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Chumnong Wongchachom
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**An Investigation into a Community Information
Database System in the Northeast of Thailand:
Community Empowerment through Community
Learning Centres**

by

Chumnong Wongchachom

B.S., M.L.S.

A Dissertation Submitted in Partial Fulfilment of
the Requirements for the Award of

Doctor of Philosophy

At the School of Computer and Information Science
Faculty of Communication, Health and Science



**EDITH COWAN
UNIVERSITY**
WESTERN AUSTRALIA

28 April 2006

ABSTRACT

Following the economic downturn in the late 1990s the Government of Thailand restructured the economy resulting in rapid economic recovery. The society now needs developments to project it into the Information Age. This study is but one creative response to this need.

To initiate the study, an extensively validated Questionnaire was implemented with a snowball sample comprising 500 representative, non-randomised respondents from the four provinces of the Inpeng Community Network (ICN).

The purpose of the Questionnaire was to ascertain levels of information needs and local knowledge, and to identify ten local experts from ICN for subsequent In-depth Interviews. Data obtained in this way were analysed then classified into a retrievable form of knowledge. A model community information database system (CIDS) was then designed, installed and trialled with a convenience sample of 165 variously prepared respondents using computers in six CLC. Semi-structured Interviews then provided additional data on information needs and refinement of the model CIDS. Respondents saw this refined CIDS as having the potential to be emulated by other rural communities, and in particular, to be a valuable technological tool suitable for dissemination throughout ICN. Respondents believed that community development and empowerment would be enhanced by CIDS, enabling individual problems to be dealt with effectively, and sustainable development to be achieved.

The types of sampling used were recognised to be an impediment to any conclusions derived being generalised; and that the reliability and variability of the data collection processes had small negative factors. However, these were balanced by the homogeneity provided by common culture, religion and rural economics, coupled with inherent communication difficulties. Thus, the study's major conclusions should be disseminated in ICN. These were:

1. Respondents' information needs were practical - improving their everyday pursuits and standard of living through new knowledge focused on career improvement.
2. Respondents had their preferred methods of materials' presentation, the majority requesting these to be diagrammatic, pictorial, and audio-visual, rather than textual. Responses were basically conservative, but flexible, noting that shared information held many advantages if classified into retrievable knowledge form using an advanced technological tool like CIDS.
3. Respondents preferred that local control took CIDS forward to the globally-oriented Information Age. This emphasis, coupled with anecdotal references to bureaucratic insensitivity of the past, caused most respondents to ignore the financial and practical advantages of decentralised coordination offered by the nearby university.
4. Respondents found known, widespread, inherited knowledge, supplemented by experience and further contemporary study, to reside with individual experts located in ICN. Some experts were guarded about sharing their expertise, while others shared their accumulated wisdom by marketing the products of their expertise and sharing their knowledge through the CIDS.
5. Respondents' data revealed that the phased dissemination of CIDS would be a community development having such advantages as a better way of life, and encouraging problem solving and self improvement, while ensuring concurrent individual and community empowerment.

Based on the findings and subsequent conclusions several implications for future research were delineated.

DECLARATION

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

- (i) incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education.
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Date 28 April 2006

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CHAPTER 1 :

INTRODUCTION

Information technology, which includes computer and telecommunications technology, has been hailed as one of the most strategic tools for empowering communities in the information society (Thailand Development Research Institute, 2004). At present, information technology is being applied to most fields of endeavour - from the physical and social sciences to business, manufacturing, education, public services and community development. Advances in information technology have been accelerating at an historically unparalleled pace. Many of the breakthroughs can be described as revolutionary. Computers, for example, are becoming smaller, cheaper, faster, and more powerful. An increasing number of communications networks based on modern telecommunications technology allow all types of information, whether in the form of text, audio or video data, to be exchanged between widely dispersed destinations, at any time. These advances in information technology will continue to transform the world and future societies in particular (Thailand Development Research Institute, 2004).

The new millennium is the millennium of the 'information society,' where the economy is 'knowledge-based' and the main driving technology is Information Communication Technology (ICT). The technology has changed the way we lead our lives from the way we work, the way we learn, to the way we live at an unprecedented speed. In developing countries and in the world's rural regions, information technology has increased the information needs of people relative to their previous patterns of information use (Scholtz, 2003). Considerable preparation and some specialization are thus required to deal with the complexities introduced by the technology. The relationship between the need for information and the complexity of modern civilization is even more dramatically illustrated by the technology of medicine and transportation; anyone who has required assistance with automobile repairs or a medical problem has been faced with this problem. Not only

do we need more information to cope with more complex problems, but we would also like to take advantage of new leisure, entertainment, and cultural activities made available to us by these technologies (Kochen & Donohue, 1976).

Development agencies, governments, the private sector and civil society organisations throughout the world have recognised the increasingly important role that information, knowledge, communications and networking are playing in the context of a 'new' economy, in the advancement of sustainable human development and in the empowerment of countries, societal groups and citizens. (Global Knowledge Partnership, 2000).

In the new era of the information society, information is for all; information is the most important factor in production and creation. How well an individual, an organization, or an entire society can harness, access and share available information will ultimately decide their ability to generate economic growth and to enhance the quality of life for all (National Information Technology Committee, 2000).

Viewed as a basic human need, information can also be considered as the power tool of the information age (Haywood, 1995). Information is thus a resource to treasure highly, