suthep Mountain and Mae Sa Valley Clusters (see Figure 4.3).

Suthep Mountain Tourist Cluster: Cable Car Proposal

The Master Plan noted that Suthep Mountain Cluster is the most popular cluster among both Thai and foreign tourists, and more than 90 percent of tourists coming to Chiangmai pay respect to Buddha's remains on the mountain (Sumet Jumsai Associates et al. 1981, 2-71). Even though roads, electricity and drinking water already exist, the plan noted that these facilities were in high demand when large numbers of tourists arrive and needed to be improved.

According to the Master Plan, the present transportation system to the mountain, which relies solely on the automobile, failed during festive seasons, and a more efficient system was needed. The Master Plan proposed an electric cable car. It was argued that the cable car would directly increase the ability to bring tourists to Suthep Mountain, reduce accidents, and spread tourists out among various receiving spaces in the clusters.

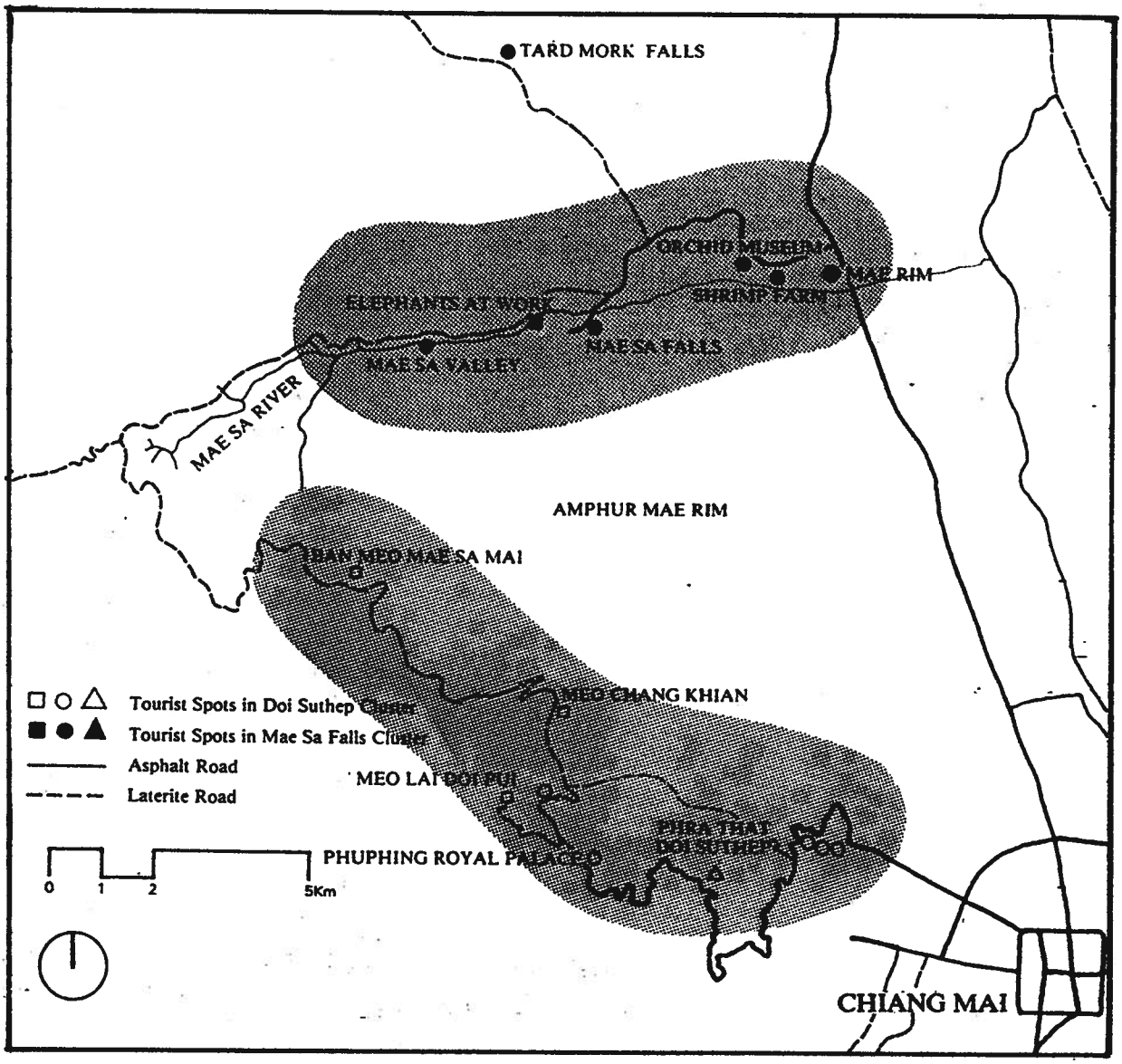

Figure 4.3 Suthep Mountain and Mae Sa Valley Clusters
Source: Sumet Jumsai Associates et al. 1981, 2-62.

Moreover, it would also create a new form of tourism in itself (Sumet Jumsai Associates et al. 1981, 2-73).

Two cable car route sections were recommended. The first was from the tourist sub-centre at the foot of the mountain to the sight-seeing spot at 9.4 kilometres. The second was from the 9.4 kilometre point to the tourist centre at the Phrathat Doi Suthep temple. The mid-way sight-seeing spot provides a good opportunity for tourist activities and at the same time helps spread out tourist flow to the spot. The tourist centre at the Phrathat Doi Suthep temple would be used as a junction where tourists wanting to go further up could do so by mini buses (Sumet Jumsai Associates et al. 1981, 2-74). This would have caused impacts on Phrathat Doi Suthep temple and also to Suthep mountain.

The Master Plan recommended a special type of management for the project. The plan suggested that TAT should use its good offices to request land use concessions and should prepare a project proposal designed for private investors. The project should be of long-term duration but should be implemented within 10-year period (Sumet Jumsai Associates et al. 1981, 2-140).

Mae Sa Valley Tourist Cluster: Tourist Resort and Elephant Show Proposals

The Mae Sa Valley Tourist Cluster is about 16 kilometres north of Chiangmai in the Mae

Rim district. The cluster consists of tourist spots such as Mae Sa Falls, the Elephants at Work Show at Mae Sa (Mae Sa Elephant Kraal), and the Mae Sa Valley. This tourist cluster has the potential to be very popular among Thai and foreign tourists. Therefore, the Master Plan recommends development of this cluster with lodgings, services, an improved access road, and more Elephants at Work shows.

To improve the access road, the Master Plan recommends making the road into a loop for convenience in combining the tour of this cluster with that of the Suthep Mountain Cluster. The development of this route will encourage the establishment of a new tourist cluster by the private sector. The Master Plan further recommended that lodgings constructed to accommodate an increased number of tourists should assume forms in harmony with the natural surroundings. Such lodging would help increase the length of time a tourist stays in the cluster. Furthermore, the Master Plan advocated promoting the Elephant at Work show. The Master Plan also recommends that complementary activities such as elephant riding through the forest to the Mae Sa Falls should be provided. The government would assist in publicizing these tourist attractions (Sumet Jumsai Associates et al. 1981, 2-142).

Local Reaction

Many recommendations of the Master Plan for both clusters dissatisfied local people. The cable car proposed for Suthep Mountain Tourist Cluster was put on hold because local

people strongly protested that the cable car would disfigure the mountainside and take away from the spiritual and scenic value of Phrathat Doi Suthep temple. More resorts and elephant shows for Mae Sa Valley Tourist Cluster were seen as causing unwanted outcomes for local people. Local people predicted that new resorts would take away rare resources (such as water) from local people, while more elephant shows would increase the pollution in villagers' streams. These outcomes from the Master Plan's recommendations will be elaborated in Chapter Six.

4.3 CHIANGMAI POLICY-BASED ACTION PLAN FOR HISTORIC & ENVIRONMENTAL PRESERVATION

4.3.1 The Working Group For the Policy-Based Action Plan

The Chiangmai Policy-Based Action Plan for Historic & Environmental Preservation was initiated by the late Governor of Chiangmai province because he was concerned about the future of Chiangmai. He set up the Chiangmai Planning Project (CMPP) Office in 1990 to study the situation and search for an appropriate response. CMPP was authorized to contact the United States Agency for International Development (USAID) for technical and financial aid. In 1990, the Royal Thai Government, acting through the Department of Economic and Technical Co-operation and the Office of the Governor of the Province of Chiangmai, together with USAID, determined that:

> "There is a need to try a different approach to city planning and coordinated investment in Chiangmai. The new approach should be policy-based and involve as much popular participation as possible in order to build consensus and confidence in the planning process. . . . The main emphasis will be on creating incentives for cooperative, mutually supportive investment."[7] [Emphasis added]

The Provincial Government of Chiangmai took on the task of developing this approach to city planning and co-ordinated investment with technical assistance provided by Louis Berger International Incorporated and the Chiangmai University (CMU) Faculty of Engineering hereinafter referred to as the consultants. The effort was under the umbrella of the Chiangmai Planning Project. CMPP's objective was to develop a policy-based system of city planning for Chiangmai, stressing participation and public/private sector co-operation.[8] Recommendations from a draft proposal were presented for public review and comment in a two-day seminar in Chiangmai in early August 1991. The consultants' final report on the Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation was submitted in October 1991.[9] It should be noted that the final report was

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[7]Contract No. 493 0341-71149 - between the Department of Technical and Economic and Louis Berger International, Incorporated for the Chiangmai Planning Project, September 27, 1990.

[8]Ibid.

[9]It should be noted that the CMPP funding from USAID of 13,130,000 Baht (C$ 772,000) to finish this job was terminated earlier than originally anticipated. The reason for the termination of USAID funding was that US law required funding of the CMPP and similar projects to cease not later than 8 months after the February 1991 coup, i.e., by October 23, 1991.

prepared in English. After Thai officials expressed difficulty in understanding the plan, it was translated into Thai.

Chiangmai Policy-Based Action Plan was prepared by employees of Louis Berger International Incorporated, an American corporation, along with staff members of Chiangmai University who were mainly from the Faculty of Engineering.[10] These employees and staff members, called "consultants" in the working group, worked closely with Chiangmai officials employed in the Governor of Chiangmai's provincial Office whom the governor appointed to co-ordinate and respond to the plan.

The consultants also asked Thai agencies (mostly government) to participate in the project. Participating national agencies included: the Office of Policy and Planning, National Housing Authority; Fiscal Policy Office, National Economic and Social Development Board; National Environment Board; Ministry of Communications; The Municipal League of Thailand; and the Departments of the Treasury, Lands, Land Transport, Local Administration, Public Works, and Town and Country Planning. The only participating local agency was the Chiangmai municipality (Louis Berger International 1991).

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[10]Charoenmuang (1991, 78) noted that only five Chiangmai University staff members worked for this plan. Other points by Charoenmuang were discussed in Section 4.3.3.

4.3.2 Working Process of The Chiangmai Policy-Based Action Plan

4.3.2.1 The Beginning of The Process - Study Tour

In 1990, USAID provided funds for local officials including the Governor and other officials to tour selected cities in the United States which had been identified by the consultants as potentially comparable to the Chiangmai situation (i.e., communities which accommodate large numbers of tourists and which have, to one degree or another, managed to maintain their historic characters). These cities included Annapolis (Maryland), Alexandria (Virginia), Washington (D.C.), Savannah (Georgia), Charleston (South Carolina), and Santa Fe (New Mexico) (Louis Berger International 1991, 1-7). After the tour, the lessons learned were extrapolated. The consultants and the tour members recognized that great differences exist between these cities and Chiangmai - differences in culture, economic base activities, climate, and racial and ethnic compositions. At the same time, they found that in many instances these cities have certain characteristics in common with Chiangmai, such as problems of urbanization, vehicular traffic, large scale development in historical districts and citizens' concerns. They had also faced planning situations of relevance to Chiangmai.

4.3.2.2 Field Research and Analysis of Chiangmai Conditions

The consultants followed the tourism planning process of Baud-Bovey and Lawson (1977) which they claimed is a standard master plan process (Louis Berger International 1991, 1-18) (see Figure 4.4). At the initial stage of the process, the consultants did field research, conducted interviews using questionnaires designed for tourist and local residents, and held two seminars. The first seminar was arranged for invited business leaders and government officials. The second seminar was arranged for other invited people and the general public.

The consultants undertook an analysis of existing conditions in the development of Chiangmai to determine social, economic, and environmental problems. They also searched for lessons from other communities facing similar development and historic preservation issues that could be applied to Chiangmai (Louis Berger International 1991, 1-13).

4.3.2.3 The Formulation of Goals and Draft of Policies and Action

The consultants found that it was necessary to articulate a comprehensive set of goals for Chiangmai which was used in order to draft a more simplified set of goals for consideration by the community. The consultants also stated that the community must

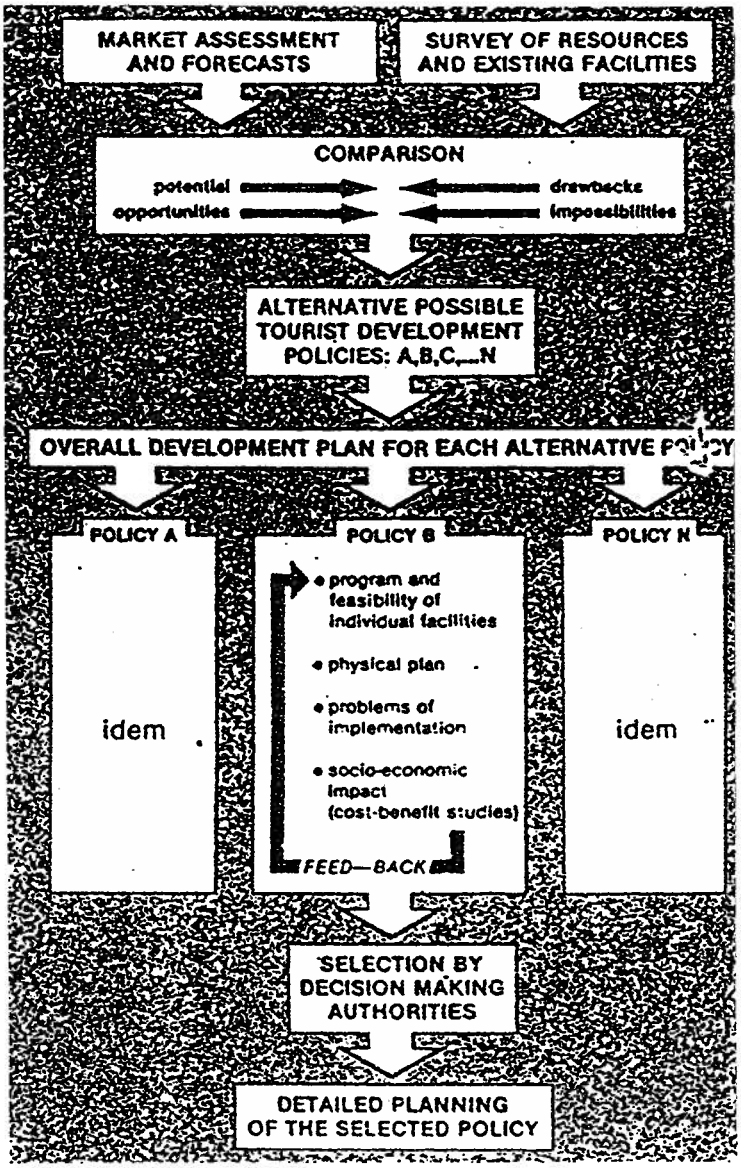

Figure 4.4. Baud-Bovey and Lawson's Tourism Planning Process
Source: Baud-Bovey and Lawson (1977) as cited in Louis Berger International Inc. 1991, 1-18.

ultimately establish their own goals. To achieve the goals drafted by the consultants a proposed action plan was presented by the consultants. The consultants then worked with officials of the municipal and provincial governments and conferred frequently with various committees to identify and translate these goals and objectives into proposed actions. The consultants cautioned that much community effort would be needed to achieve these goals and to follow the recommendations put forward in the Policy-Based Action Plan.

4.3.3 Data Collection Techniques of The Chiangmai Policy-Based Action Plan

The consultants conducted a survey by interviewing selected groups of people using a structured questionnaire. Their objectives were to determine people's attitudes toward historic preservation and their concerns regarding economic, transportation and environmental issues. There were two sample groups. The first included the people living in the Chiangmai municipality and the second focused on tourists, both Thai and foreign. Five hundred residents were selected (equivalent to 1.3% of total households in the municipal area). For tourists, random sampling was used. One hundred Thai tourists and one hundred foreign tourists, for a total of two hundred tourists were surveyed (Louis Berger International 1991).

The questionnaire survey was criticized for its insensitivity to local people. Dr. Vorapit Meemark,[11] Associate Professor in the Faculty of Social Science, Chiangmai University, commented that "the structured questionnaire for the Chiangmai Policy-Based Action Plan was pre-determined by the consultants." He said "questionnaire respondents can respond only to the consultants' questions. There was a request for suggestions at the end [of the questionnaire] as usual, but, we know that not many people pay attention to that section."

The consultants of the Chiangmai Policy-Based Action Plan held two seminars. Participants and presenters in the first seminar included representatives from the provincial and municipal councils, government officials and business leaders. The purpose of this seminar was to identify the problems Chiangmai will face in the future. Presentations were also made by the staff of Louis Berger International to describe cities in the United States that have managed tourism and rapid growth without losing their attractive features or cultural identities. Many of these examples were communities visited by the Chiangmai study tour.

The second seminar (August 1991) was a public seminar. Participants in this seminar were invited by CMPP officials. The objective was to present the consultants' draft of the

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[11]Interviewed on January 15, 1993.

plan and to receive comments from the public. Comments and observations from this seminar were intended to be incorporated into the consultants' final plan.

Participants in my field research complained that the seminar was ineffective in obtaining local people's input on a complex proposal. Dr. Tanet Charoenmuang,[12] a leading local intellectual and instructor in Political Science, strongly criticized the limitation of local people's participation in the plan. He also referred to his article in Thai (Charoenmuang 1991) on the working process of the plan. He commented that "Louis Berger International Inc. arranged the seminar for the public and distributed the Draft Chiangmai Policy-Based Action Plan on 1-2 August 1991. The numbers of participants were limited. Most of them were representatives from government offices. The distributed document had more than 100 pages. The participants did not have enough time to carefully study the recommendations of the plan. Therefore, participants could not comment on the plan."

Those working on the Chiangmai Policy-Based Action Plan conducted their data collection as if the Chiangmai condition were static. Ms. Duangchan Apavatjrut,[13] a specialist in Urban Studies and staff of Social Science Research Institute, Chiangmai

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[12]Interviewed on April 1, 1993.
[13]Interviewed on January 16, 1993.

University, commented that "the plan did not look at the dynamics of Chiangmai and did not study the development of Chiangmai and local people's way of life. The plan's data collection was not designed to capture past, present, and future situations." Dr. Charoenmuang also noted that the research design method was static. According to him, the focus of the plan is on present problems and did not capture the future needs of Chiangmai.

4.3.4 Outcomes of the Chiangmai Policy-Based Action Plan

The Chiangmai Policy-Based Action Plan proposed four types of action: Development of Goals for Regulatory Procedures, Public Investment Policies, Training Needs Assessment, and Special Projects.

4.3.4.1 Goals for Regulatory Procedures

The consultants examined Chiangmai's current regulations and procedures for historic preservation, land use, and building control, and recommended goals and additional and/or supplemental legislation. Six goals for historic and environmental preservation were identified.

1. to preserve the character of the city's built environment . . .
2. to ensure that its transportation networks contribute to the efficient operation of the metropolitan area . . .

3. to preserve the relationship between Chiangmai and the natural environment . . .
4. to preserve the important historic features of Chiangmai while permitting new development that is respectful of those features . . .
5. to accommodate tourism in a manner that preserves the unique qualities of Chiangmai . . .
6. to enhance the quality of the biological environment (Louis Berger International 1991, 1-27).

The Chiangmai Policy-Based Action Plan claimed that these goals were the community's goals, even though they did not include the goals of participants who live in the community. Ms. Apavatjrut and Dr. Charoenmuang commented that the goals of Chiangmai Policy-Based Action Plan concentrated on Chiangmai city only. As an example of this bias, Ms. Apavatjrut cited the goal that ensures that transport means and networks contribute to the efficient operation of the metropolitan area. In a similar vein, Dr. Charoenmuang said "[the Chiangmai Policy-Based Action Plan's] goals left out [the] Chiangmai rural area." Both Ms. Apavatjrut and Dr. Charoenmuang thought that the goals must include rural areas and give more importance to the relationship between rural areas and the city.

The identified goals were questioned by local people. For instance, the goals of preserving the important historic features of Chiangmai while permitting new development were similar to the objective of the Master Plan for Chiangmai Tourism Development: to be respectful of Chiangmai's history and to accommodate tourism in a manner which

preserved Chiangmai's unique qualities. The goals of the Master Plan were criticized by participants in this study's first and second group discussions for encouraging development that had a negative impact on Chiangmai people and the environment.[14] Without including local knowledge about negative outcomes of the Master Plan, it is entirely possible that the Chiangmai Policy-Based Action Plan may follow in the footsteps of the Master Plan.

4.3.4.2 Special Projects Proposed by The Chiangmai Policy-Based Action Plan

The consultants suggested that once an adequate legal basis for historic and environmental preservation is in place, follow-up actions should be taken as special projects. These special projects include: evaluating, documenting and designating the remaining temple complexes and the non-religious structures; setting in motion a program for environmental up-grading of temples; restricting parking areas; organizing an adaptive reuse of the old government building as a conservation showpiece; establishing design guidelines for the old city including riverside development; co-ordinating current waste water construction;

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[14]The first group discussion was held on April 1, 1993, and the second group discussion was held on April 20, 1993. The negative impacts of the Master Plan are discussed in detail in Chapter 6.

reinforcing environmental awareness programs; and promoting the concept of eco-tourism.

The consultants who prepared the Chiangmai Policy-Based Action Plan emphasized physical conditions and technical aspects of the plan area. They did not consider social and cultural aspects including local people's concerns and subjective realities that attach to physical form. For example, an upgraded temple building will not be successful if the surrounding noise is too loud for religious activities. Maintaining or upgrading physical form without maintaining or enhancing the subjective aspects that give meaning to physical form, therefore, cannot generate a successful project. While goals set forward in the Policy-Based Action Plan would appear to protect both historical buildings and the subjective aspects of their surroundings which give meaning to the physical form, no specific objectives were set to permit such protection to occur.

4.4 DESIGN OF BUILDING PROJECTS IN CHIANGMAI

Thai law ensures that professionals control the design and construction of building projects. After 1935, the Building Construction Control Act 2478 B.E.[15] (1935) prohibited permanent building construction in Thailand without written permits from the

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[15]Thai people use "B.E." (Buddhist Era) which is 543 years before A.D.

local authority.[16] As a result, local authorities started to control building construction. After the Engineering Professional Act 2504 B.E. (1961) and the Architectural Professional Act 2508 B.E. (1965) were promulgated, professional engineers and architects played the key role in designing buildings. These acts require that architects and engineers be responsible for requesting building permits. Most architects and engineers are university-trained and, if they graduate, are automatically approved as registered architects and engineers. Thus, after 1935, control of the design and construction of local buildings shifted from local people who lacked accredited technical training to experts who had acquired this training.

4.4.1 Participants in Building Projects

Field research in Chiangmai showed that the participants in the design of seven building projects studied were owners (who initiated the process), professionals and authorized bureaucrats. Many studies including the Preliminary Study and the Master Plan for Chiangmai Tourism Development indicated that Chiangmai lacks tourist accommodation and recommended an increase in the number of hotels. Land owners interviewed for this study (including Ms. Patra Boonchaleow of the Rim Ping Garden Hotel, Mr. Somchai

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[16]Local authority refers to municipal councils or to the provincial governor for areas outside municipalities.

Patarateeranond of the Diamond Riverside Hotel, and Ms. Kessupee Phanachet[17] of the Chiangmai Garden Hotel) had proposals for hotel or resort developments. After the owners had positive results from the feasibility studies, they looked for architects to design their buildings. When the architects finished their designs, the designs were submitted to the authorities for approval of building permits. As elsewhere, local people did not have an opportunity to be involved in the project designs and building permit approval processes. The interviewed participants in the seven design projects studied said they were happy with the existing process and relieved that they did not have to deal with the local people.

4.4.2 The Design Process

The design process, although typical, is described below in some detail to show that local people and their knowledge were excluded from the process. The architects interviewed included Mr. Praphol Eamsoonthorn, Mr. Choolathat Kitibutra, and Mr. Vithaya Tantranond.[18] They noted that during the first stages of these projects, several meetings

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[17]Interviewed respectively on April 19, 1993; April 14, 1993; April 21, 1993.
[18]Interviewed respectively on May 10, 1993; April 22, 1993; April 24, 1993.

for the owner and the architect were arranged for gathering information and discussing the projects. Also during the beginning stage, in most projects, the architect went with the owner for the first site visit. The architects had to visit the site again in most cases.

The second stage involves schematic design. In this stage, using the information gathered about the project and the site, the architects analyzed the site and then prepared conceptual sketches to illustrate their proposed solution for the project.[19] They also proposed the building style and discussed approximate costs with the clients to ensure that their designs would meet with the clients' approval. According to seven owners of projects studied, the architects selected the building style by themselves.[20]

Assuming that the client approved the schematic drawings, the architect contacted Building Permit Approval Authorities personally to discuss the legal regulations related to the project. Mr. Kitibutra explained that their discussion was to ensure that there were no problems with either the site or the design that would prevent them from obtaining a building permit.

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[19]Interviewed with Mr. Kitibutra.

[20]Six of seven owners interviewed stated that they allow the architect to design facades of the building freely.

At the third stage, the architect drew up the scheme in detail. Mr. Kitibutra and Mr. Tantranond frequently consulted their clients and kept in touch with Building Permit Approval Authorities. Many other professional consultants also worked on the design at this stage.[21] Finally, after the owner approved the working drawings, they were submitted to the Building Permit Approval Office. When the drawings conformed in all respects, the permit was granted. It is clear from this description of the design process that local people were seldom, if ever, consulted.

4.4.3 Data Collection Methods in Design Process

Interviews with architects showed that the data collection methods applied in the design process followed typical methodologies. The methods will be discussed in order to show they did not allow involvement of local people or the use of their knowledge. The architects of the projects in question noted that they collected data on the project from the owners. These data included functional requirements, finances and time schedules. The architects obtained site data from their site visits: Mr. Eamsoonthorn and Mr. Kitibutra explained that they observed distinguishing aspects of the site, e.g., a view or a

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[21]Mr. Suchai Kengkarnkar, architect and owner of Kad Suan Kaew Shopping Centre, interviewed on April 27, 1993, mentioned that he had to consult with a structural engineer, an electrical engineer, a sanitary engineer and an interior designer.

flooded area, the adjacent sites, the infrastructure servicing the site, and the surrounding topography.

For large or complicated sites such as the Lanna Garden Resort and the Erawan Resort, critical detailed data were needed. These data were collected by hired surveyors and other specialists. Mr. Vichai Jariyakornkul,[22] the owner of Erawan Resort, and Mr. Thongchai Saengrat,[23] the owner of Lanna Garden Resort, explained that the information provided by hired surveyors and other specialists helped the architects with the design process. The architects obtained legal and regulatory information from government publications and discussions with authorized officials.[24]

It is clear from the preceding description of the design process that the design of building projects in Chiangmai relies heavily on professionals and bureaucrats with some input from the owners. There is no evidence that local people have any input to the design process. The result of this exclusion of local knowledge will be discussed in detail in Chapter Six.

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[22]Interviewed on April 5, 1993.
[23]Interviewed on April 15, 1993.
[24]Interviews with architects of studied projects including Mr. Kitibutra, Mr. Eamsoonthorn, and Mr. Tantranond.

4.5 CONCLUSION

After reviewing the Preliminary Study for Tourism Development, the Master Plan for Chiangmai Tourism Development, and the Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation and building design in Chiangmai, several conclusions can be drawn. These conclusions are discussed below and shown in chart form in Figure 4.5.

The existing planning in Chiangmai was initiated by top government agencies or officials. In the case of the Preliminary Study for tourism development and the Master Plan, planning was initiated by the Tourism Authority of Thailand which is the central government organization. For the Chiangmai Policy-Based Action Plan, the project was initiated by the provincial governor, who was appointed by the central government under the influence of USAID, an international organization. In addition, the design of hotels and resort development projects was initiated by land owners who were encouraged to build projects based on their assessment of international market forces and the recommendations of the tourism development plan. In designing these projects, they followed the recommendations of the Master Plan.

Planning and design were performed by experts and professionals. The Preliminary Study was done by experts of the Thailand Institute of Scientific and Technological Research

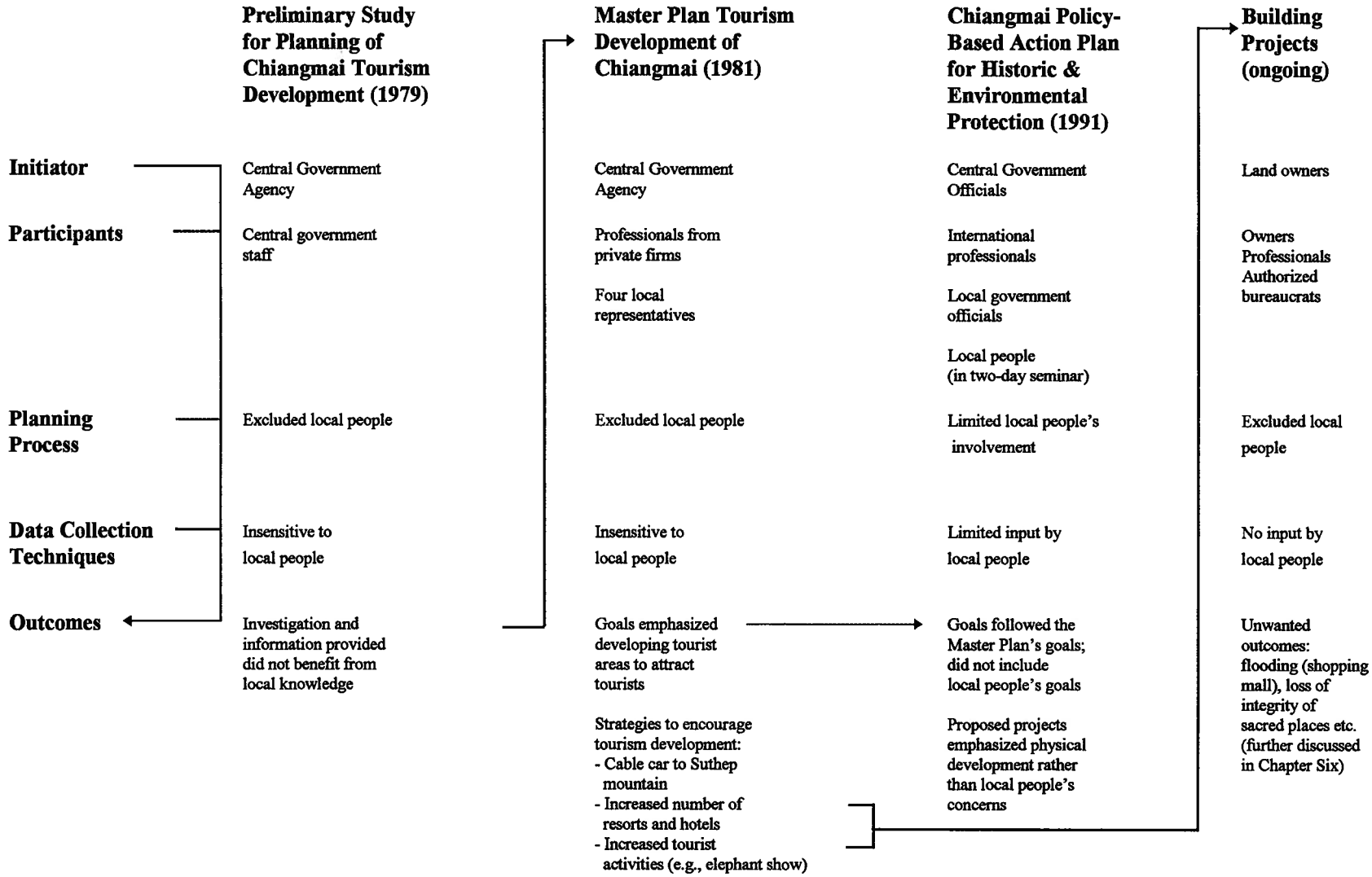


Figure 4.5. Chiangmai Planning and Design Processes, and Their Outcomes
Source: Author.

which is a central government agency. The Master Plan was done by experts and professionals from leading Bangkok architectural and planning firms in consultation with the Tourism Authority of Thailand. The Chiangmai Policy-Based Action Plan was prepared by international professionals and a few local experts. All development projects were designed by professionals.

There was little or no participation by local people in the design and planning processes. In the case of the Preliminary Study, the Master Plan and the development projects researched, local people had no opportunity to directly participate in the planning and design processes. Even the Chiangmai Policy-Based Action Plan, which was supposed to emphasize public participation, provided few opportunities for local people to participate in the planning process. Interviewees who participated in the Chiangmai Policy-Based Action Plan's "two day seminar" complained about the limited opportunity for participating in the seminar.

There was limited communication between local people and the professionals and experts who prepared the three plans or designed the development projects. In the case of the Preliminary Study and the Master Plan, the communication was only through structured questionnaires. For development projects, there was no evidence of communication between the architects and local people. But the worst case was the Chiangmai Policy-

Based Action Plan. Because many of the people involved in its preparation were foreigners, the plan was originally written in English. It was translated into Thai only after Thai officials expressed difficulty in understanding the plan.

Information gathering methods in both the planning and design processes generally ignored local people and their knowledge. The methods used for the Preliminary Study for Tourism Development, the Master Plan for Chiangmai Tourism Development and the Chiangmai Policy-Based Action Plan were documentary research, site visits, and a structured questionnaire which did not encourage any interaction with local people. Methods used in the design process - a few short site visits and an engineering survey - were also likely to overlook the concerns and knowledge of local people.

In all instances, design and planning were initiated by the top agencies or the land owners, and prepared by experts and professionals. There was little or no participation by local people and data collection techniques were insensitive to local people. The result was the domination of professional expertise, much of which was gained in technical courses at various universities. This domination by professionals, which over looked local knowledge, led to unwanted outcomes for local people. These negative impacts will be explored in subsequent chapters.

CHAPTER FIVE

LOCAL KNOWLEDGE OF CHIANGMAI, NORTHERN THAILAND

5.0 INTRODUCTION

> Folks everywhere in the world - whether in the midwestern plains of the US, the Amazon jungle, the Kalahari desert, the Australian outback - know a lot about their local ecology, both physical and human (McCorkle 1989, 5).

This chapter presents the findings from my field research in order to show the existence of local knowledge related to physical design and planning. It shows examples of existing local knowledge from the northern landscape and from building techniques used in the traditional northern house. The research demonstrates the breadth, depth and significance of people's technical, physical and environmental knowledge in each example as well as their socio-cultural knowledge (e.g., beliefs and concepts). The final section introduces local people's knowledge of their needs and wants, which are also elements of their knowledge.

The discussion in this chapter answers the research question "what local knowledge related to physical design and planning for development projects exists in the study areas?". The review of literature in Chapter Two began to answer this question by defining local knowledge according to various authorities. My field research extends

other authors' definitions because it includes needs and wants related to environmental and cultural impacts and threats.

5.1 THE TRADITIONAL NORTHERN HOUSE

Research respondents consistently referred to the traditional northern house when they were asked about local knowledge related to physical design and planning. The traditional northern house represents local knowledge of the built environment that developed among northern people over many generations. A distinctive element of the traditional northern house (see Figures 5.1 and 5.2), compiled from my field research, is the character of the roof itself. It is steep, with long overhangs, and covered by locally manufactured roofing materials. Other distinctive features are the *kalae* which are v-shaped ornaments at each gable end, outward slanting walls, the elevated floors which raise the floor above ground, the veranda which provides good ventilation, the orientation of the house, and the space allocation within it. Another distinctive feature is the modest house size. The concept here is to encourage a small size house initially, and then to add to the house when and if required. Finally the building method is another important aspect of the northern Thai house. The house is designed to be prefabricated, knocked down and rebuilt with comparative ease.

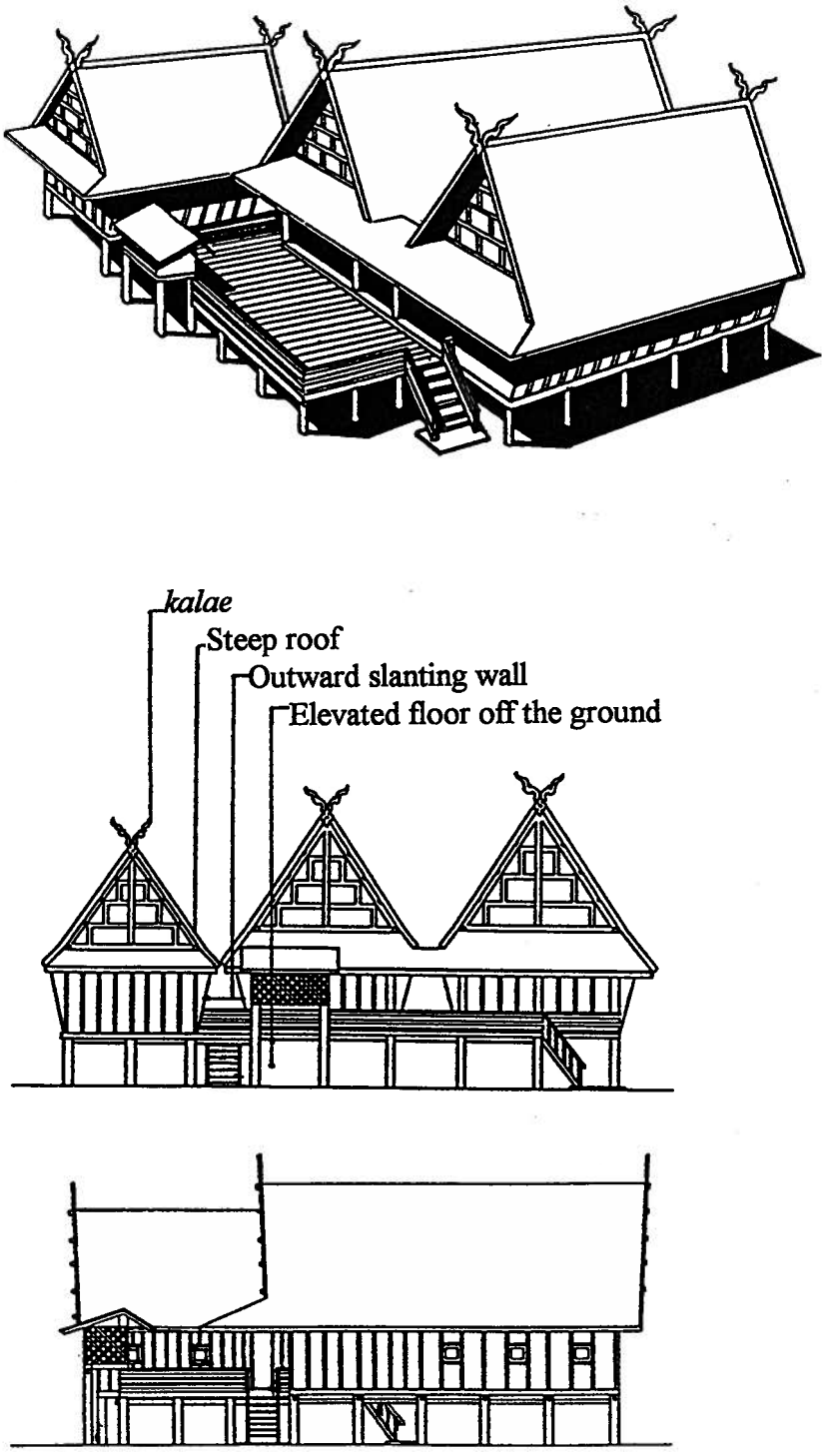
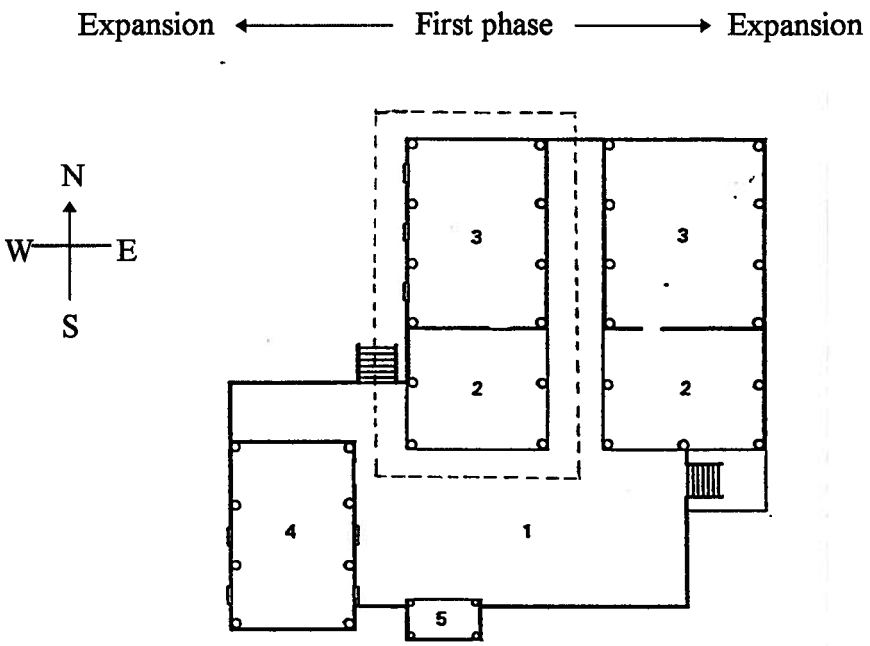


Figure 5.1. Perspective and Elevation of Traditional Northern Thai House
Sources: Drawings from Warren (1989), description by author.



1. Terrace
2. Veranda
3. Bedroom
4. Kitchen
5. Water Supply shelf

Figure 5.2. Traditional Northern Thai House Plan
Source: Based drawing from Warren 1989, description by author.

5.1.1 The Steep Roof With Long Overhangs

The traditional northern house, as in all other regions in Thailand, has a steep roof with long overhangs. Mr. Wiwat Taemeepun,[1] a long term resident of Chiangmai and a northern architecture specialist, noted that the roof of the traditional northern house usually slants 45 degrees or more straight from the peak to the end eaves. In addition, according to Mr. Samart Sirivechaphun,[2] a long term resident of Chiangmai and lecturer in northern architecture, a few houses have a roof with a small curve at the lower end. At present, steep roofs and long overhangs are still used in the design of many northern buildings.[3]

A steep roof keeps living spaces cool. Mr. Sirivechaphun explained that the air under the steep roof is a buffer between the roof and living spaces. Ventilation under the roof helps to reduce heat that transfers down to living spaces. Local people know this benefit and continue to build their houses with steep roofs.

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[1]Interviewed on March 25, 1993.
[2]Interviewed on February 18, 1993.
[3]Interviews with Mr. Sirivechaphun and Mr. Taemeepun, and from observations during January 16 - May 10, 1993.

The steep roof with long overhangs is also suitable for heavy rain. Mr. Vithee Panichphun,[4] a northern architectural specialist and a lecturer in Environmental Design, explained that "the steep roof provides rapid drainage and prevents water leakage." In addition, Mr. Sirivechaphun noted that "the overhangs help protect walls and windows from heavy rain and sun." According to Mr. Panichphun and Mr. Sirivechaphun, heavy rain is a distinctive climatic feature of Chiangmai. Participants in the second group discussion also mentioned that it usually rains very hard in the rainy season, which starts after Songkran Day (Thai New Year) in the middle of April. This is because of the monsoons winds which come from the south-west between May and October. When the winds reach Chiangmai, which is a mountainous region, they dump heavy rain into the region.[5] The need for the steep roof will become apparent in subsequent descriptions of new projects.

By moderating the local climate, the steep roof with long overhangs is an example of physical form that shows the significance of the relationship between people and their environment. People discovered that steep roofs with long overhangs worked well in

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[4]Interviewed on March 30, 1993.

[5]According to Chiangmai weather statistics, the mean annual rainfall in Chiangmai province ranges from 1,200 millimetres (47.25 inches) to 2,400 millimetres (94.49 inches) depending on location (Institute of Environmental Research of Chulalongkorn University, 1989).

heavy rainfall, and they have continued to use this knowledge to the present day. Instead of fighting nature, local people live with and respect nature.

5.1.2 Roofing Materials

Mr. Taemeepun pointed out that three kinds of material have been used for the roof of the traditional northern house: thatch grass, wood, and local terra-cotta tile.

Thatch grass (*ya-ka* in Thai), as explained by local carpenter, Mr. Tanom Satatha,[6] can be found on small houses and bamboo houses. He said that this kind of grass, which is abundantly available, is dried and tied together into sheets. Then, the thatch sheets are tied to the roof structure. After being wet by the first rain, thatch grass sticks together well enough to protect the house from more rain. This knowledge has been used in some new projects. According to Mr. Tantranond, designer and manager of Pongyaeng Garden Resort where a thatched roof is used, "the grass does not absorb heat and, therefore, helps to cool the building." He also noted that "the life of the thatched roof is normally three or four years, but can be replaced for very little cost, because both thatch and labour are cheap. Nevertheless, because thatch is not a long-lasting material, most people hesitate to use it."

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[6]Interviewed on April 22, 1993.

Wood roofs (*pan-kled*) consist of small, thin pieces of wood. According to Mr. Saengrat, the owner of the traditional style "Lanna Garden Resort" where a wood shingle roof is used, each shingle is attached to the roof structure by a wood peg. The preparation of each shingle requires special wood cutting techniques, which have been practiced by local carpenters for many generations. In describing the techniques for cutting shingles, Mr. Saengrat noted that "the side of the shingle which faces the rain has to be cut by an axe. This cutting prevents water leaking."[7] Cutting the shingle surface with an axe allows water to run smoothly and with the least absorption following the grain of the wood so that the rain does not leak through the roof. Wood shingle roofs with the right preparation techniques last a long time and do not absorb heat. However, many respondents,[8] including Mr. Saengrat, concluded that "wood roofs are now less common in new northern houses because wood is scarce and expensive. To continue to use improperly cut shingles would be environmentally unwise. But if the shingles are cut properly, they last a long time and are an environmentally sound solution."

Mr. Photong Kaewsootthi,[9] the owner of a house with a local terra-cotta roof, and Phaitoon Promvichit,[10] researcher in northern architecture, explained that local terra-cotta

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[7]He said that he learned the knowledge from old local carpenters.
[8]Including Mr. Panichphun, Mr. Sirivechaphun and Mr. Taemeepun.
[9]Interviewed on April 4, 1993.
[10]Interviewed on April 15, 1993.

tiles, *din-khor* in Thai, are hand-sized tiles made from local clay and baked the same way as pottery. Paddy husk, which is abundant in the area, is used as fuel for baking. The top end of each tile is curved like a hook in order to hang on the roof structure. After being on the roof for many years, these tiles become mossy, start to decay, and have to be changed. But, according to Mr. Kaewsootthi, the tiles can be reused. "The abbot of Ton Kwaen Temple," he said, "told me that *din-khor* can be reused by rebaking." He, therefore, reused the tiles at his house, and found that the rebaked tiles work and look like new tiles with very low labour and fuel costs.

Local knowledge about roofing materials shows the significance of the relationship between people and their environment. Roofing materials work well both with the local economy and the natural environment because appropriate technologies developed over time make use of local materials. Locally available materials and techniques for preparing materials keep costs to a minimum and keep labour within the community, thus benefiting many users and the community. The reuse of materials and reduction of the use of scarce and expensive materials through appropriate techniques not only provide economic benefits but also preserve natural resources.

5.1.3 *Kalae*

A local feature of the traditional northern house is the *kalae*. According to Prof. An Nimmanahaeminda,[11] a professor in Architecture and City Planning whose family has resided in Chiangmai for more than three generations, *kalae* are V-shaped ornaments at the highest point of the roof-top extending the roof supports beyond the ridge-pole at both ends of the structure (see Figure 5.3). They have a variety of designs. For a small bamboo house, *kalae* are simply two pieces of bamboo roof supports extending from the top of the roof. For a large wood house, *kalae* are made from separate pieces of wood carved in various patterns (e.g., the traditional flame motif). *Kalae* have been on the roof of northern houses for centuries and are still seen on the roofs of new houses and other buildings (e.g., government offices).[12]

This study's first group discussions[13] suggested several purposes for *kalae*. Some people believe that the Burmese occupation of Chiangmai may be the reason for the *kalae*. The Burmese occupied Chiangmai for 216 years from 1558 to 1774. A participant stated that "elders told me that the Burmese forced local people to have *kalae* on the roof to distinguish Thai houses from those of the Burmese." The Burmese believed that the *kalae*

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[11]Interviewed on March 23, 1993.
[12]Interview with Prof. Nimmanahaeminda and from observations.
[13]The first group discussion, April 3, 1993.

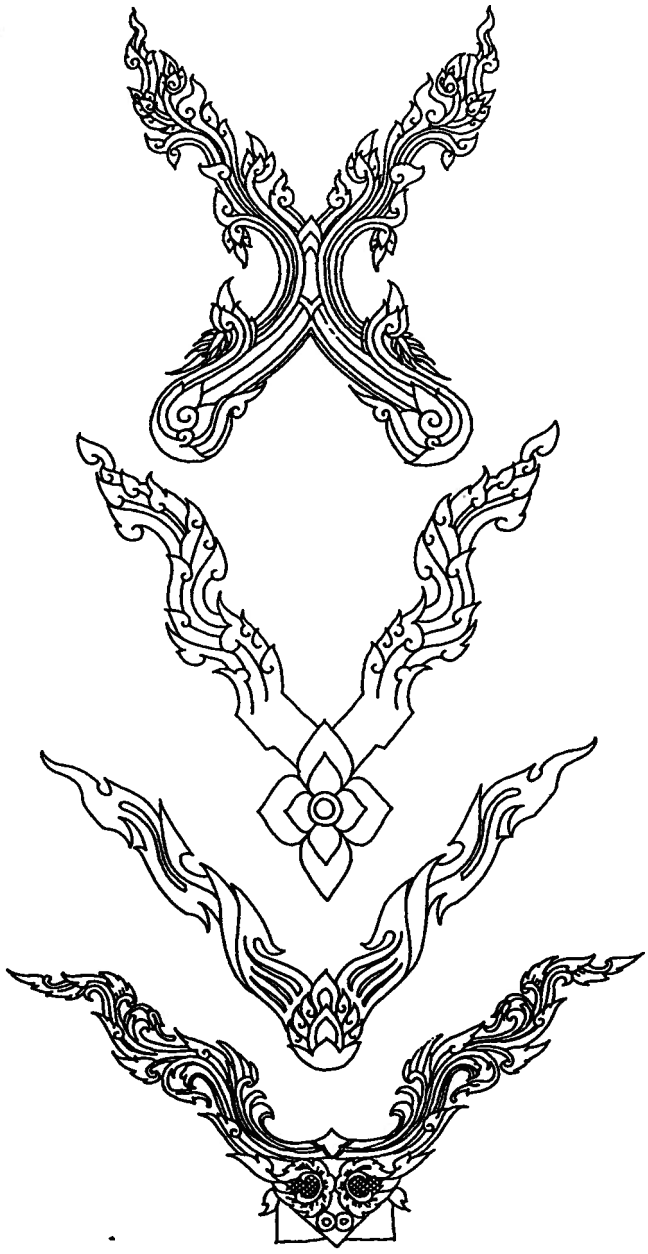

Figure 5.3. Examples of the *kalae* found on northern style houses in Chiangmai.
Source: Drawings from Warren 1989.

would show that the Burmese had power over local people who lived under the roof. This symbol of power would undermine the Thai people's confidence and reduce their attempts to liberate themselves.

Other people believe that the *kalae* may represent a buffalo, which provides protection and brings fortune into the house. The reference is to ancient times when people shared a background of buffalo sacrifice in honour of the spirits. Participants in the first group discussion pointed out this symbolic use of *kalae*:

Participant A: Kalae represent buffalo horns.

Participant B: Some houses have buffalo heads and horns for Kalae.

Participant C: "Lua" people [people who lived in remote areas of northern Thailand and worshipped buffalo] have buffalo horns or kalae.

Another reason given for the *kalae* relates to their simple and direct meaning, which is "glancing crows". Chao Duangduen Na Chiangmai,[14] a descendent of a former Chiangmai ruler, believes that *kalae* discourage crows and other birds from lighting on the roof. Chiangmai people believed that crows and blackbirds are a sign of bad luck.

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[14]From the first group discussion.

According to participants in the first group discussion, *kalae* may have both a structural and an aesthetic function. *Kalae* are the extended rafters beyond the attached area that help to strengthen the roof structure. Houses which were erected by tying required the extended rafters to prevent the ropes from loosening. Houses which are erected by interlocking various parts also required these extended rafters. The later northern traditional house was erected using nails, and so the extended roof rafters were not required. *Kalae* of the later northern traditional house were made by nailing two additional pieces of wood to the roof structure. These *kalae* do not help strengthen the roof, but are for decoration only. Participants in the first group discussion pointed out the structural reasons for having *kalae*:

> Participant D: Kalae started from houses in which structures are tied together. The extended structures are required.
>
> Participant E: The extended structures are needed for interlocking joints.
>
> Participant D: Kalae of recent houses are pieces of carved wood nailed to roof structures.

Kalae are an integral part of the design of the northern house and provide a unique character to the region. According to Mr. Panichphun and Mr. Sirivechaphun, *kalae* have existed long enough to make people recognize these items as a symbol of the northern house and a unique feature of the northern landscape that gives identity to the region.

Local knowledge related to *kalae* are significant in many respects. First, *kalae*

are a major element in identifying a house as a northern house, and in creating an identity for the region. Second, *kalae* give people a sense of both form and function. At first, *kalae* may have a functional purpose but, now, they are used for aesthetics. Third, *kalae* make people think seriously about their meanings, which may be related to history, construction, decoration or design. This thoughtfulness about the meaning of the *kalae* adds to the cultural richness of people living in the region. Finally, because *kalae* have existed for a long time, they have become a symbol representing local design and decoration for houses and other buildings. The fact that people put considerable thought into the meaning of *kalae* suggests that they are an important regional symbol.

5.1.4 The Outward Slanting Wall

According to Mr. Taemeepun, walls of the traditional northern house slant outward from the elevated floor toward the lower edges of the roof. The slanting wall, however, is no longer used and has been replaced by vertical walls because it does not suit present living behaviours and modern furniture.

Debate about the purpose of this wall continues. One opinion for the outward-slanting wall, mentioned by college history instructor Mr. Sak Ratanachai and widely discussed by other participants in the first group discussion, relates to Burmese suzerainty. Mr. Ratanachai stated that "the Burmese wanted to destroy the local people spiritually by forcing them to live in an inauspiciously shaped house." The outward leaning walls

make the shape of the house look like a Burmese coffin. The local people who lived in the coffin-shaped houses would be condemned and lose their confidence to fight for their liberty. Thai documents (Nindet 1978b and Nimmanahaeminda 1981) also cite this reason for slanting walls.

Phrakruvinaithornprapat, abbot of That Khum Temple argued convincingly against this opinion in the first group discussion. After the Burmese were forced out of Chiangmai, the houses continued to be built in such a shape with *kalae*. He argued "Prince Kawila [who fought the Burmese to liberate Chiangmai] would not allow his people to build a house with a shape determined by the Burmese [after he defeated the Burmese]."

Nindet (1978a, 135), who writes in Thai, supports Phrakruvinaithornprapat by arguing that the outward leaning box shape can not be inauspicious because the shape is similar to the shape of box in which Buddhist texts are kept (see Figure 5.4). Faithful Buddhists, whether they were Burmese or local people, would never keep sacred texts in containers with an inauspicious shape. Therefore, local people who lived in houses shaped like the vessels that contained sacred texts would feel a positive rather than a negative relationship to their dwelling. The fact that the house is shaped somewhat like a Burmese coffin may be simply a coincidence and may not explain the outward leaning walls.

A second opinion is that the outward leaning shape of the house may relate to the previously mentioned buffalo sacrifices. Participants in the first group discussion

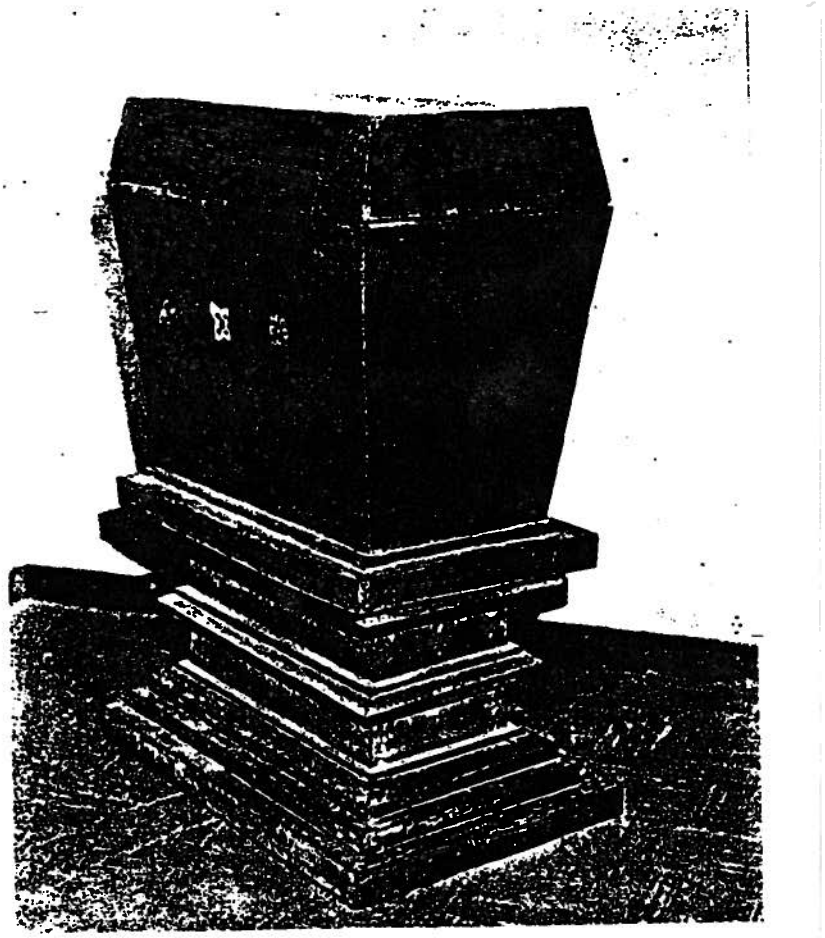

Figure 5.4. Outward Slanting Box for Keeping Buddhist Texts
Source: Boeles, J.J. and L. Sternstein ed. 1966.

suggested that the shape of the northern house may have been designed to imitate the shape of the buffalo. Nimmanahaeminda (1981) asserts that the house with the gable roof on top, the outward leaning walls on the sides and the floor at the bottom forms a shape similar to that of a buffalo. Local people believe that the buffalo is an animal that can carry humans to heaven. Living in a house shaped like a buffalo is like staying inside a vehicle that will reach heaven soon (Sathirakoses (pseud.) 1973).

Finally, the outward leaning shape of the house serves structural purposes. Chantavilasvong (1987) wrote that the outward slanting walls of the traditional northern house may appear to uniformly support the cantilever eaves without using any extra supporting elements, but he argued that using additional small handy supporting elements is easier and more practical than using outward slanting walls. Proof of his argument can be seen under some cantilever eaves, usually on the north and south facades, where there are supporting elements instead of outward slanting walls. Therefore, the northern house, one can argue, has two kinds of structural systems for walls.

The outward slanting wall is significant because it shows the richness of local culture. As with *kalae*, research respondents provided a number of meanings for the outward slanting wall, some of which showed a considerable knowledge of Thai history. Unlike the *kalae*, the outward slanting wall is disappearing from Thai construction and the cultural richness with which it is imbued will be lost to future generations.

5.1.5 The Elevated Floor

The traditional northern house has an elevated floor. According to Prof. Nimmanahaeminda, Mr. Sirivechaphun, and Mr. Taemeepun, the elevated floor is practical for the northern region with its regular floods from heavy rains. Elevating the floor also provides an area on the upper level with good ventilation. The open space under the floor can be used as a working space for purposes such as repairing or storing agricultural tools, wood carving, and weaving.

Mr. Taemeepun and Mr. Sirivechaphun mentioned that pillars supporting the house are made of strong, straight woods. Traditionally, the pillars are built in pairs, with each pillar in the pair being of a different kind of wood. Woods with names that sound like words with a good connotation are preferred. In contrast, those with a bad connotation are rejected.

The elevated floor with an open ground floor still can be seen in rural northern houses, although in urban areas, the ground floor is enclosed for protection against burglars and mosquitoes.[15]

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[15]Interviews with Prof. Nimmanahaeminda, Mr. Sirivechaphun, Mr. Taemeepun, and from observations.

The elevated floor of the northern house is an example of physical form that local people developed in response to local conditions. Knowledge of this building approach shows the relationship between people and their environment as well as the intelligence of local people in creating functional space from an adapted physical form.

5.1.6 The Veranda

A feature of the traditional northern house is the covered veranda. According to Prof. Nimmanahaeminda, Mr. Panichphun, Mr. Promvichit, and Mr. Sirivechaphun, the veranda or *toen* is raised slightly above the level of the open upper terrace. It is located in front of a main room which is used as a bedroom for the head or females of the family. A covered veranda protects the main room from the sun and rain. Because of lack of walls, the veranda has good ventilation and a view. The veranda is the most used space in the house because of its coolness and openness. Mr. Panichphun noted that "the veranda serves as a living and eating area during the daytime and as a sleeping area for male family members and male guests at night-time." He also noted that "in summer, the veranda is the most desirable sleeping place in the house because it is cooler than the main room." Mr. Promvichit mentioned that "because the veranda is open, it allows users to interact with

their neighbours." In contemporary construction, the veranda continues to be an element of many northern houses.[16]

Local knowledge about the veranda shows the relationship between people and their surrounding environment while enhancing social relationships among people in the neighbourhood. Protective and comfortable verandas encourage people to spend much of their time outside. When people are on their verandas, they develop a closer relationship to their surroundings than do people who stay inside in air-conditioned rooms. At the same time, they can easily see and talk to their neighbours. The resulting social interaction provides better social relationships which lead to a better neighbourhood.

5.1.7 Orientation of the Traditional Northern House

According to Prof. Nimmanahaeminda, Mr. Sirivechaphun, and Mr. Taemeepun, the traditional northern house had been oriented so that its closed short sides face north and south and its open long sides face east and west (see 'First phase of the traditional northern Thai house' in Figure 5.2).

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[16]Interviews with Mr. Panichphun, Mr. Promvichit, Mr. Sirivechaphun, and observations.

This orientation takes advantage of the cooler climate of northern Thailand. Chiangmai and the northern region are noted for their cool weather. Chiangmai receives cool, dry winds from the Northeast from November to February. The highest temperature during the cool season is below 18 degrees Celsius, though the lowest temperature is above 0 degrees Celsius (Institute of Environmental Research of Chulalongkorn University 1989). Prof. Nimmanahaeminda explained that the closed short sides that face north and south are for protection from the cold north wind, and the open long sides facing east and west are for gaining heat from the sun to keep the house warm.

This orientation of the traditional northern house has been practiced for hundreds of years. Until this century, this orientation did not change. Prof. Nimmanahaeminda argued that the change of orientation occurred because temperatures became warmer in the northern region. Thus, northern houses have changed their orientation to receive cool winds from the south and to avoid heat gain from the west in order to keep the house cool in summer. This change in orientation maybe example of local knowledge changing in response to changing needs.

It is interesting to note that, Chiangmai weather records (which span a twenty-year period only, see Appendix 8) do not show conclusively that weather patterns have either changed or remained stable. Therefore, local people may only perceive that the weather has become warmer. On the other hand, the local consciousness may in fact be reading

changes which do not yet show statistically, and local people say they experienced changes in weather temperature long before 1974 (when the Meteorological Department started to record the temperature). If they are adjusting the orientation according to perceptions which are not based on fact, then they are still deriving satisfaction based on perceived needs. If, instead, their perceptions prove to be correct (based on more detailed analysis of weather statistics, e.g., to take into account changes in residential micro-climates) then local knowledge will be seen to have been in advance of science.

5.1.8 Space Allocation in the Traditional Northern House

The traditional northern house has a front facade facing south and an entrance platform at the southern end so that a person entering the house will head north. The main room, which is for sleeping, would be at the northern end and on the eastern side. The kitchen and the washing area are always on the western side. Occasionally, the locations of the rooms are reversed on the north-south axis, but never on the east-west axis.[17]

The space allocation of the traditional northern house is rooted in local people's belief in compass directions. Mr. Taemeepun stated that "people believe north and east are auspicious, and west and south are inauspicious." He explained that north represents

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[17]Interviews with Prof. Nimmanahaeminda and Mr. Taemeepun.

power and is associated with the size, strength and royalty of the elephant; east represents life and is the direction of the rising sun; west represents death and is the direction of setting sun; south is neutral or bad luck.

The design of new northern houses does not follow compass directions to the same extent that the traditional house does. Front facades of new houses are not oriented toward the south, but are oriented according to house access and land shape instead. While house orientations vary, some belief in compass directions remains.[18] For example, most of the interviewed respondents do not sleep with their heads pointing west. The orientation of the traditional northern house shows that local people have considered their beliefs regarding compass directions to be significant for a very long time, and still consider these beliefs to be significant even though the orientation of the house has changed.

5.1.9 Modest House Size

The Northern people had a tradition of living in a small house at the beginning and expanding or building a bigger house later. Mr. Taemeepun noted that "the concept of modest house size is being lost because people build larger houses. Nowadays, the concept appears only in *lanna* texts (palm leaf manuscripts) called *Tamra Lok Sommutti*

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[18]Interviews with Prof. Nimmanahaeminda and Mr. Taemeepun.

Raj." According to *lanna* practices in building houses, when separating the young family from the parents, the house should be small, like a hut, and expanded later (*Tamra Lok Sommutti Raj* [1980], 24-25). The concept also appears in *Wane Tan*, the blessing for celebrating a new house. This text refers to people building a new bigger house after living in a small house or a hut at the beginning (see "First phase of the traditional northern Thai house" in Figure 5.2). Then they would save money and building materials until they were ready financially to expand the dwelling (Nan Tae Ja 1971, 14-15).[19]

Mr. Taemeepun noted that it was only sensible that the new couple would want to build a small house first. Because their family is small, they would need only a house of modest and affordable size. Modest size would eliminate both financial suffering and dependence on others.

Local knowledge regarding the concept of small house size is significant. First, this kind of local knowledge shows self-reliance. The concepts of self-reliance and self-sufficiency derive from Buddhist teachings to rely on oneself, to have only what one can afford, and to avoid doing things beyond one's means or ability. Second, the concept of small house size shows local people's ideas about affordability. People are encouraged to build only what they can afford. Although people may need a bigger house, they have to wait until

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[19]Thai literature.

they have enough money and enough building materials. Third, the concept of small house size encompasses the notion of sustainability. A new small family does not need a big house even if they can afford one. When people build only the size they need, this helps reduce natural resource consumption and is therefore good for the environment. Fourth, the concept prevents people from being greedy. When people are encouraged to build only as much house as they need, they are less likely to contemplate a big house. In this way, they learn how to reduce their desires.

5.1.10 Building Methods

The traditional building method for the northern house is prefabrication and knockdown design.[20] According to Mr. Samran Chanrungsri,[21] a local senior carpenter, "the components of the traditional northern or Thai house include pillars, walls, doors, windows and roof structure that are made separately and put together on site." He described the building method: "after ritual activities were performed, groups of helpers set up the pillars, laid down the floor, put up walls and covered the roof." The components are put together by cleverly designed interlocking or wooden pegs rather than nails. Thus,

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[20]Prefabrication signifies easy assembly, but knockdown design signifies the ability to disassemble.

[21]Interviewed on March 16, 1993.

the house can be taken down and rebuilt by using the old components repeatedly.[22] This method was practiced by Thai builders for centuries.

Prefabrication and knockdown design provide several advantages. According to Mr. Taemeepun, the method used is suitable to the nature of Thai house building. He stated that "the Thai house is assembled by large groups of relatives and neighbours who are led by carpenters." Because the owners should not employ specialists or depend on the goodwill of relatives and neighbours for too long, they have, as much as possible, the components of the house ready for assembly.

Second, prefabrication is convenient and economical. It is convenient for carpenters to prepare components of the house in a workshop.[23] In addition, the workshop, which allows for assembly-line production, can produce high-quality building components economically. According to Mr. Chanrungsri, prefabrication greatly reduces the building time. Components can be prepared quickly at many different places. Each place can draw as many workers as needed, so that a short period of time is spent to fabricate components at the building location.

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[22]Interviews with local senior carpenters include Mr. Chanrungsri; Mr. Anek Tanomrat, interviewed on March 26, 1993; Prof. Nimmanahaeminda; Mr. Saengrat; and Mr. Taemeepun.

[23]Interviews with Mr. Chanrungsri and Mr. Tanomrat.

Finally, prefabrication and knockdown design make moving a house more simple. Mr. Saengrat noted that "the components of a house can be knocked down, transported, and reassembled at a new location." Knockdown designs make old houses simple to reuse, and reused houses save both materials and labour. Field research showed that old houses had been moved to new locations and some houses that were moved now serve different functions. The Kaewsootthi house, for example, was bought and moved to a new location. It is over 40 years old. The Chutima house is now a cultural centre (see Figure 5.5). Interestingly, old houses are being re-used in building new resorts such as the Lanna Garden Resort (see Figure 5.6). Nevertheless, the use of prefabrication and knockdown design based on wood has declined because wood is scarce and expensive.[24] This decline in turn has affected house building methods, especially the sharing of labour, and as a result has had a profound effect on community life.

Local knowledge of prefabrication has many significant aspects. First, the building method illustrates the importance of sharing labour. Northern people previously built their houses by getting help from neighbours and relatives under the guidance of specialists in carpentry. Villagers were committed to help build each house in the village without pay. In return, home owners would volunteer their labour to build other houses. Second, the house building method strengthens community cohesiveness. The method creates close

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[24]Interviews with Mr. Chanrungsri, Mr. Saengrat, Mr. Tanomrat, and from observations.

Figure 5.5. Prefabricated house moved to a new location, now serving as a cultural centre.
Source: Author.

Figure 5.6. Lanna Garden Resort where the northern traditional houses are reused.
Source: Author.

ties, long-term commitments, and a set of reciprocal obligations within the group. Third, the house building method itself helps transfer knowledge of house building. Villagers who participated in building a house under the guidance of skilled carpenters obtained knowledge directly from them. Fourth, the house building method shows the decency of participants. All participants are willing to help one other. At the same time, owners need not take advantage of the goodwill of relatives and neighbours because prefabrication requires only a short period of the helpers' time. Fifth, the house building method provides economic benefits. Because of shared labour, a major building cost is eliminated.

At present, the concept of sharing labour has disappeared from house building because the method of building houses has changed. Less prefabrication and more custom work at construction sites are now the norms. Carpenters, masons, steelworkers and painters can work independently and get paid. There is no need to gather large groups of people to erect prefabricated house elements.[25] As a result, houses have become more expensive and people have lost their ties with other people in the community. Whether or not this fragmentation of society is inevitable given modern social forces, it is clear that the changes to the building methods employed in the northern Thai house will accelerate the process.

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[25]Interview with Mr. Taemeepun and from observations.

5.2 LOCAL KNOWLEDGE OF THE NORTHERN LANDSCAPE

Northern people have developed considerable knowledge from their experiences in the local landscape. This knowledge includes knowledge of residential landscape elements, drainage patterns and irrigation systems. The discussion in this section starts with the function of residential landscape elements, the design concepts behind them, and local people's beliefs regarding these elements. Drainage patterns are subsequently discussed with particular emphasis on water run-off. The discussion concludes with a description of local irrigation systems and the social organization necessary for such systems.

5.2.1 Residential Landscape Elements

Elements of the traditional residential unit include the main house, well, granary, open space and planting areas. According to Mr. Panichphun and Mr. Taemeepun, the main house and well are located at the end of the property, leaving the front for the granary and open space. The well provides water for washing. The granary has an elevated floor to avoid floods, moisture, and animals. The ground level is used as storage for carts and agricultural tools.

Mr. Panichphun stated that "open space is mainly used for working and occasionally for recreation. Its surface is usually cleanly swept earth." The open space of a senior carpenter's house, for example, is used as a working and training place for his

followers. Open space is also used to raise poultry.

As Mr. Taemeepun pointed out, "the use of the landscape for food and medicinal purposes had the highest priority. The next most important priorities were functional purposes such as shading and screening." Plants and gardens are mainly utilitarian and usually edible. Mr. Taemeepun noted that "mature trees are fruit trees and shade providers. Some gardens are full of spices and herbs for cooking, [e.g., lemon grass, basil] and located near kitchens." He also noted that other gardens contain plants which have roots, leaves or flowers that can be used for medicine. Potted plants on platforms are for colour and fragrance.

The aesthetic ideal of the traditional residential landscape was to create the appearance of harmony and to equally emphasize each element. Mr. Panichphun noted that "domination of form or colour by any plant was avoided. Each plant species should grow together without harming others." Therefore, plants were selected according to their usefulness and their ability to grow with other plants without interfering with them.

The selection of plants to grow in the residential unit is also influenced by beliefs of local people. The tradition most mentioned in interviews of various ages, sex and occupations is that one should grow plants with names that sound like words with pleasant meanings or connotations and should not grow those with names that sound like words with unpleasant meanings. A number of plants were recommended by interviewees: the

jackfruit or *kha-nun* (*Artocarpus heterophyllus, Lamk*), was suggested by Mrs. Buachorn Vichayaphai[26] (a home-maker) and Mr. Manop Sansai[27] (a college student) because the name sounds like the word *nun*, which means support or being helped; star gooseberry or *ma-yom* (*Phyllanthus distichus, Muell, Arg*), was recommended by Mr. Natee Sumpuranaphan[28] (a lecturer in architecture) and Mr. Tepnimit Charoenjai[29] (a factory worker) because *ma-yom* sounds like *yom*, which means admiration; the golden shower plant or *chai-ya-pluek* (*Cassia fistula Linn.*), was suggested by Mr. Sanya Waree[30] (a college student) because *chai-ya-pluek* means victory tree (*chai-ya* = victory and *pluek* = tree); the tamarind or *ma-kham* (*Tamarindus indica, Linn*) was recommended by Mr. Choosit Choochart[31] (a teaching college teacher) because the name sounds like the word *greng-kham*, which means being respected.

The non-recommended plants include: the frangipani or *lan-tom* (*plumeria*), mentioned by Mr. Somsak Boonrat[32] (a retired janitor) and Mr. Chakree Sangkawandee[33] (an employee) because the name sounds like *ra-tom* or sorrow in Thai; the pine tree, or *son*,

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[26]Interviewed on April 18, 1993.
[27]Interviewed on April 23, 1993.
[28]Interviewed on April 10, 1993.
[29]Interviewed on April 26, 1993.
[30]Interviewed on April 19, 1993.
[31]Interviewed on May 7, 1993.
[32]Interviewed on April 15, 1993.
[33]Interviewed on April 21, 1993.

noted by Ms. Aree Seeta[34] (a vendor) because *son* sounds like *khad-son* or poverty; the *Rak* or *Rak-rae*, (*Calotropis gigantea R. Br*), pointed out by Ms. Nopawan Pintasa-art[35] (a home-maker) because *Rak* means unstable love.

Interview respondents also stated that plants used in pleasant activities and ceremonies should be grown and plants used in unpleasant activities and ceremonies should be avoided. For example, *Som-poy* (*Acacia concinna, DC.*) is considered by Mr. Boonrat, Mr. Sansai and Mr. Waree to be a recommended plant because its leaves are used in spiritual and ritual activities.

Prof. Manee Payomyong, a professor in Social Science and researcher in northern culture, concluded that the local people experientially catalogued the usefulness and harmfulness of particular plants, and then related the plant name to a harmonious word that is easy to remember and identify instead of having a long explanation for recommended and non-recommended plants. In other words, they used word association to catalogue plants according to their harmfulness or their usefulness as a food or medicine. Jackfruit, for example, is a recommended plant because its roots can treat diarrhoea and fever, its leaves can cure wounds, and its meat can be eaten. Frangipani is not recommended because its latex contains cyanide that is harmful to both human and animals. If Prof. Payomyong is

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[34]Interviewed on April 22, 1993.
[35]Interviewed on April 29, 1993.

correct, this is an extremely effective way of transferring botanical knowledge among people and also shows the intelligence of local people in creating this system of beliefs.

Local knowledge of traditional residential landscape shows many significant aspects. First, it shows the concept of self-sufficiency and self-reliance. The elements of the traditional residential unit provide adequate food for residents. Water comes from a well. Rice is stored in the granary. Vegetables and fruit are grown everywhere in a garden or as a fence. Meat comes from chickens that run around the yard. And medicine comes from the herb garden. The family, therefore, can rely on food and medicine from their property. Second, landscape design of the traditional residential unit was based primarily on the function of landscape elements ranging from the need for life (food and medicine) to the need for comfort (shading and screening). Third, local knowledge of the traditional residential landscape shows that the aesthetic of landscape derives from equity and harmony of nature. The beauty of landscape is the harmony between elements rather than in the domination of one element over another. This approach to landscape shows the holistic way of thinking that is part of the local culture. Fourth, the local knowledge of the landscape shows the usefulness of local belief systems. Plant names have connotations related to the nature of the plants. People select plants according to beliefs which are related to plant names. Fifth, the local knowledge shows a clever way of transferring knowledge. Because the names of plants differentiate good and bad plants, people can select appropriate plants for their gardens without having to memorize their uses.

According to Mr. Sirivechaphun, traditional landscape elements are still seen in rural Chiangmai. This was corroborated by field observation.[36] In the urban area, high density dwellings push the landscape elements away. Granaries and trees are replaced by houses for children and grandchildren. The well is filled up and water comes from the municipal supply. Open space is for recreation or parking a car.

5.2.2 Drainage Patterns

Only local people who have observed water run-off continuously can understand its pattern and provide this knowledge to experts from elsewhere. During field research, Mr. Ruan Kongta, a 62 year-old farmer, described the natural drainage pattern of the area where he has been living and working all his life. He knows where the water run-off comes from and where it goes to, even on apparently flat land where the run-off pattern is difficult to identify. He pointed to an area and said that "this area looks flat and free from flooding but when the monsoon comes, the rain runs through the Southwest corner of this area."[37] As a result, he was able to educate Mr. Kaewsootthi, a professional designer, who had not been in the area long enough to experience the fast water run-off. Knowledge of drainage patterns can be immediately gained from local people such as Mr. Kongta.

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[36]Field observation with Mr. Sirivechaphun on February 18-19, 1993.
[37]Interviewed on April 11, 1993.

Local people have developed storm drainage systems over time. According to Mr. Kaewsootthi, local people have observed storm run-off for many years and have dug channels conforming to nature. These channels, *lum-muang* in Thai, handle water flow very well, directing a water supply to each house and draining storm water out of the area. The earth from the channels has been made into dikes which have become public ways for pedestrians and carts. The open channel and the public ways have served the community very well for hundreds of years.

Local knowledge of drainage patterns shows the significance of the relationship between people and their environment. Because of their close relationship to the surroundings over a long period, observing both regular and occasional phenomena, local people have developed an accurate and full knowledge of their surroundings.

5.2.3 Irrigation System

Local people in northern Thailand have developed irrigation systems (*muang-fai*) which have provided water to local people for centuries. Mr. Satatha, dam chief at Pong Yaeng Nok village, explained that "a *muang* [river or stream], which is the source of water, is blocked by a *fai* [dam] so that water can be diverted or drawn up through the channel to the villagers' fields." The dam structure is usually made by driving bamboo stakes into the stream bed, tying them with twigs and bamboo, and then filling the structure with earth. The dam needs to be maintained in working condition during rainy season. After that, it

is left opened to let water flow naturally. Dr. Vanpen Surarerks,[38] a specialist on people's irrigation systems, added that large dam structures are made by driving hard wood into the river bed and adding bamboo, branches, earth and rock.

Local irrigation systems are locally controlled on the basis of democracy and justice. According to Mr. Satatha, dam chiefs (*kae-fai* for a large project or *kae-muang* for a small project) and facilitators or communicators (*lam-num*), are elected annually by water users. The dam chief is a person of integrity who must be trusted by villagers and capable of keeping the rules. He noted that "*kae-muang* [the dam chief] is in charge of distributing water and supervising construction and repair work." Each water user has to put in his or her time which is determined by the size of his or her ricefield. One who cannot work for the group has to find a substitute. Absence from work without acceptable reasons or theft of water is punished according to the agreement. When a problem arises, the dam chief solves it. For serious problems, he or she calls a meeting, and any major decisions are made at these meetings.

Local people can thus be seen to have developed an effective social organization for irrigation systems. According to Dr. Surarerks, "the organization of irrigation systems was created by mutual commitment among water users and kept water users in a social

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[38]Interviewed on May 4, 1993.

group where they had to follow the rules and regulations they themselves had made." She explained that water users worked closely and fairly with each other because of their need for water. The organization was run by local people and was free from outside control. At present, the social organization for local irrigation systems is deteriorating due to government intervention and the addition of different type of users such as tourists.

Local knowledge of irrigation systems is significant in many respects. First, the knowledge includes knowledge of appropriate technology. Local people have developed dams from the available local materials and technology. They do not have to import materials or machines from outside their community. Second, not importing goods contributes to self-reliance on the part of the community. Third, the knowledge is collective knowledge which is changed and adjusted in response to the shortcomings of the system. Fourth, the dam chief is a good role model of youngsters in the village. The dam chief is selected under a real democratic system and therefore is respected by the community. Fifth, local knowledge of irrigation systems shows mutual commitment because water users work closely and equally together. Sixth, the knowledge shows a sense of belonging and community. Because the irrigation system is organized to allow its members to participate in all stages, each member feels he or she belongs to the organization. Because the members work together and share the same need, the use of water, their sense of community is strengthened. Seventh, the irrigation system is due to local initiation and organization. Local people initiated the system in order to satisfy their

needs of water and have organized this system on their own. They do not have to rely on others, especially the government. This means that the local irrigation system helps to empower local people.

5.3 LOCAL KNOWLEDGE OF NEEDS AND WANTS

This study's field research addressed a type of local knowledge that has been overlooked in the local knowledge literature: local people's awareness of their own needs and wants. In particular, the research addressed needs and wants that local people now articulate because of changes in their way of life that have produced new threats and opportunities.

While the distinction between needs and wants is not precise, needs are usually thought of as requirements for healthy life, as in "basic needs" (International Labour Office 1977). Access to clean water is an obvious example. Wants are preferences, e.g., for building styles. Life is not threatened if they are not met.

Once new development projects impact on their lives, local people are forced consciously to examine their needs and wants, and often to articulate them to each other and outsiders.

Local knowledge in the form of articulated needs and wants is an important input to planning if the purpose of that planning is to benefit people in the planning area. In this study's research program, respondents expressed needs and wants relative to natural

resources and to sacred places and unique features.

5.3.1 Knowledge of Threats to Natural Resources

Chiangmai used to be recognized as one of the provinces most richly endowed with natural resources in Thailand. But, recently, local people have realized that their previously plentiful natural resources have diminished. The consensus of all 10 participants in this study's second group discussion[39] at Pong Yaeng Nok village was that access to water and land resources to maintain their livelihood is the highest priority. They need water for their agriculture and for their daily living. They need land for housing and for growing agricultural products. An old villager who participated in the second group discussion stated that "a decade ago, when the first few tourist resorts emerged in the village, the resorts took water from the village stream to service their guests." Another villager added that "the resorts' use of the water minimizes the villagers' water resources and makes it difficult for us to maintain our livelihood." Villagers are now more knowledgeable about threats to water supply and the need for planning to protect resources.

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[39]From the second group discussion held on April 20, 1993.

Access to land is always a problem. But for Pong Yaeng Nok villagers, tourism development and land speculation has made the situation even worse. A participant in the second group discussion noted that "when the first group of tourist resort developments bought land in the village, land prices started to rise and land speculation made the situation worse." Another participant also noted that "ownership of land changed from village farmers to non-agriculture land owners. As the demand for land increased, previous land owners [village farmers] had to rent land to make a living." This situation has made villagers realize that land tenure systems and individual tenures are not immutable, and that the impacts of development can be subtle and intangible, yet profound.

Local people now know that they cannot take for granted their access to water and land resources to earn their living and continue their way of life. They know that they must be concerned about others' planning and physical design to protect themselves and that, therefore, they need to become knowledgeable about planning processes. The history of professional planning in Chiangmai presented in the previous chapter shows that professionals have had neither awareness nor respect for local people's knowledge of their own needs and wants and the threats to them. If the professionals had had such awareness and respect, they would have seriously consulted local people before formulating plans and designs.

5.3.2 Knowledge of Threats to Sacred Places and Unique Regional Features

The integrity of sacred places has been damaged by construction surrounding these places. After discussing the impact of modern architecture, the participants in the first group discussion stated clearly that they wanted to preserve the integrity of their sacred places.

> Participant A: Temples and spiritual places [such as community spiritual house] in the city are now under the shadow of nearby buildings.
>
> Participant B: The most important is that now people and things, such as clothes-lines in high-rise buildings, are placed higher than the statues of Buddha. [The statues of Buddha, to which Buddhists pay respect, should always be placed at the highest point in the temple].
>
> Participant C: The scenic value of sacred buildings has been destroyed by the contrasting style of western architecture and by disorderly building (see Figure 5.7 and 5.8).
>
> Participant D: The picturesqueness, for example, of Phrathat Doi Suthep Temple (see Figure 5.9) has been destroyed by the profile of high-rise buildings.
>
> Participant A: Many high-rise buildings obstruct the admirable scenery of Phrathat Doi Suthep Temple. People in Chiangmai city cannot admire and pay respect to the temple as they used to.

Local knowledge of the need to preserve sacred places shows the significance of religious and cultural ties as well as the concept of historic preservation. The fact that Buddhist temples were mentioned as sacred places by research respondents shows that local people

Figure 5.7. Scenery of temple destroyed by new buildings on Rajdamnoen Road.
Source: Author.

Figure 5.8. An example of damage to the integrity of a sacred place on Koomuang Road.
Source: Author.

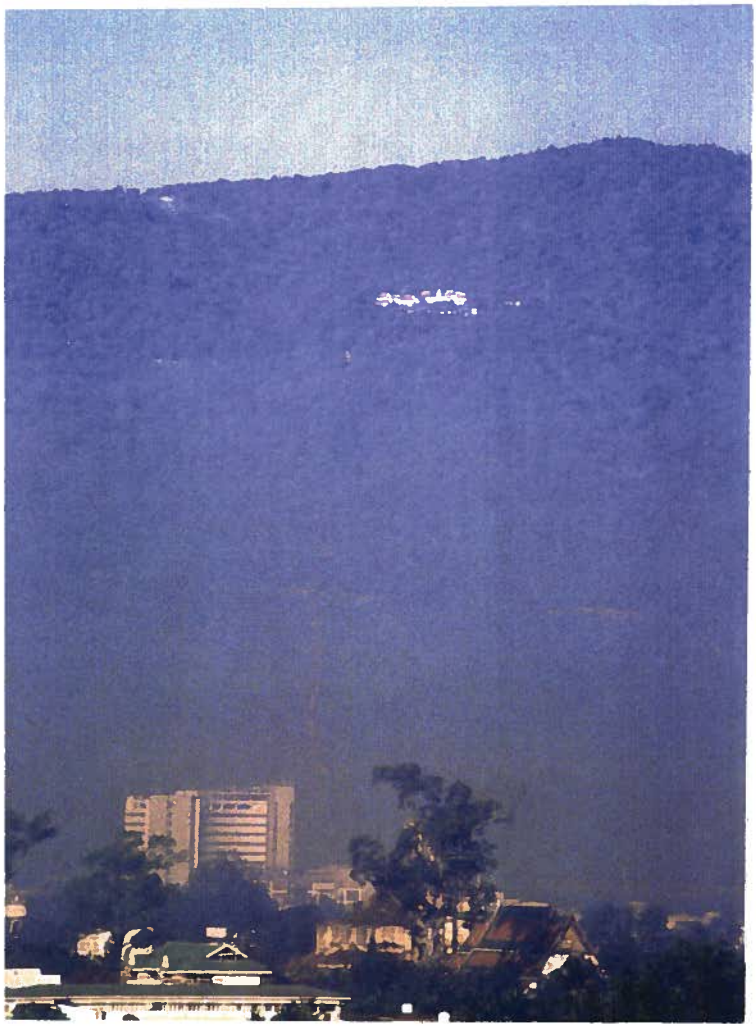

Figure 5.9. View of Phrathat Doi Suthep Temple which people admire.
Source: Author.

still have strong ties to their religion. Spirit places are also sacred to local people. Those places represent cultural ties as well.

The unique features of Chiangmai that residents want to keep are also being destroyed. Participants in the first and second group discussions stated that they want to maintain Chiangmai's unique character. Participants in the first group discussion lamented that:

> Participant E: Parts of the ancient city and historical building were replaced by new, aesthetically incompatible buildings.
>
> Participant F: Local features of *lanna* [traditional northern] temples have been replaced by features of Bangkok temples.
>
> Participant G: *Lanna* houses have been torn down and replaced by western style houses.

Participants in the first group discussion pointed out that Chiangmai greenery which used to make Chiangmai famous has been damaged. A participant pointed out that "trees in the city and on the mountain, especially Suthep Mountain, have been cut down to provide space for cars and buildings." Another participant noted that "the greenery along the bank of Chiangmai's major river, the Ping, which makes the river unique, is damaged by inharmonious buildings. Small streams, which used to supply water and drain storm water, are filled up for roads." After observing the destruction of many of Chiangmai's unique features, participants realized that they wanted to maintain those that were left.

Pong Yaeng Nok villagers who participated in the second group discussion talked about

features of rural Chiangmai which have been destroyed. A participant said that "the green mountains and dense forests of the village have been cleared to construct new resorts." Another participant added that "rich rice plains along the village stream have been invaded by insensitive resorts and vacation homes. When they are built in the western style, these houses and resorts also destroy the local character." The participants concluded that the unique features of their area need to be preserved.

Local knowledge of the need to maintain unique features is significant for several reasons. Maintaining green mountains, dense forests, clean rivers and rich ricefields strengthens regional identity and encourages a sense of pride in the local people, especially for those who live nearby. Strengthening regional identity and encouraging a sense of pride in local people can also preserve the natural and agricultural heritage of the Thai people.

When local people see threats to their sacred places and unique regional features, they become knowledgeable about cultural dynamics and change. Collectively they develop ideas for historical and environmental preservation. Such knowledge would be valuable to planners and designers seriously concerned with benefiting local people culturally as well as economically.

5.4 CONCLUSION

Local people in the study area have been shown to have a rich and varied knowledge related to physical design and planning. This knowledge includes technical, environmental, and socio-cultural knowledge. The technical, and environmental knowledge of local people is tangible. Examples are the knowledge of the traditional northern house and the knowledge of the northern landscape. Social and cultural knowledge, (i.e., local people's beliefs, concepts, felt needs and wants), is less tangible and difficult to access. Thus, it is not commonly considered in discussions of local knowledge despite the fact that it is perhaps the most important kind of local knowledge for the planning profession to access. It is more enduring and is influential in shaping knowledge of tangible phenomena. Taken together, the tangible and less tangible knowledge of local people can contribute greatly to physical design and planning. The significance of both the tangible and less tangible forms of local knowledge, as discussed in the examples given in this chapter, is shown in chart form in Figure 5.10.

Figure 5.10. Local Knowledge and Its Significant Aspects

Types of Local Knowledge	Significant Aspects
Traditional Northern House	
The steep roof	- Relationship between people and environment
Roofing materials	- Economic benefit - Environmentally friendly (reuse materials)
The veranda	- Relationship between people and environment - Relationship between users and neighbours
Orientation of house	- Response to local conditions
Kalae	- Regional identity - Function and form - Meaning - Symbol
Outward slanting wall	- Meaning, cultural richness
Elevated floor	- Response to local conditions - Function
Prefabrication	- Sharing labour - Decency (not too much dependence on goodwill of neighbours) - Community cohesiveness - Community self-reliance
Space allocation	- Belief of local people
Small house size	- Self-reliance - Affordability - Sustainability - Stop greediness - Preservation of natural resource and environment

Northern Landscape

Residential landscape	- Self sufficiency - Function: food/medicine - Aesthetic: harmony of nature and equity of plantings - Beliefs of local people
Drainage patterns	- Relationship between people and environment - Collective knowledge
Irrigation systems	- Appropriate technology - Self-reliance - Collective knowledge - Good role model (dam chief) - Mutual commitment - Sense of belonging, of community - Local initiation/organization - Empowerment

Needs and Wants

Threatened natural resources	- Livelihood - Employment - Environmental concerns - Planning impacts
Threatened sacred places and unique regional features	- Religious and cultural ties - Historic preservation - Regional identity - Sense of pride - Environmental preservation

Local knowledge can be classified into eight general characteristics that are of significance to the design and planning processes (see Figure 5.11). Each characteristic can be applied to at least several of the house, landscape and impact examples discussed above.

First, some local knowledge is **technical**. This knowledge shows how to use local materials more effectively, such as the techniques for cutting shingles and recycling terra-cotta tiles. Because both the use and reuse of local materials contribute to the local economy, local knowledge can help community economic development. It is, therefore, important to any development planning that aims to benefit local community.

Second, local knowledge can be **descriptive**. It includes physical and technical descriptions of local environments. For example, local knowledge of drainage patterns consists primarily of the description of the nature of water run-off in the area. Not every person has this kind of knowledge. It may be held only by a single person who lives and works in the area. Design and planning practitioners can potentially benefit greatly from this local expertise, if they can access it.

Figure 5.11. Characteristics of Local Knowledge

Local Knowledge	Characteristics							
	1	2	3	4	5	6	7	8
1. The Traditional Northern House								
1.1 The Steep Roof With Long Overhangs	x					x	x	x
1.2 Roofing Materials	x						x	
1.3 The Veranda	x						x	x
1.4 Orientation of the Traditional Northern House	x					x	x	x
1.5 Kalae	x		x		x	x	x	x
1.6 Outward Slanting Walls	x				x		x	
1.7 The Elevated Floor	x						x	
1.8 Prefabrication	x						x	x
1.9 Space Allocation					x	x	x	x
1.10 House Size						x	x	
2. The Northern Landscape								
2.1 Residential Landscape Elements	x		x	x		x	x	x
2.2 Drainage Patterns	x	x			x		x	
2.3 Irrigation System	x		x	x		x	x	x
3. Needs and Wants in Relation to Impacts and Threats								
3.1 Threats to Natural Resources			x	x		x	x	x
3.2 Threats to the Integrity of Sacred Places and Unique Regional Features		x	x	x		x	x	x

1=Technical; 2=Descriptive; 3=Explanatory; 4=Prescriptive; 5=Subtle; 6=Dynamic; 7=Scattered; 8=Holistic

Third, local knowledge can be **explanatory**. It can provide deep meanings to what might appear as prosaic practice to the outsider. In some cases, knowledge consists of several, even competing, explanations. The *kalae* and the shape of the traditional northern house, for example, are explained by various theories. Design and planning practices can be enriched by going beyond seeking local knowledge of "what is" to being open to understanding local explanations of "why that is" - whether or not these explanations are scientifically sound to outsiders. The explanation therefore provides the context for the practice.

Fourth, local knowledge can be **prescriptive**. Some types of local knowledge prescribe local people's behaviour. This characteristic has been illustrated by the fact that the belief in the significance of plant names leads people to grow plants that are beneficial to them. Local people who have experienced and understand their environment can direct other people according to their knowledge. Design and planning practices can become more sensitive and respectful by trying to understand prescriptions and the reasons for them.

Fifth, local knowledge can be **subtle**. Learning types of local knowledge such as drainage patterns requires a long period of observation. Other types of local knowledge, such as the traditional northern house and the local irrigation systems result from many generations of analysis and creative problem solving. In other words, local knowledge is gradually developed from the experience of local people who have observed and reacted

to their environment for a long period of time. Therefore, it is almost impossible for designers and planners to gather this subtle knowledge by themselves. It must be obtained from local people.

Sixth, local knowledge is **dynamic**. It responds to its surroundings and changes according to the changing local situation. For example, traditional outward slanting walls disappeared because of changes in users' behaviour and modern furniture. The traditional wood roof and prefabricated design disappeared because of the scarcity and high price of wood. Space allocation according to compass directions is not used as often as before because of the current concern with house access from the road. The dynamism of local knowledge indicates that design and planning practices must be aware of changes in local knowledge.

Seventh, local knowledge is **scattered**. Different people hold different pieces of knowledge. Some know about some plants, some about drainage, some about legends. Different people may hold different or conflicting theories. At the same time, some types of local knowledge (e.g., knowledge of the traditional northern house) are held by many people. Therefore, design and planning practices must look for various types of knowledge from various people and consider their different explanations.

Eighth, local knowledge is **holistic**. Each example of local knowledge includes environmental, technical, and socio-cultural aspects. For instance, local irrigation

systems integrate environmental knowledge (water, streams and rivers), technical knowledge (dam building), and socio-culture knowledge (the organization of the system). Because of its holistic nature, design and planning practices must consider local knowledge in its totality rather than partially.

CHAPTER SIX

THE CONSIDERATION OF LOCAL KNOWLEDGE AND ITS CONSEQUENCES

6.0 INTRODUCTION

This chapter investigates what local knowledge is excluded or included in physical planning and development projects in Chiangmai and analyzes the consequences of excluding and including local knowledge. The chapter analyzes the local knowledge contained in the traditional northern house and the northern landscape as this knowledge is applied to development projects. It also analyzes local knowledge of environmental and cultural needs and wants in development planning. The chapter concludes with a discussion of local people's ideas about the inclusion of local knowledge.

This chapter answers the research questions: "What local knowledge was excluded/included, why, and what were the consequences?" and "What are local people's ideas about excluding and including local knowledge?" The information discussed in this chapter is collected from field research: personal observations, individual interviews and group discussions. As well, literature on similar cases outside Chiangmai is included to compare the outcomes of the exclusion and inclusion of local knowledge.

6.1 LOCAL KNOWLEDGE OF THE TRADITIONAL NORTHERN HOUSE

The application of local knowledge of the traditional northern house to the physical design and planning of development projects in Chiangmai is analyzed with reference to those elements that are used consistently by local people or have the potential to be used in these projects. These elements include the steep roof with long overhangs, roofing materials, the *kalae*, the orientation of the traditional northern house, and the veranda. The discussion does not include elements that are now not commonly used by local people: the outward slanting wall; the elevated floor; prefabrication; inside space allocation; and modest house size.

6.1.1 Steep Roof With Long Overhangs

Although the traditional steep roof with long overhangs discussed in previous chapter responds to distinctive climatic features, it has been **excluded** from current buildings. The Diamond Riverside Hotel, a complex with a twelve-story and a four-story building, has flat roofs without overhangs. Similarly, the Chiangmai Garden Hotel is a four-story building that has flat and low-pitched roofs without overhangs. In both projects, flat roofs with no overhangs have caused water leakage, damaged curtains and increased temperatures inside the hotel. The owner and president of Diamond Riverside Hotel (see Figure 6.1), noted that "the roofs of the hotel have leaked, especially in the area where flat roof joins the wall. Leakage has also occurred around the windows." In

Figure 6.1. Diamond Riverside Hotel building experienced water leakage with the roof and windows. Source: Author.

addition, the owner and manager of Chiangmai Garden Hotel, mentioned that her hotel experienced the same problems. If the professionals engaged in designing these projects had understood local knowledge, they might not have chosen flat roofs with no overhangs.

Not only has the exclusion of the traditional roof resulted in replacement and repair costs, but it has also increased the operating costs of the hotels. The owner and president of the Diamond Riverside Hotel noted that "hotel rooms that have openings without overhangs heat up because they receive a lot of sunlight, especially those rooms on the west side of the hotel." In consequence, the air-conditioning system has to work harder and increases the electricity bill. He also added that the curtains in these rooms have faded faster than rooms not on the west side.

At both the Diamond Riverside Hotel and the Chiangmai Garden Hotel, architects designed modern buildings with flat roofs and no overhangs. The architect of the Diamond Riverside Hotel, who was trained in Bangkok and the United States, explained that "the Diamond Riverside Hotel was designed to be a pioneer modern building in Chiangmai." The architect of the Chiangmai Garden Hotel, a trained architect from Bangkok, noted that he designed the flat roof of the Chiangmai Garden Hotel building using modern technology and sealed the windows with modern sealant to prevent water leakage. Both architects applied western knowledge and technology gained from professional schools either directly from the United States, in the case of the architect of

Diamond Riverside Hotel, or indirectly through western technology taught in Bangkok universities, as in the case of the architect of the Chiangmai Garden Hotel. Such training leads architects to prefer western concepts and technology, but may not always suit Thailand's environment.

In other cases, local knowledge about steep roofs with long overhangs has been **included** in building designs. The Rim Ping Garden Hotel (see Figure 6.2), a two-story hotel on the Ping River, has a steep roof with long overhangs to protect all walls and openings. Ms. Boonchaleow, the owner of Rim Ping Garden Hotel, stated that "the roof of the Rim Ping Garden Hotel has never experienced water leakage."[1] Balconies that serve the same function as long overhangs shelter openings and walls and protect the lower floor from rain and sun. There is no water leakage through windows and doors, and direct sunlight cannot enter the hotel rooms.

The Rim Ping Garden Hotel was designed by a local architect, Mr. Kitibutra. He knew the benefits of a steep roof and intentionally designed the hotel by combining local knowledge with his professional knowledge. Mr. Kitibutra explained that after he graduated from architectural school in Bangkok, he started his practice by applying knowledge in modern technology that he had gained from his training. He found that the

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[1]Interviewed on April 21, 1993.

Figure 6.2. Rim Ping Garden Hotel never experienced water leakage and its rooms are cool.
Source: Author.

buildings designed were not suitable to the local climate and scenery. He needed to find knowledge that would enhance his professional knowledge. "Looking at my early works," he said, "I feel something is missing from the building, something that protects the building from the local climate, something that makes the building special for Chiangmai." This observation caused him to study local architecture seriously by observing traditional local buildings and discussing them with local builders. He mentioned that he had to spend considerable time studying by himself because his training did not provide this kind of knowledge. He combined this new knowledge with experience from his childhood in Chiangmai. Once he applied his knowledge of traditional northern houses to his buildings, the buildings gave satisfaction to many people, and many hotel guests have commented positively on its appearance.[2] The Rim Ping Garden Hotel, with western facilities and traditional northern building elements, suits the local climate and context. In this case, local knowledge played both a functional and an aesthetic role in the design and construction of the buildings.

The negative outcomes from the excluding of steep roofs with long overhangs and the beneficial outcomes of including them can be evidenced at another part of Thailand. Nukul Chompoonich (Thai literature, 1987), from his survey of houses in Nakorn Pathom province in southern Thailand, found that room temperature of houses with almost flat

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[2]Interview with Ms. Boonchaleow, the owner of Rim Ping Garden Hotel.

roofs is 2 degrees Celsius higher than outside normal temperature, while the temperature of a house under a steep roof with long overhangs is only 0.5 degree higher. In addition, houses with almost flat roofs had more water leaking through the roof than those with steep roofs. His survey allows us to conclude that exclusion of local knowledge of the steep roof causes negative outcomes and inclusion of this knowledge provides positive outcomes not only in Chiangmai but also elsewhere in Thailand.

6.1.2 Roofing Materials

Local materials, which were used for roofs of northern houses for centuries, are often **excluded** from northern buildings today. A number of interviewees[3] stated that imported roofing materials, including terra-cotta and cement tiles, are popularly used in northern houses today. Excluding local materials has caused economic benefits to leave the community. Mr. Kaewsootthi, the Director of Northern Industrial Development Centre, noted that "roofing materials for today's houses in Chiangmai are purchased in Bangkok and abroad. The money leaves the Chiangmai region, and outsiders - not the people in the community - are the ones who benefit economically."

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[3]Interviewees include Mr. Kaewsootthi, Mr. Sirivechphun, and Mr. Taemeepun.

There are several reasons why the traditional materials of thatch grass, wood, and local tiles are not used in most new houses in the Chiangmai region. Asst. Prof. Asadang Porananondh,[4] instructor in Urban Design and Geography, explained that local materials are considered to be less durable than imported roof materials, they do not fit western or modern architecture which is the preferred style of trained architects, and wood is scarce and expensive. The scarcity of wood suggests that wood is not likely to be generally used again.

Local materials, thatch grass, and local terra cotta tiles are still **included** in some villagers' houses and a few buildings designed by architects. Mr. Tantranond, Pongyaeng Garden Resort's architect, pointed out that "local materials are used in order to provide a natural and local look to the resort." Thatch grass is put on top of inexpensive industrial tiles to make the buildings look like country cottages in harmony with nature and with the villagers' houses surrounding the resort (see Figure 6.3). As an added benefit, thatch grass helps to reduce the temperature of the roof because it does not absorb heat.[5]

The consequences of using local roofing material are not simply functional and aesthetic. Using local materials also provides an economic benefit to the community. Using thatch grass roofs, for example, creates a demand for thatch grass which local people can supply,

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[4]Interviewed on March 27, 1993.
[5]Interviewed on April 24, 1993.

Figure 6.3. Pongyaeng Garden Resort cottage made of local materials and built by local carpenters. Inside, the cottage has all modern conveniences. Source: Author.

as reported by Pong Yaeng Nok villagers who participated in the second group discussion. At Pongyaeng Garden Resort, for example, villagers cut abandoned grass, tie it together and sell it to builders. Moreover, villagers are usually hired to put the thatch sheets on the roof.[6] Using local tile also enhances local industry and economics. Mr. Kaewsootthi states that "using local tile encourages local businesses to produce the tile and creates a need for local skilled labour to put the tile on the roof." Most of the benefits, therefore, go to the local community.

Thus, the inclusion of local knowledge can help community economic development. The more local materials are used, the more benefits go to local people. The arguments for not using local materials do not hold. The lack of durability of thatch, for example, should not be a limitation because replacement is simple and inexpensive, and this study has already shown that local terra-cotta tiles can be reused by rebaking. The second argument for not using local roofing materials is simply the aesthetic and technical knowledge preference of professionals for the western building style. Given the fundamental problems with the western style in tourist facilities and the expressed satisfaction by tourists for the appearance of local materials, this preference requires re-thinking by the professionals.

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[6]From the second group discussion held on April 20, 1993.

6.1.3 Veranda

The veranda, which provides comfortable space and protects the main room from rain and sun, has been **excluded** from many new houses in Chiangmai. Mr. Samart Sirivechaphun,[7] a long term resident of Chiangmai and lecturer in northern architecture, stated that "new houses have an enclosed living room with no covered, open porch." He also stated that "northern houses today copy the current Bangkok style of house, which has no veranda. This style is also called the western style because of western influences." Mr. Sirivechaphun explained that, with the exclusion of the veranda, the walls of the main room are exposed to direct sun and rain, causing heat to penetrate and water to leak inside. He also mentioned that "people live in enclosed rooms do not have much opportunity to interact with other people."

A few newer houses in Chiangmai **include** verandas in their design. Two of these houses, owned by local residents: Mr. Panichphun and Mr. Promvichit, have verandas. These houses are designed to accommodate modern living and preserve local house features. These verandas provide a space that is protected from weather, and has openness and view. Mr. Panichphun notes that "[his] veranda is used as a living and sleeping area for family members because it is cool." He also notes that while he and his family are on the

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[7]Interviewed on February 18, 1993.

veranda, they are exposed to the surroundings which makes them have more concern for the environment. Mr. Promvichit also states that "I can see and chat with my neighbours while I am [on the] veranda." The inclusion of the veranda enhances the relationship between humans and their environment as well as relationships among people in the neighbourhood.

These designers incorporated verandas into the design of both houses because they knew the veranda was appropriate to local conditions. In doing so, they were able to apply their knowledge of the traditional northern house to modern living.

6.1.4 Orientation of the traditional Northern House

Architects now orient new northern houses on the basis of convenient access which **excludes** local knowledge of the orientation of the traditional northern house. As a result, the house is cooler than it should be in the cool season. Prof. Nimmanahaeminda[8] explains that "being open to the cold north wind and closed to the warm sunlight makes the house unnecessarily cold. Although the temperatures in the north are not as cool as before, it is still cool in the cool season and the house still needs to be kept warm." Prof. Nimmanahaeminda ascribes this orientation to a lack of local knowledge among architects.

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[8]Interviewed on March 23, 1993.

"The orientation of northern houses today," he said, "is the same as the orientation of buildings in Bangkok because architects apply knowledge from their training in Bangkok or abroad in designing the northern house."

6.1.5 Kalae

The *kalae*, which have been on the top of the traditional northern houses for hundreds of years, have been **excluded** from the new northern house. According to Prof. Nimmanahaeminda, Mr. Panichphun, and Mr. Sirivechaphun, traditional northern houses have been replaced by western style houses, and over the years more and more western style houses, designed by trained architects, have been built. Prof. Nimmanahaeminda noted that "the *Kalae* have been excluded from northern houses simply because they do not belong to the western style of house." The loss of *Kalae* in northern houses means the loss of the symbol of the northern house and the dilution of regional identity.

Kalae began to be **included** on the roofs of Chiangmai's buildings in the early 1980's when the Thai government started to promote tourism as an industry. Chiangmai, because of its rich natural beauty and cultural heritage, has become one of the highest ranking tourist destinations, and government officials thought that the loss of the unique character of Chiangmai was unfavourable to the tourism industry. In order to retain the city's unique

character, Dr. Bundit Chulasai,[9] an architect and long term resident of Chiangmai, noted that "the Thai government passed a law in 1984 to control growth and change in Chiangmai. One section was clearly aimed at conserving and enhancing the unique physical and cultural character of Chiangmai." This section requires that all permits for buildings within the city limit must show at least one traditional design element. *Kalae* are easy to use as traditional design elements, and therefore, are usually included in Chiangmai's buildings in order to acquire building permits.

However, using *kalae* without understanding and recognizing their significance provides an unpleasant facade to the building and reduces the significance of the *kalae*. Mr. Panichphun and Mr. Sirivechaphun noted that *kalae* now appear everywhere in Chiangmai even on inharmonious western style buildings, on the unsuitable roofs of shops with living quarters above, and on large scale government buildings. The inappropriate overuse of *Kalae* creates a monotonous effect and visual pollution to the area. In this instance, using a traditional design element that represents local knowledge without understanding or respecting the design element used provides unwanted outcomes.

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[9]Interviewed on March 26, 1993.

6.2 THE NORTHERN LANDSCAPE

This section discusses the inclusion and exclusion of local knowledge of the northern landscape in design and planning for Chiangmai. Residential landscape elements, drainage patterns and irrigation systems are each discussed in detail including the reason for the exclusion or inclusion of local knowledge and the consequences of its exclusion and inclusion.

6.2.1 Residential Landscape Elements

Local knowledge of residential landscape elements is being **excluded** from the present landscape design. Mr. Taemeepun mentioned that "wells, which were used for water storage, are being replaced by ponds for recreation and beautiful scenery. Plants which used to be grown to provide fruits or other food are being replaced by exotic plants with beautiful forms and colours." Mr. Panichphun explained that "open space with an earthen surface which used to function as a working place has become a lawn with non-native grass for aesthetic purposes."

The residential landscape was based on the usefulness of the elements that comprised it. The exclusion of local knowledge in the design of the residential landscape eliminates supplies for basic needs. Mr. Taemeepun explained that "people seldom use well water now, and foods from plants in the residential landscape are not available."

Mr. Panichphun added that "fewer working places (e.g., carpentry, handicraft) exist because open space is not suitable for working partly because it is planted in grass and partly because the lawn needs sunlight which makes the open space too hot for working." But the most severe loss is the concept of self-reliance which was fundamental in creating traditional residential landscape elements.

A further problem with present landscape design is that the lawn and non-native plants need to be treated with fertilizers and pesticides which endanger living creatures. Participants in this study's second group discussion criticized the use of chemicals in relation to the health and beauty of the plants. Not only do these chemicals harm humans, plants and animals who live in the treated area, but the excess chemicals which wash into the stream also harm those who utilize that stream.

It is the landscape architects, trained in modern schools of landscape architecture, who exclude local knowledge of the residential landscape from present landscape design. They are more interested in the recreational and aesthetic aspects of the landscape than in functional aspects which are essential for the local people's way of life.

6.2.2 Drainage Patterns

Kad Suan Kaew is the largest shopping centre of Chiangmai and includes 800 shops, 5 theatres, an amusement park and two hotels on Huey Kaew Road. But its design

and planning did not include local knowledge of the drainage patterns for the area. Ms. Apavatjrut, an architect and urban studies specialist, noted that "the outside designers did not know that this area has a large amount of surface water run-off, and, therefore, did not prepare for it."

The exclusion of local knowledge of the drainage patterns has caused flooding to the shopping centre. According to a local newspaper, on July 13, 1992, a few days after the grand opening, there was a heavy storm which caused immediate flooding to the shopping centre. Although the drainage system of Kad Suan Kaew used the best technology in Chiangmai, this technology could not prevent the shopping centre from flooding. The basement was flooded, the electrical system was damaged, and, as a result, the shopping centre had to close for two days. The estimated damage to the buildings and mechanical system was 10 million Baht[10] ($500,000 Canadian). This estimate does not include the large amount of money lost due to the mall being closed for two business days.

The problem was solved by improving the shopping centre's drainage system and restoring the existing drainage system of the surrounding area. Mr. Kengkarnkar, a trained architect from Bangkok and a major share holder of the shopping centre, explained that the design of the drainage system inside the shopping centre was revised and additional

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[10]Chiangmai News and Khao Siam Newspaper, July 15, 1992.

technical equipment installed to handle the large amount of water. "Outside the building," he said, "the drainage system was restored to follow the traditional drainage patterns developed by local people." The old water channels were dug again to let the water flow as it had in former times.

This case shows that the developers of the mall experienced damage to the mall because they had excluded local knowledge of regular seasonal flooding. Local people know that this area floods regularly and they prepare for it, but the mall developer was unaware of this fact. Eventually, local knowledge had to be used to solve the problem.

The exclusion of local knowledge in drainage patterns causing unwanted outcomes has been evidenced elsewhere. In the Philippines, engineers insisted on building a dam despite repeated warnings from local people who possessed knowledge of drainage patterns and climatic phenomena. With the first storm, water run-off swept the dam away (Korten 1982; Brokensha and Riley 1989). Here again, local knowledge could have prevented the problem.

Local people's knowledge of natural drainage patterns was **included** in the construction of Mr. Kaewsootthi's house. Mr. Kaewsootthi, an architect by training, described how he included local knowledge gained from Mr. Kongta, a local farmer, in locating his house. At first, he had marked the location of his house on land which appeared to be flat at the southwest corner of his 3.5 acres. After having a discussion with Mr. Kongta, he

learned that the southwest corner of his property was the storm run-off area. Mr. Kaewsootthi was surprised because, from his observations, he could see no indication of the water run-off through the southwest corner area. Finally, after talking to Mr. Kongta, he moved the house location to the northeast corner of the property and was saved from flooding. Mr. Kaewsootthi said that, when the first monsoon came, he noticed that if his house had been built on the southwest corner, it would have been flooded. It would have been similar to what Kad Suan Kaew Shopping Centre experienced.

As Chiangmai is located in a heavy rain area, local people are very interested in the pattern of water run-off. They have experienced heavy rain and fast water run-off. This kind of knowledge, built on continuous observation over a long period of time, can be obtained inexpensively from local people or equivalent knowledge can be obtained expensively from very detailed surveys.

6.2.3 Irrigation Systems

Local knowledge of irrigation systems was **excluded** from physical design and planning of resort development projects in Pong Yaeng Nok village. Participants in the second group discussion noted that resort development in their village did not consider the local irrigation system and its limited capacity. The resorts' irrigation systems drew large amounts of water from the village streams to use in their projects. A participant mentioned that "not long after the resorts were opened, two of the three streams in

the village did not have enough water to operate as an irrigation system."

Lack of local knowledge caused this knowledge to be excluded from the design of the resorts' irrigation systems. Professional designers were unaware of the amount of water available for the resorts and the amount of water needed by local residents. A participant in the second group discussion noted that "resorts were designed to require large amounts of water to maintain the beauty of their gardens and ponds and to keep reservoir levels high for recreational activities. They did not think of saving water." Destroying local irrigation systems also affected the resorts themselves. Mr. Jariyakornkul, the owner of the Erawan Resort, for example, mentioned that he experienced an inadequate water supply during the tourist season which is a dry season.

The exclusion of local knowledge in this instance resulted from an unpublicized design and construction process. Participants in the second group discussion and many interviewed villagers explained that the process involved only the owner, the designers, and the authorized government officials. The villagers were excluded from the planning process: a participant noted that "I had no idea that Erawan Resort's irrigation system and reservoir, which would draw water off the irrigation systems I relied upon, were included in the design of the resort." This information was known only after the resort's irrigation system and reservoir were constructed when nothing could be easily changed.

The exclusion of this kind of local knowledge caused the loss of two of the

three local irrigation systems. Participants in the second group discussion noted that "*Muang fai* (irrigation system) had distributed water to the villagers' agricultural fields for hundred of years. The loss of water from *muang fai* reduced villagers' agricultural production" which, in turn, reduced their income. The reduction of their already low income may not allow the villagers to continue farming.

The exclusion of local knowledge of irrigation systems destroyed not only the physical environment but also the social integrity of the village. According to participants in the second group discussion, "after the loss of two irrigation systems, there was no need to work together, to meet, and to elect leaders." There was no longer a dam chief or a model of a good person and leader for youngsters to follow. The resort has, therefore, loosened the traditional relationships and ties of the local people. It has diminished the villagers' sense of community and their social organization, and their power over their own lives.

Local knowledge of irrigation systems is, to some extent, **included** in some government development projects. The government engineers have studied and applied this local knowledge in concert with their trained knowledge. They build dams with the same height at the same locations as the dams built by local people but, at the same time, they replace bamboo and earth dams of the local people with concrete dams designed with their professional knowledge (see Figure 6.4 and 6.5). Participants in this study's third group

discussion[11] mentioned an example of the government engineers' work in Ekachai's study (1991, 193-195). Ekachai describes the replacement of bamboo by concrete at Puang village in Lumpoon Province (Chiangmai's neighbour). Because concrete is strong and durable and requires less frequent repair or rebuilding, water users are freed from having to volunteer their labour. The government action sounded good until the villagers found that silt had accumulated in front of the concrete dam. When the dam is made of bamboo, silt can sneak through the gaps between pieces of bamboo but in a concrete dam, the accumulation of silt reduces the amount of water in the reservoir. Moreover, in a concrete dam, fish and shrimp disappear because the waterways are blocked all the time. With a bamboo dam which has gaps and is usually left unrepaired during the off-season, fish and shrimp populations remain stable.

Thus, the inclusion of local knowledge without a thorough understanding of this knowledge does not always generate beneficial outcomes, and may also cause negative impacts. Government action of this type can destroy a locally initiated, owned and controlled system which leads to the loss of sense of ownership and pride among local people and eventually to the destruction of the villagers' social and political power. Therefore, a thorough understanding of local knowledge is necessary. This understanding

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[11]The third group discussion, held on April 28, 1993.

Figure 6.4. The only remaining stream in Pong Yaeng Nok village that still has a local irrigation system operating. The local people's earth dam is left open when it is not in operation.
Source: Author.

Figure 6.5. Engineer's concrete dam blocks water way all the time.
Source: Author.

is achieved by taking more time studying local situations and more time interacting with local people. Furthermore, constant monitoring of design is needed as locals get involved, because their new knowledge can contribute to redesign or to new designs.

Similar examples of unwanted outcomes from the inferiority of new irrigation systems can be found elsewhere. In Bali, Indonesia, a new agricultural irrigation designed by professionals could not compare with the Balinese system. The new system increases the incidence of viral and bacterial diseases in the water and soil, killing fish and eel, and ultimately, depressing crop yields (Cowley 1989; McCorkle 1989). Moreover, in Kenya, many scientifically constructed irrigation systems have failed miserably and cannot compete with the centuries-old, locally developed systems (McCorkle 1989).

6.3 LOCAL KNOWLEDGE OF NEEDS AND WANTS

This section discusses development projects which excluded people's knowledge of their own needs and wants related to threatened environmental and cultural features. It illustrates how the exclusion occurred and the outcome of such exclusion.

6.3.1 Knowledge of Threats to Natural Resources

Local knowledge of threats to water and land resources was **excluded** in the Master Plan for Chiangmai Tourism Development and tourism development projects in Pong Yaeng

Nok village. According to participants in the second group discussion and other villagers interviewed,[12] the villagers were never involved in the planning and design process for tourism projects. As a result, they had no chance to include their knowledge of threats to natural resources in the process. Participants in the second group discussion said:

> Participant A: I have never participated in any planning or project development.
>
> Participant B: I knew nothing until construction had already started.
>
> Participant C: I have something to say but there is nobody that I can talk to.

Exclusion of local knowledge of threats to water and land resources in the Master Plan Tourism Development made planners recommend more resorts and tourist facilities which required more water and land resources. These recommendations were made without considering the possible impacts of these projects on the local economy. Encouraged by the Master Plan, four more huge resorts were constructed and two more elephant shows were set up. According to a senior villager,[13] "these later resorts were larger than the first few resorts and took away large pieces of agricultural land and drew large amounts of water from village streams. These streams are water sources for the villagers' agriculture." He also noted that "two of these village streams dried out after the new

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[12]Mr. Wang Tatiya, April 19, 1993; Mr. Supachai Sootjai, April 9, 1993; Mr. Suk Chaiya, April 11, 1993; Ms. Pranom Gantaya, April 12, 1993; Mr. Sai Lawsua, April 16, 1993.

[13]Interviewed on April 8, 1993.

resorts had opened." Participants in the second group discussion complained that more than 50 elephants which perform in the elephants shows had polluted the village canal to the extent that the water was no longer suitable for household use (see Figure 6.6). Villagers now have to rely on rainwater during the tourist season. The loss of two streams and the pollution of the village canal have caused a reduction in agricultural income and endangered the villagers' health.

The Master Plan, which recommended more resort developments and more elephant shows, was prepared by professionals. The professionals did not consider incorporating local knowledge into their planning. They relied on their professional knowledge which was heavily loaded with technical training and on their values and interests which were different from people in the planned area. Professionals were mainly interested in developing tourism while local people were concerned with maintaining their natural resources for their livelihood.

The Master Plan process compounded the proclivities of the professionals because it did not make provision for meaningful incorporation of local knowledge. The site visits and structured questionnaire were inadequate to capture local people's concerns.

Figure 6.6. Elephants performing in the Elephant Show polluted the village canal. Source: Author.

6.3.2 Knowledge of Threats to Sacred Places and Unique Regional Features

In 1985, a Bangkok company conducted a feasibility study for the construction of an electric cable car from Chiangmai city to the foot of Phrathat Doi Suthep temple on Suthep mountain as recommended by the Master Plan for Chiangmai Tourism Development. Phrathat Doi Suthep temple, a beautiful northern style pagoda housing a relic of the Buddha, is a sacred place of Chiangmai and also Thailand. Suthep mountain is known to be extremely diverse because of its orchids and other plants and its bird community. Moreover, since 1981, the mountain has been included in the Suthep Mountain - Doi Pui National Park. The mountain is considered to be one of unique features of Chiangmai (Thailand Development Research Institute Foundation (TDRI) 1986, 90).

The architect-manager of the company had prepared economic justifications for the cable car project and carried out a preliminary environmental assessment without the involvement of local people. The manager proposed that the cable car would relieve the severe traffic congestion on the highway up the mountain on holidays, promote tourism and make it easier for visitors to reach the temple with very little environmental degradation.

The project was making its way successfully through the Government approval system[14] until opposition to the project began appearing in Bangkok after protests in Chiangmai and the local newspapers. The objections raised were numerous. The cable car would promote inappropriate development in a national park near a holy shrine, and would intrude on the tranquillity and sanctity of the mountain. It would reduce the merit of pilgrimages to the temple, destroy forest and wildlife species, and disfigure the mountain. Furthermore, it would scare the animals in the Chiangmai Zoo, and contribute to litter and refuse.

In April of 1986, 750 people of Chiangmai, including many monks, signed a letter to the prime minister opposing the project. The governor of Chiangmai was asked to investigate and make new recommendations (TDRI 1987, 174). According to Mr. Chayun Pholpoke,[15] local activist and an author, when the project manager launched a strong public relations campaign against this opposition, the protest got stronger and wider. All senior monks in Chiangmai and the Centre for Promotion of Arts and Culture at Chiangmai University opposed the project. Local people staged a protest against the

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[14]Government agencies involved included the Tourism Authority, Chiangmai Provincial Administration, Phrathat Doi Suthep Authorities, the Royal Forest Department, the Zoological Organization, the National Environment Board, the National Park Committee, and the Office of the Royal Household (there is a Royal Summer Palace on the mountain) (TDRI 1986, 91).

[15]Interviewed on January 17, 1993.

project at a holy place and burned in effigy the major players, both corporate and governmental, who supported the project. In response, provincial authorities recommended against pursuing the project and decided to put the project on hold (TDRI 1987, 175).

This project lost a great deal of money for the Bangkok company including the cost of a technical study team from Switzerland, the cost of a detailed survey and drawings, the cost of a feasibility study and an environmental impact assessment study, and the costs of a public campaign. It also created tension between local people and the authorities. Both local people and government officials mentioned that they felt uncomfortable with the confrontation about the project.

This case illustrates the importance of local knowledge that is intangible but represents local culture and ideals. The Master Plan for Chiangmai Tourism Development, which limited local involvement and applied a technocratic approach, did not obtain local knowledge when it recommended the cable car project. The result was the suspension of this project at tremendous cost to the company involved. This case is particularly significant. It was the first time in Chiangmai and even in Thailand that local people had stopped a private project which was supported by both central and local governments. Mr. Pholpoke stated that the force that stopped the project was "the faith in the temple." He added that "this case makes us realize the significance of the sacred place, our pride in

our community, and our power which we had almost forgotten." In addition, he pointed out, "one of the most important things is that this case brought people together and the community came to life again."

Mr. Pholpoke noted that "one of the reason that people protested the cable car project is because they know the need to preserve their unique feature, Suthep mountain." They could see that the cable car project would destroy the greenery and uniqueness of Suthep mountain and, therefore, when the company tried to construct the cable car, they had to stop the project.

Knowledge of the unique features of the Ping River, and the desire to preserve them, have been excluded from the design of new buildings along the river. Residents interviewed along the river[16] mentioned that new buildings have destroyed unique features of the river. This destruction can be seen clearly (see Figure 3.4 no. 5, 6 and Figure 6.1). One interviewee, a graduate of the Teacher Training college and now a home-maker, noted that "the design of new buildings, including Diamond Riverside Hotel, did not consider the unique scenery of Ping River. Their heights and facades destroy the unique scenery."

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[16]Interviewees include Mr. Niwat Samajai, April 11, 1993; Mrs. Phachanee Soralum, April 19, 1993, Ms. Vichayaphai, Mr. Chakree Sangkawandee, April 21, 1993; Mr. Satit Klinnawee, April 22, 1993; and Mr. Sanan Nasamana, April 23, 1993.

This interviewee noted that she had never had an opportunity to introduce her aesthetic needs and wants to the design process of the building.

The need to preserve unique features of Chiangmai's countryside was excluded from the planning and design of other new projects as well. Unlike local landscapes, the landscape of Erawan Resort, for example, has plants with too many different colours together with fancy fountains and ponds. In addition, the resort's architecture is in contrast with the local built environment. Participants in the second group discussion mentioned that the design of this resort and other new projects did not consider the surrounding greenery, tranquil landscape and architecture which was in harmony with nature.

A few designs for development projects have **included** consideration of people's desires to preserve unique features of Chiangmai countryside. Mr. Tantranond, architect of Pong Yaeng Garden Resort, explained that "the need to preserve the country scenery of the area was considered in the design of the resort. The landscape is designed in harmony with the area and the architecture is also designed in harmony with local architecture." He claimed that he designed these resort buildings by combining modern technology and local styles. He also noted that he spent a lot of time and effort studying local and traditional architecture by himself after his training because knowledge of local and traditional architecture was not adequately covered in the architectural curriculum.

Participants in the second group discussion and interviewees from Pong Yaeng Nok

village[17] also concluded that the need to preserve unique features must be included in the design and planning process. New buildings and landscapes have to be designed to be sensitive to the local area in order to maintain the unique characteristics of the area.

6.4 LOCAL KNOWLEDGE OF PROCESS: LOCAL IDEAS ABOUT INCLUDING LOCAL KNOWLEDGE

People who suffer from the unwanted outcomes of the exclusion of local knowledge or who have experienced the benefits of its inclusion see the importance of including local knowledge in design and planning. Interviewees suggested specific methods for incorporating their knowledge. These suggestions were based on what can be called the "process knowledge" of local people. Interviewees who live near the development projects studied and participants in the three group discussions identified public hearings, open houses, working groups or committees, and workshops as possible methods for including local knowledge in design and planning, and assessed the advantages and disadvantages of each method.

The people criticized both public meetings and public hearings[18] for the limited time permitted for people to input their knowledge with no guarantee that knowledge discussed

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[17]Interview with Mr. Sootjai, Mr. Chaiya, Ms. Gantaya, and Ms. Chantip Surin.

[18]Many research respondents did not use the word "public meeting" directly but their explanations show that they mean "public meeting". This interpretation also applied to open houses, working groups or committees, and workshops.

in the meeting will be taken into consideration. A participant in the second group discussion noted that "I feel that I am being attacked by public meetings with short notice, limited meeting time. When people [have] started to understand what is going on, the meeting is over." Three participants in the third group discussion stated that, from their experiences, public hearings were arranged only to inform local people about the projects. The hearing did not ensure that local people's knowledge would be considered. Collins (1978) had similar critiques. She states that public hearings do not encourage on-going feedback and do not ensure that all concerns will be taken into consideration.

People criticized open houses for the high cost of operation. Two participants in the third group discussion mentioned that open houses can bring in more people if they are operated for a long period of time, but the longer the operation, the more expensive the open house is. A participant in the second group discussion also noted that "there is no such place in their village to set up [open house]. Someone has to pay for the space, and if the open house was arranged outside the village to reduce the cost, many people would not make the trip to the open house."

Working groups and committees are believed to be effective in including local knowledge because there is a working body that can take responsibility. Furthermore, if members of the committee are local people, they can bring local knowledge directly into the project through the working group. One participant in the third group discussion noted that "the

working group can be a body which is responsible for reaching the goals and keeping them on schedule." Two participants in the second group discussion added that a working group can be comprised of people with whom they can talk. Under the current situation, they have nobody to whom they can express their concerns. Three participants in the third group discussion, however, noted that an effective working group depends on its members and the influence it has on decision-making. These two factors have to be carefully considered to ensure the inclusion of local knowledge.

People preferred workshops as formats in which various views can be generated and collected on schedule. Four participants in the third group discussion noted that workshops or group discussions with a clear task and active interaction among participants can draw out many views, concerns, and alternatives. One participant also noted that "the workshop needs well organized and qualified moderators otherwise it will not be effective." Collins (1978) as cited by Lang and Armour (1980, 305) saw the same advantages and disadvantages of workshops. She stated that the workshop helps to raise a wide range of issues but it "requires careful preparation and experienced leaders."

As well as the above-mentioned formal methods, local knowledge can be gained simply by professionals or researchers talking and listening to local people and taking their views

into account. Mr. Duangkaew Saninat,[19] a former Buddhist monk who is presently the Chief of Pong Yaeng sub-district, stated that "We don't need to arrange public meetings or workshops or set up committees. What we need is people who have real concerns to simply talk to each other listen to each other and to include the knowledge obtained in their work." This informal way of getting information can help professionals or researchers, who are interested in including local knowledge, incorporate this knowledge into their planning or research.

Interviewees and group discussion participants suggest both formal and informal ways of incorporating local knowledge into design and planning. The formal method is through participatory design and planning processes, which have the advantages and disadvantages identified above. The informal method for incorporating local knowledge is simple interaction by professionals or researchers with local people. No disadvantages were identified with this method.

6.5 CONCLUSION

The examples provided in this chapter show that the exclusion of local knowledge in design and planning causes unwanted outcomes ranging from simple technical problems

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[19]Interviewed on April 10, 1993.

such as water leakage to critical social problems such as the loss of self-reliance and the loss of a sense of community. Conversely, inclusion of local knowledge into the design and planning process provides beneficial outcomes, such as avoiding of flooding, enhancing social ties and community economic benefit.

The exclusion of local knowledge is the result of design and planning processes that lack public involvement and are dominated by narrow professionalism. Narrow professionalism refers to professionalism which restricts its interests to geographically generalized but sectorally specialized technical knowledge not necessarily suited to local realities. This can result from professionals' education following a limited western model which does not consider local wisdom.

To overcome their limitations, narrowly technical professionals need to be helped to understand how local knowledge is obtained and used. This includes understanding that much of local knowledge requires a great deal of experience to develop, but like other forms may or may not be quickly taught. Some local knowledge may require deep exposure to be thoroughly understood and must be approached continuously as in the case of irrigation systems which are more complex than they first seen, and *kalae* which have more history and meaning than the artifacts *per se* show. Therefore, professionals must believe in it, understand it clearly, respect it, and apply it carefully.

The discussion of people's ideas about how to include local knowledge illustrates both

formal and informal ways of gaining local knowledge. Professionals can use a variety of formal participatory methods and interact informally with local people in order to include local knowledge into design and planning. The discussions with local people also illustrated some advantages and disadvantages of each formal method from their point of view.

CHAPTER SEVEN

CONCLUSION AND IMPLICATIONS

7.0 SUMMARY

This dissertation set out to discuss the existence of local knowledge in physical design and planning; the exclusion and inclusion of local knowledge and its consequences, the reasons why such local knowledge was included or excluded, and the possibilities for more widely incorporating local knowledge.

The review of literature in Chapter Two identifies that there is a lack of information on local knowledge relevant to physical design and planning. In addition, the professional and "expert-knows-best" views rampant in design and planning lead to a tendency to overlook local knowledge. The theory and practice of citizen participation and social impact assessment have not yet developed adequate linkages to local knowledge.

Chapter Three explained the reasons for using the case study approach and the data collection techniques within it.

Chapter Four pointed out that the design and planning processes in Chiangmai have been dominated by narrow professionalism.

Chapter Five confirmed the existence of specific kinds of local knowledge important to physical design and planning. Most of this knowledge is currently being used or has the potential to be used with modern construction. This knowledge was analyzed and classified into 8 categories: technical, descriptive, explanatory, prescriptive, subtle, dynamic, scattered and holistic.

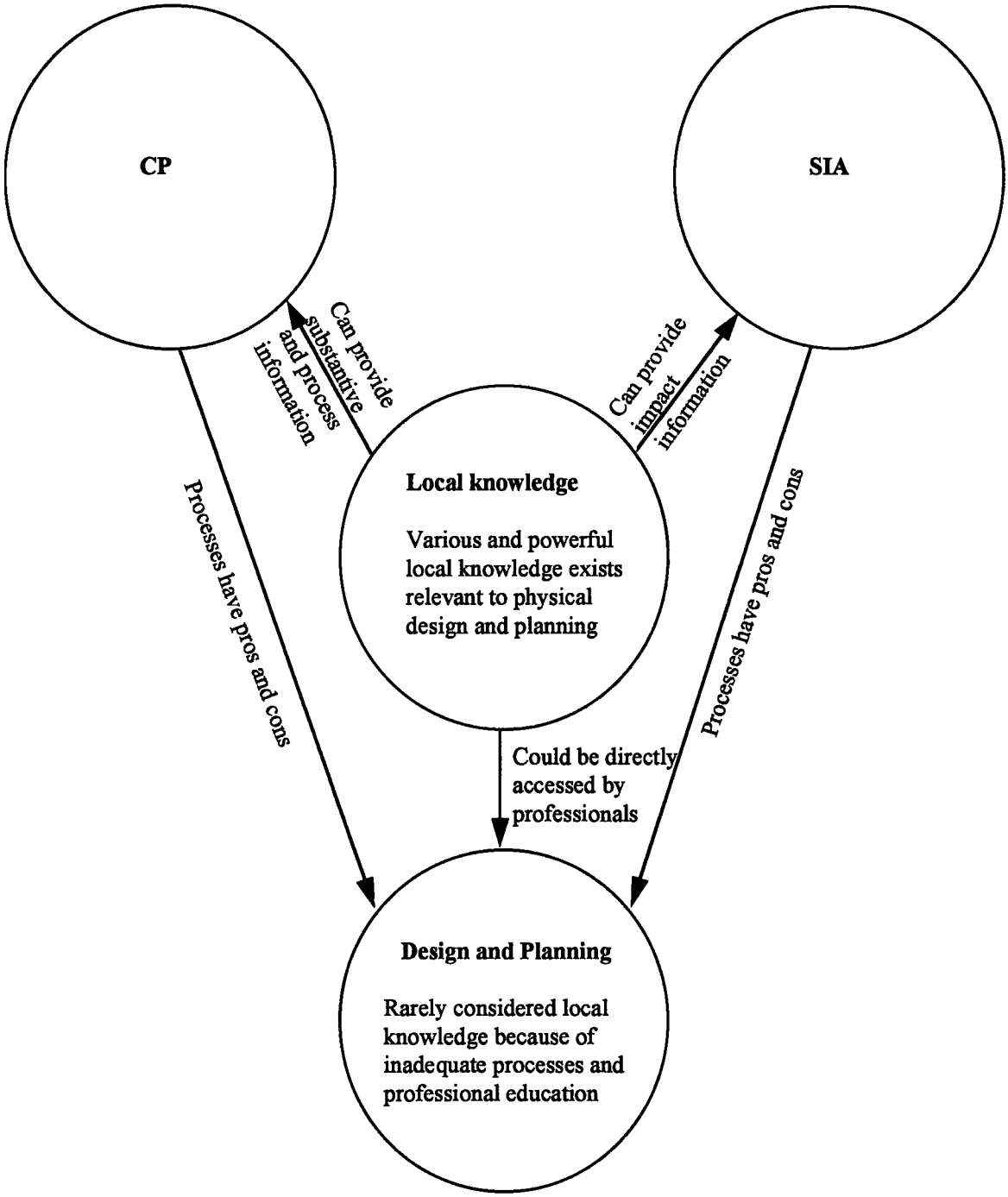
Chapter Six showed that the exclusion of local knowledge in design and planning processes caused unwanted outcomes and its inclusion provided beneficial results. This chapter also provided local people's ideas on the incorporation of local knowledge.

This chapter summarizes the findings with reference to the conceptual context, and categorizes those characteristics of design and planning that limit incorporation of local knowledge. It illustrates that the causes for exclusion can be identified and that exclusion can be overcome. Finally, this chapter discusses the implications to improve the incorporation of local knowledge into design and planning practices.

7.1 CONCLUSION

The findings from the study fill several gaps in the literature on local knowledge and make contributions to the fields of design and planning, citizen participation and social impact assessment. These findings are described below and shown in Figure 7.1

Figure 7.1. Conclusion of the Study



Local Knowledge

The study found that local people have a varied and powerful base of knowledge. The knowledge consists of technical, physical, environmental, economic and socio-cultural information. Examples of this knowledge include knowledge of the traditional northern house, the traditional northern landscape, and threats to people's cherished environments. Local people also have a knowledge of process possibilities that would help in incorporating their knowledge into design and planning practices.

Design and Planning

The study shows that mainstream design and planning in Chiangmai has been dominated by professionals who relied exclusively upon professional training and methodology. The resulting design and planning processes left out local knowledge and brought unwanted outcomes to local people. In those instances where design and planning included local knowledge, the outcomes were beneficial to local people. Designers and planners can access local knowledge directly through informal means or through formalized procedures for citizen participation or social impact assessment. Design and planning schools in Thai universities need to place more emphasis (perhaps through required courses) on the value of local knowledge and methods of accessing and using it.

Citizen Participation

This study's workshops show that participatory processes can be effective in revealing to both observers and participants the extent, depth and complexity of local knowledge. Formal procedures in the form of professional standards and government guidelines that mandate participatory processes and development of such processes by professionals on a case-by-case basis can potentially enhance the contribution of local knowledge to substantive design and planning.

Social Impact Assessment (SIA)

This study also shows how local knowledge, especially experience-based knowledge of cultural and environmental threats, could contribute to design and planning through SIA. Since SIA is most effective when integrated with design, local knowledge should be sought at the beginning stages of planning for new development projects.

Formalization

The study also found that people believe that formalization of citizen participation and SIA processes, e.g., in the form of public hearings, is not the only way to bring local knowledge to bear on planning. Some people, in fact, believe that it may not be the best way. Encouragement of direct, informal contact between professionals and non-professionals may be preferable in the Thai context. This is a matter for further

investigation.

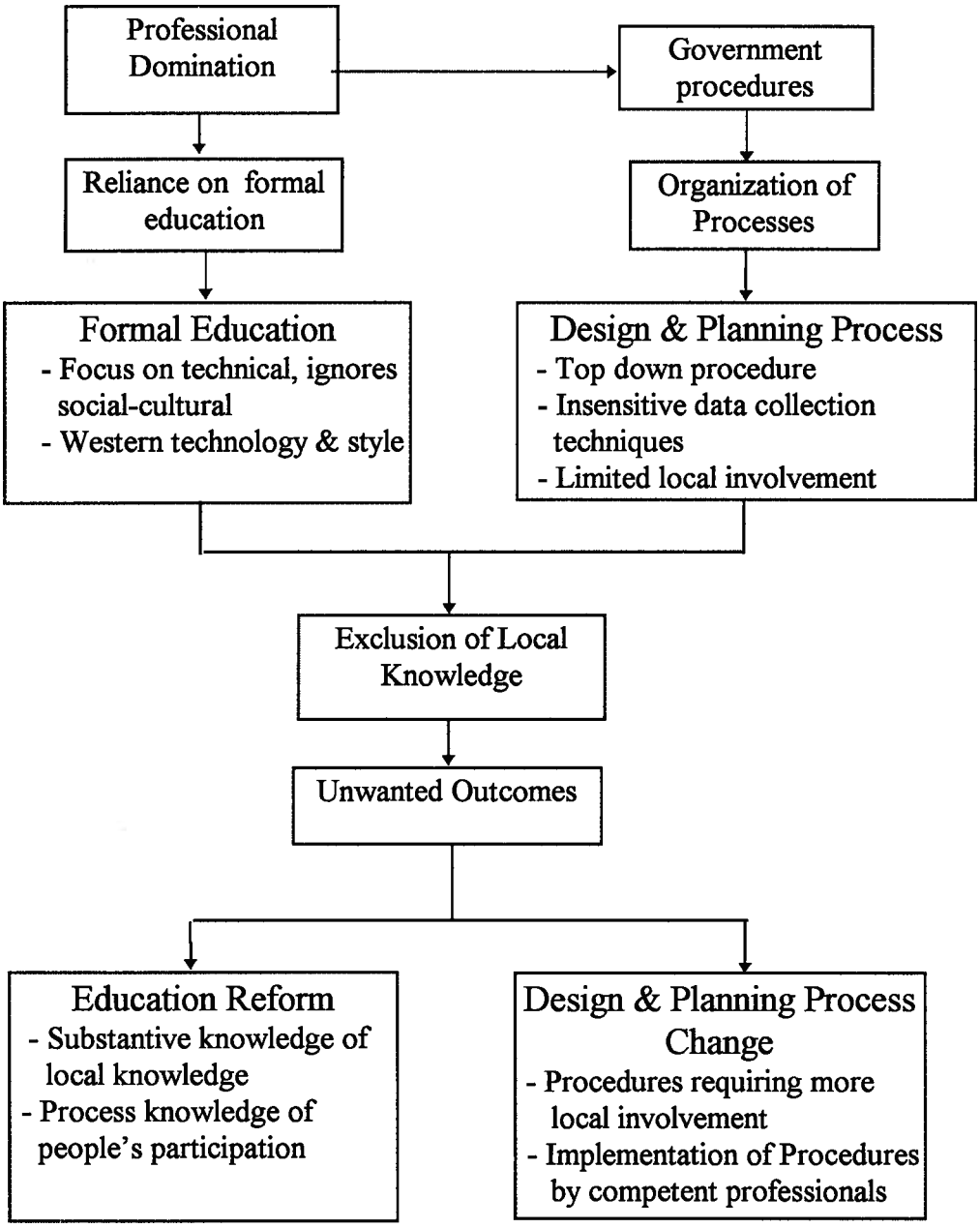
7.2 CHARACTERISTICS OF DESIGN AND PLANNING THAT LIMIT INCORPORATION OF LOCAL KNOWLEDGE

The study found that the limited incorporation of local knowledge in physical design and planning results initially from the way professionals are trained and then reinforced by design and planning procedures (see Figure 7.2). But there are other forces, such as socio-economic forces and owners' requirements, that may affect project developments, their scale and their location. However, in this study, most designers and planners had a high degree of creative control. They could, for example, decide whether to follow local or Western building styles (as discussed in Section 4.4.2) or to use local or western technologies. Therefore, the primary force that affects the incorporation of local knowledge into the design and planning process derives from designers and planners.

7.2.1 Design and Planning Process

There are four characteristics of the design and planning process that limit the incorporation of local knowledge. These are: the top-down procedure that is applied; the domination of the process by narrow professionalism; the insensitivity of data collection techniques; and the lack of local involvement in the process.

Figure 7.2. Mechanism of Exclusion of Local Knowledge in Design and Planning and Solutions to This Exclusion



Top-Down Procedure

As previously described, planning and development projects in Chiangmai are initiated and organized by top government agencies and officials, and given to lower agencies to carry out. The lower agencies, in turn, inform the local people of decisions that have been made. The local people have to comply with the authorities without being given a chance to provide input into the process.

The top-down planning process allows agencies and people at the top to work in their own self-interest. For instance, the main goal of the Master Plan for Chiangmai Tourism Development - to develop tourist spots in Chiangmai in order to earn foreign exchange - works in the interest of the central government. This goal is also the goal of the Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation. Similarly, the goals of design projects (hotels, resorts and shopping centres) are related to the owners' economic benefit. The process always leaves out the goals of ordinary people and the local knowledge of their needs and wants.

The process reaching the goals is also determined by the top agencies and people. Therefore, the process is considered appropriate if they suit the top agencies, even though the action taken to reach these goals may cause difficulty for the people at the bottom of the process. This top-down procedure, based on the self-interest of government agencies and project owners, is one of the characteristics that limits the incorporation of local

knowledge into the design and planning process.

Professional and Expert Domination in Design and Planning

Another characteristic that limits the incorporation of local knowledge is that the majority of participants in design and planning projects are professionals. Members of Chiangmai development project design teams included architects, landscape architects, interior designers, and structural, electrical and sanitary engineers. Chiangmai's tourism planning process also included professionals and experts in physical design, economics, finance, social issues and the environment. The professional domination of design and planning means that professionals can rely solely on their own knowledge of substance and process. Moreover, the majority of professionals restrict their concerns to the technical aspects of design and planning. The result of all this is that the socio-cultural dimension is left out. In some cases, the omission of the socio-cultural dimension in the design and planning process can affect the social organization of entire communities.

Professional technical knowledge which promotes and relies on imported technology can damage development and the local environment. Perhaps the two best examples of unwanted outcomes are concrete dams which have blocked waterways permanently and have made aquatic life extinct, and the flat roofs without overhangs which have caused water leakage even though roofs and windows were built with the best technology. Both examples are evidence that professional domination of the design and planning process can

lead to the use of practices that do not work as well as the practices developed by local people.

Insensitivity to Local Knowledge in Data Collection Techniques

A third characteristic that limits the incorporation of local knowledge into the design and planning process is data collection techniques that are insensitive to local knowledge. The research shows that professionals left out realities such as traditional "common-sense" knowledge and local people's beliefs and concepts. Site visits and documentary research for the Master Plan for Chiangmai Tourism Development did not obtain information about local sensitivities regarding the preservation of sacred places and unique features. In the example of the cable car, the omission of local knowledge was costly in terms of time and money and resulted in the project being shelved.

Limit of Local People's Involvement in Design and Planning

The final characteristic that limits the incorporation of local knowledge is a process that does not provide opportunities for public feedback. The research showed that in some instances information about design and planning projects was not transferred to the public, and so they could not provide feedback. Although Chiangmai people wanted to provide information on their needs and wants, they could not. In other cases, their input came too late to be incorporated into the decision-making process. For instance, by the time the inhabitants of Pong Yaeng Nok village learned that the resort would draw large

amounts of water from their irrigation system, the resort had already started its construction and nothing could be changed.

Design and planning professionals rarely included local people in the process of design and planning in Chiangmai. Local people were not involved in the design of development projects such as hotels and resort developments. Only a few local people were involved in the Master Plan for Chiangmai Tourism Development and the Chiangmai Policy-Based Action Plan. The planning process of the Master Plan did not have direct local involvement, and the planning process of the Action Plan had a limited number of local people involved in their two-day seminars. The cable car protest illustrates that limiting local people's involvement in the Master Plan can cause the public to reject projects. Similarly, limiting public involvement in the Chiangmai Policy-Based Action Plan made the local people dissatisfied with the plan because their goals and the plan's goals were different. Thus, limiting public involvement is a characteristic of the design and planning process that not only limits the incorporation of local knowledge but also leads to dissatisfaction and causes widespread protests that can derail planned projects.

7.2.2 Professional Education

The training of professionals involved in the design and planning process also limits the incorporation of local knowledge. Because professionals gain both their ideology and technical knowledge by training in professional schools, their education plays

an essential role in shaping attitudes about the practice of physical design and planning.

Professional schools in Thailand follow western philosophy and concepts from the beginning. Chantavilasvong (1987, 1-2) wrote that:

> The first school of architecture was [opened] in the 1930s, later on becoming a faculty of architecture at Chulalongkorn University, by a man trained from England.
>
> The curriculum was almost a duplication of a western prototype, with an addition of some lessons on traditional Thai architecture. While the western-adopted curriculum instructed and guided students to develop design skills and work in the modern world, the Thai course focused only on the historical-classical aspect of architecture. Traditional and classical Thai architecture, however, is unique in identity and aesthetics. The Thai course emphasized building ornaments, construction elements, 'golden' proportions, and styles of those typical buildings belonging to royalty and Buddhist religion. As a result, Thai vernacular architecture was overlooked and left unconsidered since the school started and professional architects trained in a western tradition began dominating the profession.

Present design and planning schools in Thailand are oriented to western philosophy and technology. At present, there are only three professional schools[1] in Thailand located in Bangkok where graduates are approved as registered architects. The Faculty of Architecture of Chulalongkorn University, which houses the Departments of Architecture,

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[1]Faculty of Architecture, Chulalongkorn University, King Mongkut Institute of Technology and Silapakorn University. There is only one school - Chulalongkorn - for both Landscape Architecture and Urban and Regional Planning. In addition, the Asian Institute of Technology provides planning education for Thai and other Asian students in English.

Landscape Architecture, and Urban and Regional Planning, is the oldest and leading school. These departments have a curriculum that follows the western model, and have few courses focusing on Thai culture, professions and traditions (see Appendix 9). The curriculum of the Department of Architecture in 1994 showed only three required courses of two credits each and one elective course of two credits on Thai architecture in the 177 credits required for graduation. The Department of Landscape Architecture has two courses that discuss the Thai context. Urban and Regional planning has three courses that clearly address the Thai context: one required course; one which is included in a group of four courses from which students must select three; and one elective course. At best, students would take three courses comprising six credits out of a total 50 credits required for a Masters' degree. Moreover, the literature used in most courses is western. Most of the literature written in Thai is based on western originals.[2] And the scant literature found in Thai is mostly derived from western originals.

Almost all of the staff in the Faculty of Architecture of Chulalongkorn University has graduated from a Western university, and most of these were educated in the United States. Only five of more than eighty staff members in the Departments of Architecture, Landscape Architecture, and Urban and Regional Planning do not have a degrees from

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[2]Interview with former Deputy Dean in Academic Affairs and former Head of Urban and Regional Planning Department, Chulalongkorn University, on March 23 and 19, 1993 respectively.

abroad. Most of the faculty in other design and planning schools in Thailand and most of the staff in professional offices are comprised of graduates from Chulalongkorn University.

The philosophy and concepts of western professionals that are taught in design and planning schools have a strong influence on professional practice. Students study the work of Frank Lloyd Wright, Le Corbusier, Frederick Law Olmsted, and Lewis Mumford and learn very little about local people's work. After they graduate, they prefer to apply western styles in their practice. They are ignorant of, and show little interest in, the local knowledge of the people. When Hoskin (1992, 20-26) wrote about the ubiquitous appearance of Roman, Greek, Spanish, Gothic and Tudor styles in Thailand, he reiterated the question posed by a local newspaper: "What on earth is being taught to Thai architectural students?".

7.3 IMPLICATIONS OF ACTIONS TO INCORPORATE LOCAL KNOWLEDGE INTO DESIGN AND PLANNING

The research findings lead to several implications for planning. The research has shown that there are benefits to incorporate local knowledge into design and planning. The research also suggests the need for changes to the design and planning process itself and the need for reforms to design and planning education.

7.3.1 The Benefit of Incorporating Local Knowledge

A number of examples in the preceding chapters show that local knowledge can provide very sophisticated technical knowledge needed in design and planning practice. The research has described several examples of valuable **technical** information (wood cutting techniques for shingles and the rebaking of local terra-cotta tiles). Even though designers and planners believe that their technical expertise is adequate, these examples show that experts can benefit from local technical knowledge.

Designers and planners can gain a real understanding of local conditions by seeking local knowledge. Local knowledge can provide **descriptive**, **explanatory**, and **prescriptive** information to these professions. Practitioners can learn more about local areas and people in those areas by getting descriptive knowledge that varies from water run-off patterns to the social organization of local irrigation systems. Moreover, practitioners can gain a better understanding of local conditions because local knowledge is explanatory such as the interpretations of *kalae*, and, therefore, provides a clearer interpretation of people's thoughts. In addition, practitioners can learn about the reasons behind prescriptive local knowledge such as local people's beliefs related to plant names. By understanding why local people have that kind of prescriptive knowledge, practitioners can decide whether to use that knowledge or not.

Some information, such as drainage patterns, is **subtle** in nature and

practitioners can often save time by getting this less obvious information from local people who can provide it immediately. Otherwise, such information can take a long time to gather, simply because local people themselves took a long time to obtain it. Practitioners can benefit immensely from the immediate availability of local knowledge that would be otherwise difficult to obtain.

Practitioners must also understand the **dynamics** of local knowledge. Local knowledge changes over time, and some local knowledge has disappeared. This disappearance indicates either that the knowledge no longer has value in the present day context, or that valuable information has been submerged by the impact of modern technology or other forces of social change. In the latter case, more study of local knowledge must be done before this knowledge is lost entirely. Other local knowledge has changed or adapted to changes in local conditions. In these instances, local knowledge can provide current information about development and about changes concerning the people in its area. This information can help practitioners understand the current situation and predict future trends in order to reach sound conclusions and provide appropriate suggestions. Professionals, therefore, must continuously consult local people in order to be up-to-date on local knowledge.

Design and planning practitioners must seek information from a variety of local people to gain local knowledge. For specific local expertise, they must look to specific people who

have that expertise. Because local knowledge is **scattered**, one local person can have a great deal of local knowledge, or one local person can provide a specific type of knowledge, or a specific kind of local knowledge can be held by many local people. Therefore, practitioners must be flexible in the data collection methods they use to obtain the appropriate knowledge for a given situation.

Local knowledge is **holistic** and therefore design and planning cannot be practiced by considering only part of each aspect of local knowledge. Local knowledge consists of technical, socio-cultural, economic and environmental aspects which are all tied together. Practitioners must understand all aspects and the relationships among them. Because of the holistic nature of local knowledge, it can help practitioners see their work holistically. Similarly, the application of local knowledge must also be performed in a holistic way. As was shown in the concrete dam example, it cannot be broken down into parts and specific parts cannot be used without holistic understanding. Both the acquisition and application of local knowledge are a discipline which teaches practitioners to think and act in a more holistic manner.

7.3.2 Possible Changes to the Design and Planning Process

As described earlier in this chapter, there are a number of aspects of the current design and planning process which limit the incorporation of local knowledge. These include a top-down procedure, the domination of professionals, insensitive data collection

techniques and the lack of local involvement. To overcome these limitations, the process must be changed from a top-down procedure to a bottom-up procedure or, at least, an equal participation of local people along with professionals must be ensured. The public must be informed and their feedback encouraged. Arnstein (1969, 219) stated that informing citizens of their rights, responsibility, and options and inviting citizens' opinions are the most important first steps towards legitimate citizen participation.

In order to have effective participation in the design and planning process, citizens must receive full and accurate information. Professionals and local people must be able to share their vision and knowledge. Citizens must be able to negotiate and bargain with professionals in order to improve their situation, and the decision-making process must provide a fair chance for local people. Local people must also be able to manage their own resources and organization. When an outsider wants to change their community, they must be able to negotiate to protect themselves. According to Arnstein's Ladder of Citizen Participation (Arnstein 1969), moving up the ladder from "non-participation" to "degrees of citizen power" gives citizens a chance to gain control over their own lives.

A complete change to a bottom-up process may be difficult given the existing structure in Thai society. As Prasith-rathsint (1987, 76-77) pointed out there has been little change in the traditional Thai top-down process, and the flow of information and the structure of decision making remains centralized under the ministry's control in Bangkok. Therefore, a

balance between top-down and bottom-up processes would be a more appropriate solution. To achieve this balance, there needs to be an exchange of information between local people and professionals. "The top", professionals and experts, can provide new technology, modern facilities and outside information. "The bottom", local people and lay persons, can offer information that is appropriate to local conditions.

Design and planning processes that intend to incorporate local knowledge must have appropriate design and planning models that can efficiently include this knowledge. Boothroyd (1991, 5-6) offers seven steps in a planning model which has been tested in Thai villages. These are: 1) planning task (problem) definition; 2) goals identification; 3) situation (facts) appraisal; 4) ideas generation; 5) options classification; 6) assessment; 7) decision. Each step can incorporate local knowledge. Local people can provide environmental and socio-cultural knowledge to help identify problems and goals. Local knowledge which consists of accurate and updated facts can help in appraising relevant facts. Knowledge that develops from local people's experience can suggest alternatives and options and assess impacts, especially those impacts that affect the people themselves. Finally, local people can make decisions for themselves. As such, they should be involved in a negotiated decision-making process.

The incorporation of local knowledge into design and planning can be both formal - through an arranged participatory method, and informal - through direct and spontaneous

interactions between professionals and local people. Formal methods of both citizen participation and social impact assessment can be initiated. But practitioners need to be certain that citizen participation and SIA are structured to be effective. The informal way is simple and effective. If practitioners are interested in the inclusion of local knowledge, they can just talk and listen to local people to get this knowledge. By using both formal and informal methods of interacting with local people, local knowledge can be effectively incorporated into design and planning.

7.3.3 Design and Planning Education Reforms

Changes in design and planning processes, particularly the application of citizen participation, are necessary to incorporate local knowledge into design and planning. However, the changes may not be completely successful because these changes, especially citizen participation, may only be used to make the processes look legitimate. Therefore, in order to successfully incorporate local knowledge, the ideology of the professional practitioner must change. Professionals must believe in local knowledge, and they must adopt a positive rather than a negative attitude toward local knowledge. If they believe in local knowledge, then local knowledge will be included in design and planning.

To change the ideology of professionals, it is necessary to change their education. The design and planning education must include the merits of local knowledge in the curriculum in order to give professionals a reason to believe in local knowledge. As

well, the curriculum must include more courses in local architecture, landscape architecture and planning. The study of both traditional Thai architecture and contemporary Thai architecture should be enriched. In Departments of Architecture, projects could focus on searching for an architecture that is suitable to local conditions. Studies in Landscape Architecture must include the history of and changes to the Thai landscape as well as examples of traditional and contemporary landscapes. In planning, the cases studied should be Thai. By reviewing Thai cases and evaluating their impacts, lessons can be learned for future planning in Thailand. Courses in design and planning process are also needed. Professionals have to be taught how to learn about local knowledge, how to access it, and how to apply it respectfully, in consultation with local people.

Encouraging staff in design and planning schools to do research on local knowledge will increase their own knowledge, the students' knowledge and the public's knowledge, while at the same time encouraging a belief in this knowledge. Research topics can be varied. Research on local technical knowledge can provide appropriate technical information. Research into local materials can be applied to modern construction and provide economic benefits to local people. Research into local styles of building can preserve architectural identity and integrity. Finally, research into local irrigation systems can help teaching staff understand both the technical knowledge and social organization of local people.

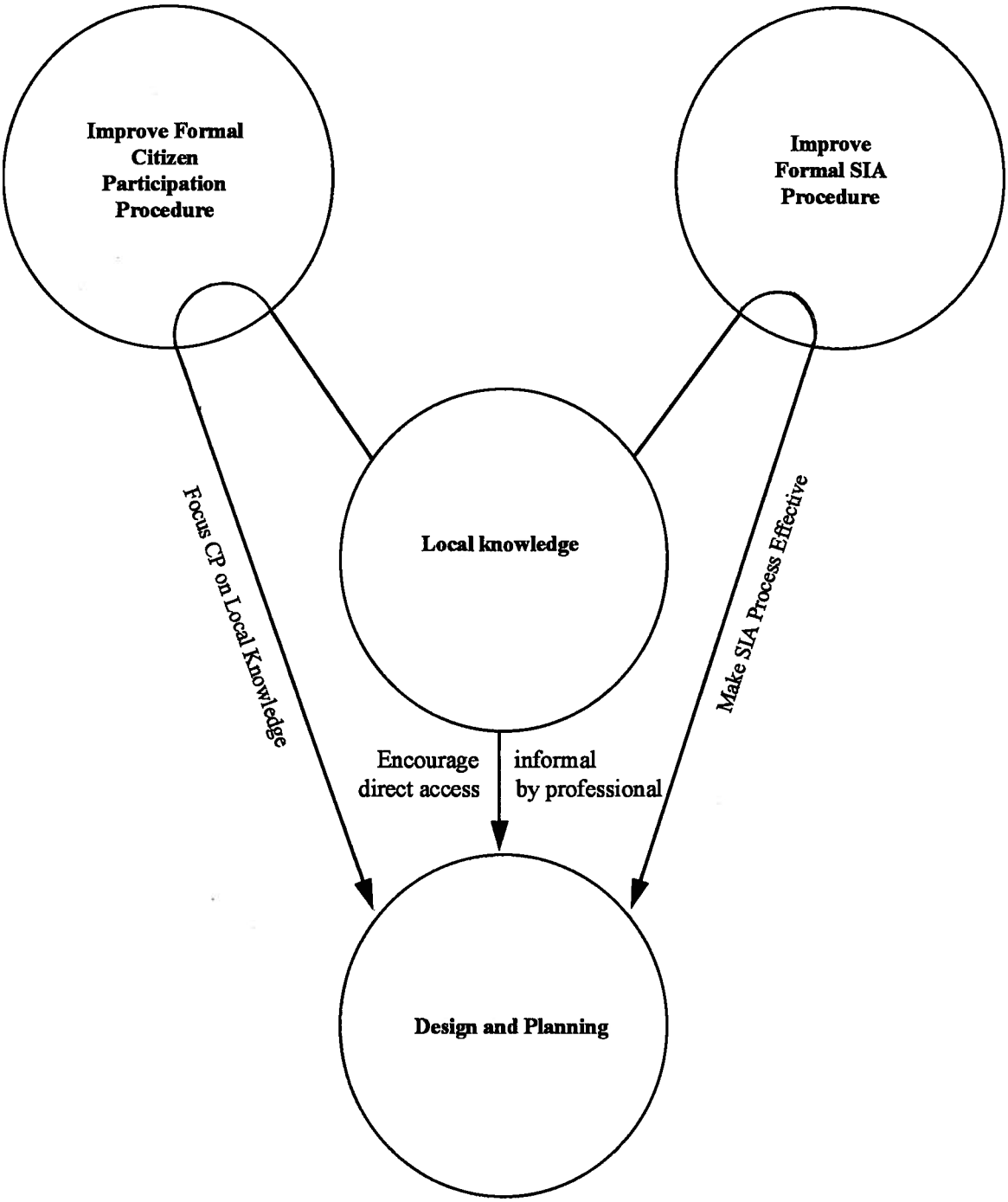
Students in design and planning schools must be given the opportunity to move beyond books and classroom lectures to local areas so that students are exposed to local people. This will encourage interaction with local people and enable students to learn about local knowledge. Moreover, special workshops can initiate co-operative work between students and local people such as local carpenters and senior monks who have specific experience and knowledge. Such workshops would make students realize that local people have sophisticated knowledge that can benefit them in their professional life.

Courses on design and planning processes should be taught to students in order to improve their knowledge of how to access and apply local knowledge directly, through citizen participation and social impact assessment. The advantages and disadvantages of formal processes for incorporating local knowledge through citizen participation and SIA should be taught. Students must have an opportunity to learn what constitutes effective citizen participation and SIA and how to collect information on local knowledge themselves.

The implications of this study for improving planning procedure, case-by-case processes, professional practice, and education, are summarized in Figure 7.3.

Figure 7.3. Implication of the Study for Improving the Use of Local Knowledge

I. Improve planning procedures & individual processes



II. Teach professionals 1) Value of local knowledge; 2) Processes for accessing local knowledge

7.4 IMPLICATIONS OF STUDY FOR RESEARCH METHODS

It is well known that researchers must carefully select their research methods and techniques. This study showed that, with regard to research into local knowledge, the methods chosen can provide both benefits and pitfalls. For example, large group discussions can provide a broad base of information but are difficult to control. Some techniques, such as writing down the answers as was done in the second and third group discussions, can help speed up the session but also cause problems for those who do not enjoy writing or are semi-illiterate (a problem in the second group discussion).

Research can take advantage of informal discussions after formal group discussions end. The extra time, preferably over dinner or refreshments, provides valuable information. It is also an opportunity for researchers to continue discussing research issues and for participants who do not want to confront others in the formal session to express their ideas comfortably.

7.5 THEORETICAL CONTRIBUTIONS

This study has shown that local knowledge is rich and powerful but it is not well discussed in planning literature. When it is discussed, the focus is on tangible and technical knowledge. This study introduces intangible and social-cultural knowledge which consists

of local people's perceptions and values. This introduction expands definitions of local knowledge.

Local knowledge is categorized into eight characteristics by this study: technical, descriptive, explanatory, prescriptive, subtle, dynamic, scattered and holistic. This categorization provides implications for academic and professional practices.

Local knowledge is significant in many respects. For example, local knowledge shows relationship between people and environment. It also shows patterns of self-reliance and self-sufficiency. It can help strengthen local identity, local economy and empower local people. It also can be a valuable tool for professionals in their practices. This significance ensures benefits to people who apply local knowledge.

However, this valuable local knowledge has been overlooked which causes unwanted outcomes to both local people and to development projects. The inclusion of local knowledge, on the other hand, has provided beneficial outcomes. This is evident in Chiangmai and similar results can be expected elsewhere.

The reason why much of the local knowledge is overlooked is because design and planning are dominated by professionals limited in their awareness of the richness and value of local knowledge. Professional limitations vary depending on each professional's training and on the applied design and planning procedures that he or she works

within. These limitations on professional knowledge can be most efficiently dealt with through appropriate processes for learning from and working with local people. These processes can be formal or informal interactions between professionals and local people. Design and planning education must include opportunities for students to learn how to make appropriate use of participation and impact assessment processes. The professions and government at all levels must institutionalize design and planning procedures so as to require or encourage professionals to actively seek local knowledge, to respect its owners, and to consider local knowledge in their professional work through consultation with local people. To encourage professionals to incorporate local knowledge into their design and planning is not an easy task, but if local knowledge is incorporated, it will greatly benefit everyone.

7.6 THEORETICAL ISSUES ARISING FROM THE RESEARCH FINDINGS AND CONCLUSIONS

This research opens a new area of study related to local knowledge in design and planning. It raises many issues which have significant theoretical implications and deserve further study. The issues are discussed as followed:

7.6.1 Issues Related to the Nature of Local Knowledge

This study has discussed the nature of local knowledge as it relates to physical design and planning, but a number of the critical issues need to be addressed through further

research. It is possible that such research will show that local knowledge is a dynamic system of interrelated variables. Included among these variables may be the following:

Holders and Types of Local Knowledge

This study has illustrated the kinds of local knowledge held by various respondents. The illustration raised the issue of holders and types of local knowledge they are holding. Types of knowledge may vary by the age, sex and education of knowledge holders. Further research into the holders of local knowledge and the types of knowledge each holds could deepen our understanding of the dynamics of local knowledge production and dissemination.

The **age of knowledge holders**, for example, may be important. Do young people have the same or different knowledge from older people? Why is this knowledge the same or different? What are the types of knowledge held by young people and older people? Further research in response to such questions would expand the literature on local knowledge and help explain the dynamics of local knowledge. It may also help identify actions for dealing with the preservation, growth and change of local knowledge. For instance, if young people hold the same knowledge as older people, we may be able to determine why that particular knowledge is passed along and still applied. On the other hand, if young people hold different knowledge, we can note what local knowledge has disappeared or changed and try to understand the reasons for its disappearance or change.

In this research, some local knowledge (e.g., plants recommended for residential areas and the elements of the Thai house) were provided by both young and older people. Further research may show that both young and old hold some local knowledge, such as everyday knowledge, common-sense and tangible technical knowledge, in common. On the other hand, older people clearly hold local knowledge that is different. Older people, for example, have knowledge that includes a time dimension (e.g., the information regarding previous and present house orientation provided by a senior architect in this study). Older people considered in this study, also seemed to have knowledge that is particularly subtle (e.g., drainage patterns) or scarce (e.g., the reuse of roof tiles by rebaking). Older people generally were more able to explain cultural knowledge (e.g., the relationship between a plant's name and its usefulness). The age-related patterns suggested by the research for this study could be formulated into hypotheses for further study.

The age of knowledge holders is also significant in selecting research methods and techniques. Field research for this study found that many older people feel more comfortable with oral interviews and group discussions than with writing down answers to questionnaires. They also prefer to spend time interacting with the researchers. On the other hand, young people do not mind providing information in writing but they prefer to spend less time answering questions. Further research may look into ways of creating research methods that are sensitive to the age of people in the conduct of individual interviews, group discussions and questionnaires.

The **sex of knowledge holders** poses similar questions. Do men and women hold the same or different knowledge and why? What are the types of knowledge held by each? Further research here would add more information to gender-related studies, and would help our understanding of local knowledge as it relates to gender. It would also guide researchers in their search for the appropriate knowledge holders and in the appropriate actions taken with knowledge holders.

Further study may show that women have more knowledge about the house and garden and that men have more knowledge about their fields and the construction of their homes. In this study, for example, women were more able to provide information about plants growing near the home while men could provide information on drainage patterns, building processes and the elements of the traditional northern house.

This study also poses questions about research methods related to gender. Interviewers in this study (myself and my assistants) were male. What effect did this have on the responses of male and female interviewees? Is there any effect when interviewer and interviewee are the same or different sex? If so, what is the difference? What are the considerations for interviewers who are the same as or different from the interviewer in gender? Answers to these questions would help both academic and applied researchers select appropriate interviewers.

The gender of participants also raises methodological questions. Does the sex of

participants in group discussions impact on the data obtained? In this study, where participants in all group discussions were male and female, would different information have been obtained if all participants in a focus group had been male or all had been female. Arranging discussions with either males or females or both and comparing the results and atmosphere of the discussions would provide significant information to future research that uses focus group discussions.

The **education of knowledge holders** poses other questions. Along with other literature including Korten (1992), Brokensha and Riley (1989) and Cowley (1989), this study found that local people with a low level of education have knowledge that professionals lack. This finding raises several questions. Do people with a high level of education have more or less local knowledge than people with less education? Can local knowledge be gained through formal education? What kinds of local knowledge can or cannot be taught in a formal setting? Further research into these questions would help to show how local knowledge is learned and the relationship between local knowledge and formal education.

Further research may find that people with a high level of education have more advanced technical knowledge but that people with a low level of education may have appropriate technical knowledge (e.g., the example of dam building in this study). Similarly, people with little education may have more subtle knowledge (e.g., drainage patterns) than those with a high level of education. In contrast, this study found that the level of education

with regard to socio-cultural knowledge seemed to be not important. This study found that knowledge of beliefs and concepts (e.g., related to *kalae* and plant's names) seemed to come from people with both high and low educational backgrounds. People with a high level of education, however, could provide a more systematic explanation of socio-cultural knowledge. In this study, a professor in architecture explained the elements of the northern Thai house and a professor in social science explained the relationship between a plant's name and its usefulness. Further research into the education of respondents would enable both academic and applied researchers to compare types of knowledge held by those with differing educational backgrounds.

The literature suggests that the age, sex and education of participants affects group discussions. Folch-Lyon (1981) and Scrimshaw and Hurtado (1987) show that participants in group discussions who have the same background (e.g., age, sex education, occupation and social status) feel more comfortable in discussion and provide more information. However, group discussions organized for this study have shown that participants with different backgrounds may have different points of view which lead to arguments that produce significant findings. Future comparative study of group dynamics in discussions about local knowledge could enhance our understanding of the strengths and weaknesses of alternate research methods.

The use of local knowledge

Other research that may have value in describing local knowledge as a dynamic system could be research on the way that local knowledge is used by local people. Does local knowledge have a cultural role or a technical function? Is local knowledge most often used to reinforce or correct the professional application of knowledge. Is local knowledge used for community development planning? The text of this study gives many examples where local knowledge would have improved professional practice (e.g., the flooding of a shopping centre) or reversed the decision of professionals (the cable car project) or helped community economic development (the use of local styles and materials to increase local employment).

Social Change and the Introduction of External Values

More research on local knowledge in relationship to social change might indicate the various ways in which social change impacts on local knowledge. Is there a different impact of social change derived from outside forces (e.g., the requirements of a multi-national corporation or effects of international media) and that derived from inside forces (e.g., conflict among classes or locals)? How does the introduction of external values change local technical knowledge?

7.6.2 Methodological Issues Related to Research in Local Knowledge

This study has shown that participatory research methods (such as group

discussions) are appropriate for accessing local knowledge and that informal discussions (such as dinner discussions) are particularly useful for eliciting local knowledge from people who were uncomfortable in more formal settings or who had become enthusiastic during informal discussions.

The advantages of "informal follow-up discussions" need to be studied in greater detail. Other informal participatory action research methods may also be effective in obtaining local knowledge from local people. Such methods might allow researchers to interact closely with respondents while working together on a project. Engineers, for example, could participate in dam building, in irrigation operators' meetings or could even take a position in a local irrigation organization. Research into the effectiveness of these methods for accessing information will contribute to future research methodology.

This study has also introduced a broad definition for local knowledge, i.e., knowledge that includes knowledge of needs and wants. Further research related to this new definition would be appropriate with particular reference to the significance of the new definition to development planning and the impact of the new definition on the study of local knowledge. Further research on the categorization of local knowledge, including alternatives to the eight characteristics this study provides (and possibly the criteria for categorizing local knowledge), is needed in order to create optional classification.

7.6.3 Issues Related to Processes for Incorporating Local Knowledge into Design and Planning

This study suggests balancing the roles of professionals and local people in design and planning processes so that each group has valid input into development projects. But how can balanced roles be achieved? And what would be the results? What opportunities exist to balance the roles of professionals and local people and what might constrain these opportunities?

This study has shown that existing design and planning processes arranged by professionals can limit the roles of local people and lead to the domination of design and planning processes by professionals. Further research could indicate whether more balanced roles are created when local people have an equal opportunity to set up the design and planning process at the beginning.

This study also has shown that, in the existing design and planning processes, professionals hold all the information and local people do not have an opportunity to access this information. In the case of some building projects cited, for example, local people did not have any information until the projects were constructed. In other cases, the local people were provided with information but did not have time to study this information and express their concerns. The distribution of information on the first day of the two-day seminar for the Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation is an example of this problem. This study suggests, then,

that the design and planning process must provide both professionals and local people with equivalent information and with ample time to study this information. Further research may investigate possibilities that design and planning process can allow all parties to have equal amounts of information and time to consider information.

Finally, any process that intends to fully balance the roles of professionals and local people must provide equal opportunities for influencing decision-making. Decisions in this study were made by professionals and government officials without consulting local people. Further research, therefore, might focus on how the views of local people could carry the same weight in decision-making as those of professionals and government officials so that there would be a balance of power between the two groups.

This concept of balance may or may not fit Arnstein's Ladder of Citizen Participation (Arnstein 1969). If we take Arnstein's Ladder simply as a framework, the concept of balanced roles between professionals and local people would initially seem to fit in the "partnership" rung. However, the concept of balanced roles may not be a "partnership". The concept of balance requires an equal or balanced share for each party, whereas a share in a "partnership" may not be an equal or a fair share. In this sense, Arnstein's Ladder cannot be applied to the concept of balance. Thus, the generic and specific meanings of Arnstein's categories bear appraisal in the context of providing better opportunity for local knowledge to be applied to planning.

The concept of balanced roles presents some practical difficulties. Who should provide the ultimate advice to the duly elected decision-maker? How are those who give the ultimate advice selected? One possibility that further research could investigate is the idea of having different groups of people meeting together or working committees on decision-making process. Both the research respondents in this study and researchers themselves (Lang and Armour 1980 and Tester 1979) have suggested that working committees, whose members are representative of various groups, can be set up to solve problems. Various ways for selecting the members of the ultimate advisory committee could be tested. One method would be to have a committee recommended by professionals and local people. This group could be an *ad hoc* committee or a long-term committee if conflicts occur often. For the concept of balanced roles to succeed in practice, the selection of the ultimate advisory committee is critical, and therefore a useful focus for further research.

It is quite possible that a formal participatory process can have negative outcomes if the professional does not play an appropriate role. The participatory design of the residential building of the University of Louvain by Lucien Kroll is an example. Both the medical faculty and the students participated in the design process. They laid out the rooms and the circulation, and selected materials for the floors and walls. The finished buildings had an amazing variety of materials and a randomness of appearance which obviously expressed the idea of participation. The architecture was exciting but created many

problems: the study rooms and bedrooms are too small and the circulation is extremely complex. Furthermore, the buildings opposed every concept of sensible environmental control: the glass curtain wall faces southwest which is the worst orientation for solar gain while the solid wall, which is exactly the right angle for solar glazing, faces north. The designer's insistence on total reliance on the participants caused these buildings to be less acceptable to the users than had the designer played an appropriate role and exercised his knowledge (Broadbent 1984, 143). The Chiangmai study has shown that designers who appropriately play their roles can accomplish their design with beneficial outcomes.

In design and planning processes, therefore, an appropriate balance between roles must be achieved. Professionals must not only provide opportunities for local people to play their roles as this Chiangmai study has pointed out, but also need to play their own professional roles, as the Louvain experience suggests. Where previously the professional often dominated the process, professionals should now consider themselves as ordinary participants, equal, neither superior nor subordinate, to other participants. They can provide their expertise and also exchange knowledge with local people to arrive at better design and planning. How to achieve formal processes that appropriately balance the roles of professionals and local people requires further research.

One danger of formalizing the concept of balance is that the process could be led by a professional or a local person who makes the process appear as if balance has been

achieved. Professionals who benefit from development projects (financially or otherwise) may try to lead other people tacitly in order to gain hidden benefits. Similarly, local people who may have hidden agendas or are allied with professionals may try to influence other local people in order to gain hidden benefits. These and other dangers inherent in formalizing the concept of balance offer potential for further research.

Further research may also focus on opportunities for regulatory changes that would lead to a more effective incorporation of local knowledge. One possibility may be a change in the approval of development projects and plans from closed involvement among professionals, owners and authorized officials, as shown in this study to be the Chiangmai norm, to a procedure more open to the public. The process should provide an opportunity for the public to access information on development projects, and to participate in each step of the approval process. Regulatory procedures may cover delivery of information to the public (e.g., posting information at the development site, delivering information packages to each house in the neighbourhood), directly inviting local people to participate in each step of the approval process, and perhaps even having local people (individuals groups or working committees) involved in some of the decision-making. Professionals and bureaucrats, who currently control the existing process, may well resist such change because they may see that such changes will reduce their power and make their work more complicated. The constraints to a more open process in the Thai context, and the possibility for dealing with these constraints and their implications, require further study.

7.6.4 Issues on the Significance of Local Culture Related to Local Knowledge

This study brings out issues of significance of local or regional culture as a holistic expression of local knowledge. It also raises the issue of the relationship between culture and local knowledge. The issues raised pose many questions for further research. Can local knowledge be preserved, respected and employed if local culture is being eroded? Is there a significant difference between externally generated cultural destruction and internally generated social change in terms of the implication of each process for development or disappearance of local knowledge?

Further research may show that the issue of the relationship between culture and local knowledge varies depending on the ways these two aspects are looked at. Culture may be regarded as a set of beliefs, concepts, and pattern of meanings through which people develop their knowledge about life and attitudes (Geertz 1973). From this perspective, local knowledge has strong ties with culture as it has developed from culture. Therefore, local knowledge seems to be unable to be preserved and employed if local culture is being destroyed.

Alternatively, culture can be looked at from a political point of view which may consider culture as an active force, negotiated process and product of the discourses through which people signify their experiences to themselves and others (Clifford and Marcus 1986). Culture seems to be endlessly changed, persistently updated, and resilient to

destruction it is an active dynamic system that constantly influences people in developing their knowledge. Therefore, further research within different theoretical frameworks may come to different conclusions about the viability and role of local knowledge, even within the same region. Further research may differently consider the question: Can local knowledge be preserved, respected and used in any meaningful way if local culture is being destroyed?

The other side of the question may be if local knowledge is preserved, respected and used, will local culture be less vulnerable to destruction? This study shows the significance of local knowledge in design and planning and also shows that applying local knowledge can enhance local identity (e.g., using *kalae*) and culture (e.g., having traditional landscape elements). Therefore, it seems that the use of local knowledge can become a mechanism for preventing the destruction of local culture. But again, this depends on the meaning of "destruction of local culture".

The issue of perspective on culture may be framed thus: Local knowledge can be considered in the context of social change or in the context of cultural destruction. Cultural destruction may be seen as the imposition of a new culture to the extent that little or nothing remains of the old. Further research may find study of local knowledge in the event of cultural destruction would face difficulty because once the culture is destroyed, the study is now dealing simply with artifacts, not a dynamic system. But, social change

that adds new layers of meaning to the existing society is the kind of change when local knowledge is a dynamic part of the change rather than an endangered system or an artifact of the past. From this perspective, study of local knowledge can be done despite social change because local knowledge is part of and has adjusted to social change over time. Study of local knowledge during social change would reveal the power of local knowledge to take new forms or to persist in the face of change.

7.6.5 Issues Related to the Preservation of Local Knowledge

This study has shown that a great deal of local knowledge exists that is relevant to physical design and planning. The usefulness of this knowledge makes it critical to think clearly about its preservation. Related to preservation is the issue of proprietorship and the simultaneous needs for change and for respect for the past. In terms of proprietorship, for example, should local knowledge be publicized only by original knowledge holders, by other local people, or by anyone? What is the proper professional ethic in dealing with local knowledge? How can we prevent local knowledge from being stolen and unfairly placed in the public domain?

The issue of who should publicize local knowledge (whether the original knowledge holder or others such as researchers and professionals) raises a discussion about rights. To take an extreme example, is the person who splits the shingles for a roof the only person who has the right to talk or write about the technique of splitting shingles? If it

were unethical for anyone but current knowledge holders to transmit local knowledge, how would such knowledge be retained if the knowledge holders, as a group, passed away? This issue needs further research (including meaningful consultations with knowledge holders and authors) to identify the appropriate conditions for, and approaches to, publicizing local knowledge. Such research could contribute to the general literature on professional research and publication ethics.

Respect for the past and respectfulness to knowledge holders are also aspects of a professional ethic. This study has shown that professionals have the potential to use local knowledge unethically. Both the professional decision to require new buildings to have a local identity and the professionals' use of *kalae* in order to get building permits approved are examples of this potential for abuse. Similarly, Dearden (1990) and Ekachai (1991) show that respect for the past can lead to local people being forced into museum-like conditions. This particular problem raises the issue of how to maintain simultaneous respect for the past and while recognizing the need for change without museumizing people. Further research might use a case study approach to compare successful and unsuccessful attempts at balancing preservation and modernization in order to arrive at the best practice for professionals. Such case studies would be valuable both in academic research into ethics and in applied research into similar cases.

It may also be valuable to investigate professional education in order to understand how

best to include the ethical issues of accessing, using and publicizing local knowledge. One possible experimental way to educate professions could be to apply the concept of putting oneself in another person's position. Practically speaking, professionals would be taught to think as local people or as knowledge holders; one of the teaching techniques for this is "role play" where professionals play the role of local people or knowledge holders under various conditions. Role play has the potential for helping professionals to understand the local people's situation, to realize what they are thinking and through this realization come to a greater ethical awareness.

Research into local knowledge may show that a possible alternative for solving the problems related to its preservation is to develop a local historical centre. The centre could study and maintain various types of local knowledge with respect to local history, identity and culture. The centre could make this information available to users so that they would not have to do extensive field research in order to access local knowledge. Such a collection would avoid the problems of overloading local people with demands for their knowledge or stealing knowledge from local people by unfairly publicizing it. The centre could deal with issues of improper use of local knowledge as well because knowledge users would be working directly with ideally controlling the centre. By setting up regulations for users, the centre could ensure that local knowledge was being used respectfully and in a proper manner.

Another alternative may be to experimentally establish a local knowledge holders' information system. As this study has shown, various people hold different types of local knowledge, and a system that could collect the names of knowledge holders and develop an active list of information under various categories would benefit everyone. Information holders always update and develop their knowledge and, as long as they remained linked to the system, the system would be current at all times. A network of knowledge holders and researchers could also be established so that members could exchange information. This alternative would be a simple and effective way to preserve local knowledge and make it available to people who are interested. The establishment of an information system may also be an appropriate way to deal with the rights of knowledge holders. If the information system provided only the names of knowledge holders, then it would be the choice of knowledge holders how to respond to requests. It would be their choice whether to release their knowledge and whether to do so only under certain conditions.

An interesting research topic would be to identify and assess legal methods for solving the issues of local knowledge preservation and protecting the rights of knowledge holders. Could the concept of copyright be useful and how could it be applied? Are there other legal alternatives for solving these problems? And what are the constraints? Further research in this direction would contribute to the literature both on local knowledge and on law.

7.6.6 Issues Related to the Use of Local Knowledge By Professionals

This study discussed ways professionals use local knowledge by tapping into local knowledge for project design, in which case local knowledge is used merely for refinement, and for community planning, in which case local knowledge is used more proactively. There is a need for research not only on the differences in terms of process between the two approaches but also in terms of the outcomes or impacts of the two approaches.

Research may find that using local knowledge for refinement is not necessarily inferior, because it could also contribute to community development. What is critical is the manner in which such local knowledge is used. This study shows that if local knowledge is improperly used in refinement, e.g., using *kalae* in improper places, it would provide unwanted outcomes and destroy community identity. On the other hand, if local knowledge is used properly, it can help community economic development and enhance community identity. For example, resort developments that put thatch grass over industrial tiles can help increase income of people in the community.

The categorization of local knowledge, which in this study led to the identification of eight characteristics, has significant implications for practice. Categorization can be used to structure field studies prior to design and planning. Professional designers and planners can use them as a guidelines for collecting and analyzing information.

Specifically, this study's categorization of local knowledge could be developed and used as a framework for field study. Care should be taken that the framework does not become a mere checklist. Checklists are simple to use and allow professionals to get information quickly. However, using a checklist has some limitations. It is not flexible and forces users to follow its pre-designed structure. Since it is very easy to use and simple to mark, people may not carefully use the checklist. They may just fill out or mark all items in order to finish the checklist. This may lead to a simplistic view of the information. Further research may investigate ways to develop the categorization of local knowledge into a effective frameworks for professional use, frameworks which overcome the limitations of checklists in general.

The categorization of local knowledge also has implications for teaching and research. Categorization can be taught to students to help them better understand the nature and applicability of each category of local knowledge. Further research may investigate the strengths and limitations of using this study's categorization as a teaching model.

7.6.7 Issues Related to the Consequences of Ignorance of Local Knowledge: Local Knowledge as a "Professional Tool"

This study has shown numerous examples of local knowledge that have practical value. To professionals, many of those have a significance other than cultural. Local knowledge can help professionals in their practices by saving time and money. Local knowledge

about drainage patterns, for example, is easily available to professionals and can help to avoid floods without spending time and money on expensive detailed surveys.

This study has shown that professionals are hampered in their work if they ignore local knowledge. Architects, for example, designed buildings that leaked and engineers designed dams that destroyed natural resources. Pointing out lost opportunities in design and planning may be more effective in drawing the attention of professionals to the value of local knowledge than showing them its cultural significance. If they realize they are going to miss technical information which will improve the technical quality of their work and make them more competitive, they will certainly pay attention to local knowledge and support research into local knowledge.

This study has shown examples of village technologies in roofing and in irrigation systems. There may be other appropriate technologies developed by local people that can help professionals in their work. Further study may find, for example, windmill, water mill, water supply systems and storm drainage systems developed by local people that can be used in development projects. If it could shown that these cost little to install and operate, then both professionals and project owners would be satisfied.

However, even research that focuses on local knowledge as a professional tool needs to be based on awareness of its cultural significance. This study has shown that local knowledge is holistic and many types of local knowledge have elements that are

interconnected. By studying these elements together with their linkages, researchers will be less likely to miss significant issues. Awareness of the holistic nature of local knowledge would make the research richer, with the possibility of broader and more significant findings than can come from reductionist, single-focus research.

7.6.8 Issues Related to Strategies for Promoting Interest in Local Knowledge in the Academy

This study shows the significance of local knowledge for physical design and planning, and stresses the need to promote interest in it within the academy and among professionals. Several issues need to be addressed: what are the strategies that can be adopted to achieve this end? What are the pros and cons of these strategies? And what are the opportunities and constraints of these strategies?

This study found that the existing curriculum for Thai architecture and planning education has not paid adequate attention to local knowledge. Further research may find that one strategy for promoting professional interest in local knowledge is to stress the advantages of such knowledge in curricula for professional training in physical design and planning. However, it is important that the advantages that are stressed are tangible, significant and related to aspects that students are interested in, e.g., technical, social-cultural or economic aspects. One such advantage could be the time and money savings that would likely occur if information on drainage patterns were obtained from local people who

could provide this immediately, rather than from elaborate surveys. Highlighting such advantages would help develop in students a healthy respect for local knowledge, and an incentive to use it in their professional careers.

Another strategy which further research may identify is to arrange academic seminars or workshops on local knowledge with local people. This study had arranged three workshops which raised the interest in local knowledge among participants, even though these did not stress the benefits of applying such knowledge. It is recommended that future seminars do so, so that even more interest may be generated. These seminars would likely increase the enthusiasm for local knowledge in those already interested in it, and stimulate interest in those not familiar with it. But these seminars are likely to be time-consuming and expensive for both organizers and participants.

A third strategy for promoting interest in local knowledge that further research may evaluate is to provide awards for people who study local knowledge and/or use it effectively, and in ways that benefits and respects local people. Publicizing such awards would serve as a source of pride and an incentive to intensified efforts on the part of award winners and encourage people to become more interested in local knowledge. However, further research needs to look into the possible dangers of this strategy. For example, unless the selection procedure is fair, and seen to be fair, it is likely that the public may develop a negative attitude toward local knowledge.

Constraints for taking the above mentioned actions in terms of academic culture include the negative attitude towards local knowledge. The literature on local knowledge, including McCorkle (1989), draws attention to this attitude. Local knowledge is often considered inferior to professional (western) knowledge. This attitude may keep people away from being interested in local knowledge and obstruct the actions for promoting interest in it. Further research should explore ways and means of countering this attitude among academics.

Another constraint is related to the nature of local and western knowledge. Local knowledge is holistic and recognizes that the whole cannot be understood by merely investigating its parts in isolation, as this study has demonstrated in the case of irrigation systems, for example. Academic people, whose training is based on the western education model, have a tendency to look at phenomena from the perspective of specific disciplines, and break down information into smaller elements as a means of understanding it. This may keep them from understanding and being interested in local knowledge. At the highest theoretical level, further research could identify the pros and cons of western and local knowledge and seek ways of synthesizing them. This would be of great benefit to academic researchers.

7.6.9 Conclusion

This section has broached a number of questions posed by the study of Chiangmai local knowledge and its use in development planning. The section has discussed these questions briefly in order to point out possible directions for further research. Because local knowledge is a relatively unexplored field, every inquiry suggested in this section is bound to add to the base of knowledge already existing, and it is entirely possible that careful research will lead to new and unexpected findings. Again, because the field is relatively unexplored, researchers can choose to concentrate on pure or applied research and, depending on the nature of the researcher and the area of inquiry, can choose to become proactively involved with a community or not. In sum, the potential for further research into local knowledge is virtually untapped and the benefits of such research for architects, planners, other researchers, and local communities, will be substantial.

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APPENDIX 1

INTERVIEWEES

First Category: People Who were Involved in Creating the Plans and Projects Studied.

I Interviewees Involved in the Planning (Planners and Local People)

Planners:

1. Mr. Anucha Lekskuldilok, planner for the Preliminary Study for Chiangmai Tourism Development, interviewed on January 26, 1993.
2. Asst. Prof. Asadang Porananondh, planner for the Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation, instructor in Urban Design and Geography, interviewed on March 27, 1993.
3. Assoc. Prof. Decha Boonkham, planner for the Master Plan for Chiangmai Tourism Development and former Deputy Dean in Academic Affairs, Chulalongkorn University, interviewed on March 23, 1993.
4. Mr. Supalerk Mallikamas, architect and planner for the Master Plan for Chiangmai Tourism Development, interviewed on May 13 and 14, 1994.
5. Ms. Suree Panupongkul, planner for the Chiangmai Policy-Based Action Plan for Historic and Environmental Preservation, interviewed on January 20, 1993.
6. Dr. Suwatana Tadaniti, planner for the Master Plan for Chiangmai Tourism Development and former Head of Urban and Regional Planning Department, Chulalongkorn University, interviewed on March 19, 1993.

Local People:

1. Ms. Duangchan Apavatjrut, local resident, specialist in Urban Studies at Social Science Research Institute (CMU), interviewed on January 16, 1993.
2. Dr. Tanet Charoenmuang, local resident, the leading local intellectual and instructor in Political Science (CMU), interviewed on April 1, 1993.
3. Dr. Vorapit Meemark, local resident, Associate Professor in Social Science (CMU), interviewed on January 15, 1993.

II Interviewees Involved in the Design of Projects Studied (Architects, Owners And Government Officials)

Projects Studied

1. Chiangmai Garden Hotel

2. Diamond River Hotel
3. Erawan Resort
4. Lanna Garden Resort
5. Pongyaeng Garden Resort
6. Rim Ping Garden Hotel
7. River View Lodge

Architects:

1. Prof. An Nimmanahaeminda, interviewed on March 23, 1993.
2. Mr. Chawalit Siriniran, interviewed on May 7, 1993.
3. Mr. Choolathat Kitibutra, interviewed on April 22, 1993.
4. Mr. Praphol Eamsoonthorn, interviewed on May 10, 1993.
5. Mr. Vithaya Tantranond, interviewed on April 24, 1993.

Owners and Representative of Owner:

1. Ms. Kessupee Phanachet, interviewed on April 21, 1993.
2. Ms. Mayures Pongphaibul, interviewed on April 12, 1993.
3. Mr. Montri Wanpahul, interviewed on March 8, 1993.
4. Ms. Patra Boonchaleow, interviewed on April 19, 1993.
5. Mr. Somchai Patarateeranond, interviewed on April 14, 1993.
6. Mr. Thongchai Saengrat, interviewed on April 15, 1993.
7. Mr. Vichai Jariyakornkul, interviewed on April 5, 1993.

Government Officials:

1. Mr. Adul Pholpra-in, Head officer, Mae Rim district, interviewed on April 8, 1993.
2. Mr. Amphon Satjasai, official of Mae Rim district, interviewed on April 8, 1993.
3. Mr. Pongpayom Vaspoot, Deputy Governor of Chiangmai, interviewed on May 7, 1993.
4. Mr. Wattana Harnsawat, official of Chiangmai Municipality, interviewed on April 7, 1993.

Second Category: People Not Involved in the Planning and Development Projects Studied.

I Interviewees Who Live Close to Projects Studied.

A. Chiangmai Urban Residents:

1. Mr. Adul Tantra, businessman, interviewed on April 21, 1993.
2. Ms. Aree Seeta, vendor and home- maker, interviewed on April 22, 1993.

3. Ms. Boonsom Apichai, home-maker, interviewed on April 29, 1993.
4. Mrs. Buachorn Vichayaphai, home-maker, interviewed on April 18, 1993.
5. Ms. Buareang Saengtubtim, merchant, interviewed on April 23, 1993.
6. Mr. Chakree Sangkawandee, employee in public enterprise, interviewed on April 21, 1993.
7. Mr. Decha Saengchai, salesman in an electrical store, interviewed on April 25, 1993.
8. Ms. Karnchana Wongmuen, employee in a private company, interviewed on April 24, 1994.
9. Mr. Kunakorn Siriwat, mechanic, interviewed on April 22, 1993.
10. Mr. Manop Sansai, student, interviewed on April 23, 1993.
11. Mr. Niwat Samajai, salesman (clothing), interviewed on April 26, 1993.
12. Ms. Nopawan Pintasa-art, home-maker, interviewed on April 29, 1993.
13. Mr. Nopphol Suchart, President of the Islamic Foundation, interviewed on April 22, 1993.
14. Mrs. Phachanee Soralum, home-maker, interviewed on April 19, 1993.
15. Ms. Renoo Koonacharusdej, dress-maker, interviewed on April 25, 1993.
16. Mr. Sanan Nasamana, local dialect teacher, interviewed on April 23, 1993.
17. Mr. Sanya Waree, student, employee at the City Hotel, interviewed on April 19, 1993.
18. Mr. Satit Klinnawee, teacher in secondary school, interviewed on April 22, 1993.
19. Mr. Taworn Mamun, vendor, interviewed on April 26, 1993.
20. Mr. Tepnimit Charoenjai, worker in a steel factory, interviewed on April 26, 1993.
21. Ms. U-sa Saengmanee, employee in a private company, interviewed on April 20, 1993.

B. Chiangmai Rural Residents (Using House Number Multiple):

1. Mr. Chantip Surin, farmer, house no. 122, interviewed on April 18, 1993.
2. Mr. Duangkaew Saninat, Chief of Pong Yaeng sub-district, interviewed on April 10, 1993.
3. Mr. Kaen Wongsua, retired farmer, house no. 9, interviewed on April 9, 1993.
4. Mr. Kaew Morn-at, worker, house no. 59, interviewed on April 9, 1993.
5. Mr. Khanthong Ratphan, farmer house no. 23, interviewed on April 11, 1993.
6. Mr. Konkaew Madamool, farmer, house no. 93, interviewed on April 12, 1993.
7. Mr. Mee Satatha, farmer and worker, house no. 72, interviewed on April 11, 1993.
8. Ms. Pranom Gantaya, farmer and worker, house no. 82, interviewed on April 12, 1993.
9. Ms. Pun Surin, farmer, house no. 43, interviewed on April 18, 1993.
10. Mr. Sai Lawsua, farmer, house no. 143, interviewed on April 16, 1993.
11. Mr. Sithichai Tipawang, businessman, house no. 110, interviewed on April 16, 1993.
12. Mr. Suk Chaiya, worker house no. 113, interviewed on April 11, 1993.

13. Mr. Suk Satatha, farmer, house no. 149, interviewed on April 11, 1993.
14. Mr. Suk Wongsua, farmer, house no. 37, interviewed on April 10, 1993.
15. Mr. Supachai Sootjai, businessman, house no. 210, interviewed on April 10, 1993.
16. Mr. Suwan Khanti, farmer and vendor, house no. 31, interviewed on April 12, 1993.
17. Mr. Thongchan Satatha, farmer, house no. 159, interviewed on April 11, 1993.
18. Mr. Tun A-tatha, farmer, house no. 132, interviewed on April 10, 1993.
19. Mr. Wang Tatiya, seventy-three-year-old farmer, house no. 1, interviewed on April 8, 1993.

II Interviewees Who Live in Chiangmai and are Interested in Issues Related To Local Knowledge.

1. Mr. Anek Tanomrat, senior carpenter, interviewed on March 26, 1993.
2. Mr. Apichart Sri-aroon, architect, interviewed on April 22, 1993.
3. Dr. Bundit Chulasai, architect, interviewed on March 26, 1993.
4. Assoc. Prof. Chalardchai Samitranond, instructor in Social Science (CMU), interviewed on April 2, 1993.
5. Mr. Chayun Pholpoke, local activist and author, interviewed on January 7, 1993.
6. Mr. Choosit Choochart, instructor at Rajpat Teaching College, interviewed on May 7, 1993.
7. Mr. Joo Jaikham, contractor, interviewed on April 7, 1993.
8. Prof. Manee Payomyong, professor in Social Science (CMU), interviewed on April 12, 1993.
9. Mr. Moon Gan-ngoen, gardener, interviewed on April 5, 1993.
10. Mr. Natee Sumpuranaphan, lecturer in Architecture, interviewed on April 10, 1993.
11. Mr. Nit Hincheeranandh, former Director, Department of Town Planning, interviewed on April 4, 1993.
12. Mr. Phaitoon Promvichit, researcher in northern architecture, interviewed on April 15, 1993.
13. Mr. Photong Kaewsootthi, architect, interviewed on April 4, 1993.
14. Mrs. Rewadee Woothchamnong, government official, interviewed on April 1, 1993.
15. Mr. Ruan Kongta, sixty-two-year-old farmer, interviewed on April 12, 1993.
16. Mrs. Saengthien Mahawan, president of a travel agency, interviewed on April 23, 1993.
17. Mr. Samart Sirivechaphun, lecturer in northern architecture, interviewed on February 18 and 19, 1993.
18. Mr. Samran Chanrungsri, senior carpenter, interviewed on March 16, 1993.
19. Mr. Sirichai Hongvithayakorn, landscape architect and instructor, interviewed on March 12, 1993.
20. Mr. Somchote Ongsakul, lecturer in Education (CMU), interviewed March 29, 1993.

21. Mr. Somkiat Wongwal, teacher at Rajamongkol Institute, interviewed on April 11, 1993.
22. Mr. Sophon Mongkolwat, instructor in Landscape Gardening, interviewed on April 2, 1993.
23. Mr. Suchai Kengkarnkar, major share holder of Kad Suan Kaew Shopping Center, interviewed on April 27, 1993.
24. Mr. Tan Tuma, senior carpenter, interviewed on April 17, 1993.
25. Mr. Tanom Satatha, farmer, carpenter and dam chief, interviewed on April 22, 1993.
26. Dr. Vanpen Surarerks, specialist on local people's traditional irrigation, interviewed on May 4, 1993.
27. Mr. Vithee Panichphun, lecturer in Environmental Design, interviewed on March 30, 1993.
28. Mr. Wiwat Taemeepun, northern architecture specialist, interviewed on April 15, 1993.
29. Phra-athikarnvasunt, monk of Chiangmun Temple, interviewed on April 27, 1993.
30. Phrachoompholchirathammo, monk of Lamchang Temple, interviewed on April 29. 1993.
31. Phrakruprachakpatanakhun, monk of Sanfang Temple, interviewed on April 27, 1993.
32. Phrakruvichianpanya, monk of Daowadung Temple, interviewed on April 30, 1993.
33. Phrakruwaeroowanphitak, monk of Phraputthabaht Takpa Temple, interviewed on May 5, 1993.

APPENDIX 2

PARTICIPANTS IN FIRST GROUP DISCUSSION (APRIL 3, 1993)

1.	Phrakruvinaithornprapat	Abbot of That Khum temple
2.	Mr. Mongkol Iamsamran	Instructor, Rajpat Teaching College
3.	Mr. Somchote Ongsakul	Instructor, Faculty of Education, Chiangmai University
4.	Mr. Sak Ratanachai	Specialist in northern history, Yonok Art and Culture Institute
5.	Mrs. Saengthien Mahawan	President of a travel agency
6.	Chao Duangduen Na Chiangmai	A descendent of a former Chiangmai ruler and a homemaker
7.	Mrs. Yupin Prakartwoothisarn	Employee of Thai Tobacco Co.
8.	Mr. Wiwatchai Boonyapak	Planner, Tourism Authority of Thailand (TAT)
9.	Mrs. Booppa Jirapong	Instructor, Rajpat Teaching College
10.	Mrs. Patcharin Jantananuwatkul	Instructor in Mass Communication, Chiangmai University
11.	Mr. Sumet Sukin	Teacher, Sarapeewithayakhom School
12.	Mrs. Sivaporn Watanarat	Lecturer, Faculty of Humanities, Payap University
13.	Mr. Sompong Pengchan	Faculty of Fine Arts, Chiangmai University
14.	Mrs. Nonglak Yavilas	Teacher, Sarapeewithayakhom School
15.	Mr. Korkiat Chatsriworakul	Researcher, TAT

16.	Ms. Panpen Kruathai	Researcher, Social Research Institute, Chiangmai University
17.	Mr. Somchai Sukantacheep	Architect, Chiangmai University
18.	Ms. Isara Kantaeng	Architect, planner, and lecturer at Rajamongkol Technical Institute
19.	Mr. Phaibul Duangchan	Researcher, Language Research Institute, Mahidol University
20.	Ms. Samorn Janevija	Faculty of Education, Chiangmai University
21.	Ms. Aim-orn Chitasophon	Faculty of Humanities, Chiangmai University
22.	Mrs. Prapaporn Arunothong	Faculty of Humanities, Chiangmai University
23.	Mr. Suchit Pitrakul	Instructor, Faculty of Sciences, Chiangmai University
24.	Ms. Natreerat Chandapradit	Lecturer, Faculty of Agriculture, Chiangmai University
25.	Mrs. Nantana Pokpong	Instructor, Faculty of Humanities, Chiangmai University
26.	Mr. Amnuai Yavilas	Government official in Ministry of Education

APPENDIX 3

PARTICIPANTS IN SECOND GROUP DISCUSSION (APRIL 20, 1993)

1.	Mr. Khonkaew Duang-ai	Farmer (rice), Village Head
2.	Mr. Khanthong Ratphan	Farmer (rice), Assistant Village Head
3.	Mr. Chuen Chaisuvarat	Farmer (fruit)
4.	Mr. Kham Himawan	Farmer (tapioca)
5.	Mr. Duangchan Laosua	Farmer (rice)
6.	Mr. Tanom Satatha	Farmer (rice), carpenter, dam chief
7.	Mr. Duangchan Tantito	Farmer (rice)
8.	Mr. Soonthorn Wongsua	Farmer (rice)
9.	Ms. Buadaeng Kunkaew	Farmer (fruit), vendor
10.	Ms. Rean Siriprayong	Farmer (flower), vendor

APPENDIX 4

PARTICIPANTS IN THIRD GROUP DISCUSSION (APRIL 28, 1993)

1.	Mr. Sirichai Narumitlaehakarn	Architect, former President of Association of Siamese Architects, President of Chiangmai Residents Club
2.	Mr. Suphol Pawarajarn	Architect, specialist in *lanna* architecture
3.	Ms. Pranom Tansukhanan	Planner
4.	Dr. Vanpen Surarerks	Professor in Geography, Chiangmai University; researcher of local irrigation systems
5.	Mr. Asadang Porananondh	Trained urban designer, instructor in Geography
6.	Mr. Anek Navigmool	Trained rural development planner, NGO leader in Chiangmai
7.	Mr. Vithee Panichphun	Trained environmental designer, instructor in Fine Arts

APPENDIX 5

English Translation of Personal Information Questions

Name

Sex

Age

Domicile

Length of residence in Chiangmai

Present address

Registered address

Education

Field of education

Occupation

Employer

Relationship to studied project

Date

Interviewed time

Interviewer name

APPENDIX 6

Abridged English Translation of Interview and Group Discussion Questions for People not Involved in Design and Planning of Studied Plans and Projects

Note: Major questions (such as question 1) were asked first. After respondents finished answering the questions, the detailed questions (such as question 1 a)) followed. Questions were also asked according to a responsive reaction to each interviewee's answers. Therefore, the sequence of questions varied according to the circumstances of the discussion..

1. What knowledge related to physical design and planning do you have?
   a) What environmental knowledge related to physical design and planning do you have?
   b) What technical knowledge related to physical design and planning do you have?
   c) What social/cultural knowledge related to physical design and planning do you have?
   d) What other knowledge related to physical design and planning do you have, beside those types already mentioned ?

2. What local knowledge was included in physical design and planning?
   a) How?
   b) Why?
   c) What were the consequences of the inclusion?

3. What local knowledge was excluded in physical design and planning?
   a) How?
   b) Why?
   c) What were the consequences of the exclusion?

4. a) Can you suggest methods for incorporating local knowledge into physical design and planning?
   b) What are the costs and benefits of each method?

5. a) What are your ideas about physical design and planning regarding local knowledge?
   b) What are your suggestions?

APPENDIX 7

Abridged English Translation of Interview Questions for People Involved in Design and Planning of Studied Plans and Projects

1. a) How did you participate in *(name of plan or building)* project?
   b) What was the projects' design and planning process?
   c) Who was the decision maker in this project?

2. a) What local knowledge was included in this project?
   b) How?
   c) Why?
   d) What were consequences of the inclusion?

3. a) What local knowledge was excluded in this project?
   b) How?
   c) Why?
   d) What were consequences of the exclusion?

4. What local knowledge is related to physical design and planning?
   a) What local technical knowledge is related to physical design and planning?
   b) What local environmental is knowledge related to physical design and planning?
   c) What local social/cultural knowledge is related to physical design and planning?
   d) What other local knowledge is related to physical design and planning beside those that have already been mentioned ?

5. What local knowledge was included in physical design and planning?
   a) How?
   b) Why?
   c) What were the consequences of the inclusion?

6. What local knowledge was excluded in physical design and planning?
   a) How?
   b) Why?
   c) What were the consequences of the exclusion?

7. a) Can you suggest methods for incorporating local knowledge into physical design and planning?
   b) What are costs and benefits of each method?

8. a) What are your ideas about physical design and planning regarding local knowledge?
   b) What are your suggestions?

APPENDIX 8

Temperature Records from the Meteorological Department

Monthly mean Temperature (dry-bulb) in Celsius

station : 327501 CHIANG MAI

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	17.6	20.6	25.1	27.8	27.2	26.8	26.6	26.4	26.8	25.9	23.6	20.9	24.5
1975	21.2	23.9	27.0	29.7	28.2	27.4	26.9	26.4	26.5	26.7	24.2	19.8	25.7
1976	17.6	20.3	24.6	27.5	26.2	26.2	26.5	25.2	26.7	25.1	24.6	22.0	24.4
1977	21.1	20.8	23.8	24.8	25.0	25.9	25.0	25.0	23.8	23.9	21.1	19.0	23.3
1978	19.1	22.1	25.5	29.0	28.1	29.8	27.7	27.3	27.2	26.4	25.4	22.8	25.9
1979	23.4	25.3	28.0	30.5	29.5	28.4	28.6	27.4	27.7	26.3	24.4	22.6	26.8
1980	21.3	24.0	27.9	30.6	29.5	27.8	27.4	27.4	26.7	26.0	24.6	22.8	26.3
1981	21.6	23.6	27.4	29.1	28.1	27.2	26.8	27.0	27.2	26.8	24.7	20.6	25.8
1982	20.9	23.5	27.4	28.1	28.5	27.4	27.5	27.1	26.5	26.6	25.2	20.2	25.7
1983	20.7	24.8	28.3	31.4	30.1	28.6	28.7	27.6	27.2	26.4	22.9	20.4	26.4
1984	21.2	25.9	27.8	29.8	28.4	27.5	27.1	27.0	26.7	25.4	24.5	22.2	26.1
1985	23.0	24.8	28.2	29.8	28.6	27.6	26.7	26.9	27.1	26.3	24.1	21.7	26.2
1986	21.3	24.2	25.9	28.8	28.1	27.9	27.1	27.5	26.9	26.3	24.8	22.4	25.9
1987	22.2	23.7	26.5	29.2	29.4	28.0	28.0	27.4	27.4	27.3	26.1	19.5	26.3
1988	21.4	24.8	27.4	28.3	28.4	27.6	27.3	27.3	27.3	26.0	22.5	20.7	25.7
1989	21.7	23.0	26.8	29.2	29.2	27.1	27.2	27.2	26.8	25.8	23.8	19.6	25.5
1990	21.7	23.5	26.8	29.1	27.2	27.8	27.0	27.6	26.8	26.5	24.5	21.6	25.8
1991	21.5	23.8	27.9	29.5	29.6	27.6	27.5	26.6	27.2	26.3	23.6	21.4	26.0
1992	20.2	21.8	26.6	30.0	30.5	29.0	27.2	27.2	26.7	24.8	22.6	19.6	25.5
1993	20.1	21.8	26.5	28.1	28.0	27.9	27.6	26.7	26.8	25.7	23.3	21.2	25.3
mean	20.9	23.3	26.8	29.0	28.3	27.6	27.2	26.9	26.8	26.0	24.0	21.1	25.7

APPENDIX 9

Curriculum of
Faculty of Architecture,
Chulalongkorn University

Note: ◆ *indicates courses with descriptions stating that Thai context is discussed.*

DEPARTMENT OF ARCHITECTURE

Degree: Bachelor's Degree in Architecture

Curriculum Structure

Number of Credits

Common Courses	30 credits
Required Faculty Courses	22 credits
Required Department Courses	109 credits
Elective Courses	16 credits
Total	177 credits

Courses Offered

Common Courses: 30 credits

Language: 9 credits

092 115	Foundation English I	3 (2-2-5)
092 116	Foundation English II	3 (2-2-5)
092 206	English for Academic Purpose I	3 (2-2-5)

Mathematics and Sciences: 6 credits

261 112	Mathematics	2 (2-0-4)
361 171	Structural Systems in Architecture	2 (2-0-4)
361 172	Structural Mechanics in Architecture	2 (2-0-4)

Sociology: 6 credits

313 183	Society and Culture	3 (3-0-6)
361 291	Architectural Psychology	3 (3-0-6)

Humanities: 9 credits

361 141	History of Art	3 (3-0-6)
361 241	History of Architecture I	3 (3-0-6)
361 341	History of Architecture II	3 (3-0-6)

Required Faculty Courses: 22 credits

Design (Lecture): 4 credits

361 116	Design Fundamentals	2 (2-0-4)
361 118	Architectural Design Fundamentals	2 (2-0-4)

Design (Professional): 8 credits

361 117	Studio in Design	4 (0-8-4)
361 119	Architectural Design I	4 (0-8-4)

Building Materials and Construction (Professional): 6 credits

361 135	Building Materials and Construction I	3 (1-4-4)
361 136	Building Materials and Construction II	3 (1-4-4)

Additional Core Courses: 4 credits

361 151	Architectural Drawing	2 (2-0-4)
361 152	Architectural Presentation	2 (2-0-4)

Required Department Courses: 109 credits

Design (Lecture): 8 credits

361 215	Architectural Design Criteria and Concepts I	2 (2-0-4)

361 315	Architectural Design Criteria and Concepts II	2 (2-0-4)
361 415	Architectural Design Criteria and Concepts III	2 (2-0-4)
361 515	Architectural Design Seminar	2 (2-0-4)

Design (Professional): 40 credits

361 216	Architectural Design II	4 (0-8-4)
361 218	Architectural Design III	4 (0-8-4)
361 316	Architectural Design IV	4 (0-8-4)
361 318	Architectural Design V	4 (0-8-4)
361 416	Architectural Design VI	4 (0-8-4)
361 418	Architectural Design VII	4 (0-8-4)
361 516	Architectural Design VIII	4 (0-8-4)
361 518	Thesis	12 (0-24-12)

Sketch Design (Professional): 14 credits

361 217	Sketch Design I	2 (0-4-2)
361 219	Sketch Design II	2 (0-4-2)
361 317	Sketch Design III	2 (0-4-2)
361 319	Sketch Design IV	2 (0-4-2)
361 417	Sketch Design V	2 (0-4-2)
361 419	Sketch Design VI	2 (0-4-2)
361 517	Sketch Design VII	2 (0-4-2)

Building Materials and Construction (Professional): 12 credits

361 235	Building Materials and Construction III	2 (2-0-4)
361 236	Studio in Construction I	2 (0-4-2)
361 335	Building Materials and Construction IV	2 (2-0-4)
361 336	Studio in Construction II	2 (0-4-2)
361 435	Building Materials and Construction V	2 (2-0-4)
361 436	Studio in Construction III	2 (0-4-2)
361 535	Building Materials and Construction VI	2 (2-0-4)

Calculation and Structure: 6 credits

161 290	Timber and Steel Structure in Architecture	2 (2-0-4)
161 393	Structural Design in Architecture I	2 (2-0-4)
161 493	Structural Design in Architecture II	2 (2-0-4)

Building System: 5 credits

167 480	Sanitary System in Architecture	2 (2-0-4)
361 372	Mechanical Design in Architecture II	3 (3-0-6)

Additional Core Courses: 22 credits

◆	361 161	Tropical Design Environment	2 (2-0-4)
	361 214	Basic Interior Design	2 (1-2-3)
◆	361 242	Thai Architecture I	2 (1-2-3)
	361 301	Introduction to Building Economics	2 (2-0-4)
◆	361 342	Thai Architecture II	2 (1-2-3)
	361 401	Practical Architectural Training	0 ( )
	361 501	Professional Practice	2 (2-0-4)
	363 312	Introduction to Urban and Regional Planning	3 (2-2-5)
	363 412	Urban Planning	3 (2-2-5)
	364 321	Site Planning	2 (1-2-3)
	364 371	Introduction to Landscape Architecture	2 (1-2-3)

Elective Courses: 16 credits

Elective Courses: 12 credits (not necessarily in Faculty of Architecture)

	212 111	Introduction to Business Management	2 (2-0-4)
	212 314	Office Management	2 (2-0-4)
	361 201	Building Estimation	2 (2-0-4)
*	361 273	Introduction to Computer and Data Processing in Design	2 (1-2-3)
	361 292	Art Appreciation	2 (2-0-4)
	361 294	Philosophy of Art	2 (2-0-4)
	361 350	Design in Photography I	2 (1-2-3)
	361 381	Introduction to Urban and Architectural Conservation	2 (2-0-4)
	361 391	Buddhist Teachings	2 (2-0-4)

361 402	Architectural Project Management	2 (2-0-4)
361 420	Phenomenology in Architecture	2 (2-0-4)
361 442	Housing	2 (2-0-4)
361 461	Pollution Problems and Control	2 (2-0-4)
361 473	Computer in Architecture	3 (1-4-4)
361 481	Measure Work and Research in Architectural Conservation	3 (1-4-4)
361 482	Case Study in Urban and Architectural Conservation	2 (1-2-3)
361 491	CPM and Pert	2 (2-0-4)
361 492	Building Finance	2 (2-0-4)
361 493	Method of Research and Report Writing	2 (2-0-4)
361 494	Energy and Architectural Design	2 (1-2-3)
* 361 495	Thesis Preparation	2 (2-0-4)
361 496	Contemporary Architecture in Thailand	2 (2-0-4)
361 497	Large-Scale Building Systems	2 (2-0-4)
361 583	Individual Study in Architecture	2 (2-0-4)
362 262	Sculpture	2 (1-2-3)
362 361	Graphic Art	2 (1-2-3)
362 465	Exhibition	2 (2-0-4)
362 524	Interior Design	2 (2-0-4)
364 474	Plant and Planting Techniques for Architect	2 (2-0-4)
714 286	Principle of Jurisprudence	2 (2-0-4)

* = Required courses

Free Elective Courses: 4 credits

To be chosen from courses offered in the University.

Course Offered for Students from Other Faculties

361 115	Introduction to Visual Art and Design	2 (1-2-3)

DEPARTMENT OF LANDSCAPE ARCHITECTURE

Degree: Bachelor's Degree in Landscape Architecture

Curriculum Structure

Number of Credits

Common Courses	30 credits
Required Faculty Courses	32 credits
Required Department Courses	103 credits
Elective Courses	12 credits
Total	177 credits

Courses Offered

Language: 9 credits

092 115	Foundation English I	3 (2-2-5)
092 116	Foundation English II	3 (2-2-5)
092 206	English for Academic Purpose I	3 (2-2-5)

Mathematics and Sciences: 9 credits

261 112	Mathematics	2 (2-0-4)
361 171	Structural System in Architecture	2 (2-0-4)
361 172	Structural Mechanics in Architecture	2 (2-0-4)
364 370	Landscape Horticulture	3 (2-3-4)

Sociology: 6 credits

313 183	Society and Culture	3 (3-0-6) or
093 130	Man and Society	3 (3-0-6)
417 101	General Psychology	3 (2-2-5)

Humanities: 6 credits

361 141	History of Art	3 (3-0-6)
364 243	History of Landscape Architecture I	3 (3-0-6)

Required Faculty Courses: 32 credits

Design (Lecture): 6 credits

361 116	Design Fundamentals	2 (2-0-4)
361 118	Architectural Design Fundamentals	2 (2-0-4)
361 215	Architectural Design Criteria and Concepts I	2 (2-0-4)

Studio in Design (Professional): 14 credits

361 117	Studio in Design	4 (0-8-4)
361 119	Architectural Design I	4 (0-8-4)
361 216	Architectural Design II	4 (0-8-4)
361 217	Sketch Design I	2 (0-4-2)

Building Material and Construction (Professional): 8 credits

361 135	Building Materials and Construction I	3 (1-4-4)
361 136	Building Materials and Construction II	3 (1-4-4)
361 235	Building Materials and Construction III	2 (2-0-4)

Additional Core Courses: 4 credits

361 151	Architectural Drawing	2 (2-0-4)
361 152	Architectural Presentation	2 (2-0-4)

Core Courses: 103 credits

Design (Lecture): 7 credits

364 314	Plants and Design	2 (2-0-4)
364 315	Landscape Architectural Design Theory	2 (2-0-4)
◆ 364 513	Park and Recreation Planning and Design	3 (2-2-5)

Design (Professional): 42 credits

364 290	Landscape Architectural Design I	4 (0-8-4)
364 291	Landscape Architectural Sketch Design I	1 (0-3-0)
364 390	Landscape Architectural Design II	4 (0-8-4)
364 391	Landscape Architectural Sketch Design II	1 (0-3-0)
364 392	Landscape Architectural Design III	4 (0-8-4)
364 393	Landscape Architectural Sketch Design III	

364 490	Landscape Architectural Design IV	4 (0-8-4)
364 491	Landscape Architectural Sketch Design IV	1 (0-3-0)
364 492	Landscape Architectural Design V	4 (0-8-0)
364 493	Landscape Architectural Sketch Design V	1 (0-3-0)
364 590	Landscape Architectural Design VI	4 (0-8-4)
364 591	Landscape Architectural Sketch Design VI	1 (0-3-0)
364 811	Thesis	12 (0-24-12)

Landscape Architectural Construction: 12 credits

364 231	Landscape Architectural Construction I	3 (1-4-4)
364 331	Landscape Architectural Construction II	3 (1-4-4)
364 332	Landscape Architectural Construction III	3 (1-4-4)
364 431	Landscape Architectural Construction IV	3 (1-4-4)

Plant Material: 6 credits

364 270	Plant Materials I	3 (2-3-4)
364 271	Plant Materials II	3 (2-3-4)

Additional Design: 19 credits

168 293	Survey for Landscape Architects	3 (2-3-4)
361 161	Tropical Design Environment	2 (2-0-4)
364 251	Landscape Presentation Technique	2 (0-4-2)
364 301	Landscape Architectural Cost Estimate	2 (2-0-4)
◆ 364 343	History of Landscape Architecture II	2 (2-0-4)
364 410	Landscape Architectural Field Trip	1 (0-3-0)
364 512	Landscape Architectural Professional Practice	2 (2-0-4)
364 515	Landscape Architectural Research	1 (1-0-2)
* 364 516	Practical Landscape Architectural Training	2 (0-12-0)
364 580	Landscape Seminar	2 (2-0-4)

Environment and Planning: 17 credits

267 369	Geomorphology for Land Planning	3 (2-2-5)
267 469	Remote Sensing for Land Planning	3 (2-3-4)
363 312	Introduction to Urban and Regional Planning	3 (3-0-6)
363 412	Urban Planning	3 (3-0-6)
364 461	Man and Ecology	3 (3-0-6)
364 462	Forest and Forestry	2 (2-0-4)

Elective Courses: 12 credits

Elective Department Courses: 6 credits

* 361 273	Introduction to Computer and Data Processing in Design	2 (2-0-4)
361 402	Architectural Project Management	2 (2-0-4)
361 491	CPM and Pert	2 (2-0-4)
361 493	Method of Research and Report Writing	2 (2-0-4)
361 495	Thesis Preparation	2 (2-0-4)
362 524	Interior Design	2 (2-0-4)
363 512	Survey of Old Towns in Thailand and Southeast Asia	2 (2-0-4)
364 372	Ornamental Plant Materials	2 (2-0-4)
364 473	Application of Arts to Landscape Architecture	2 (2-0-4)
* 364 475	Computer for Landscape Projects	2 (1-2-3)
714 286	Principle of Jurisprudence	2 (2-0-4)

* = Required courses

Free Elective Courses: 6 credits

To be chosen from courses offered in the University.

DEPARTMENT OF URBAN AND REGIONAL PLANNING

Degree: Master of Urban and Regional Planning

Degree Requirements

Core Curriculum	30 credits
Required Option Courses	4 credits
Two Elective Course	4 credits
Thesis and Oral Examination	12 credits

Course Requirements

Core Courses: 30 credits

363 611	Planning I	3 (3-0-9)
363 612	Planning II	3 (3-0-9)

363 615	Social Statistics	2 (2-0-6)
363 621	Urban Economics	2 (2-0-6)
363 622	Regional Economics	2 (2-0-6)
◆ 363 640	Urban & Regional Administration	2 (2-0-6)
363 644	Urbanization and Social Changes	3 (3-0-9)
363 652	Transportation	2 (2-0-6)
363 661	Planning Workshop I	4 (2-4-10)
363 662	Planning Workshop II	4 (2-4-10)
363 663	Planning Workshop III	4 (2-4-10)
363 668	Practicum in Planning	1 (1-0-1)

Option Courses: 4 credits

Urban Planning

◆ 363 644	Planning Legislation and Administration	2 (2-0-6)
363 651	Urban Evolution	2 (2-0-6)

Regional Planning

◆ 363 642	Local Government	2 (2-0-6)
◆ 363 645	Rural Development	2 (2-0-6)

Elective Courses: 4 credits

312 615	Management Systems	2 (2-0-6)
313 614	Problems of Urbanization and Industrialization	3 (3-0-9)
313 626	Community Organization	3 (3-0-9)
361 621	Man and Environmental Systems	3 (3-0-9)
361 711	Seminar: Housing and Community Development	2 (2-0-6)
363 623	Resource Development	2 (2-0-6)
363 647	Urban Management	3 (3-0-9)
363 653	Urban Landscape	2 (2-0-6)
◆ 363 654	Evolution of Human Settlement in Thailand	2 (2-0-6)
363 655	Historic and Environmental Conservation	2 (2-0-6)
363 656	Planning System Analysis	2 (2-0-6)
363 664	Planning Seminar	2 (2-0-6)
363 752	Seminar in Urban Design Problem	2 (2-0-6)

Elective courses other than those listed above may be taken upon the department's approval.

363 811	Thesis	12 credits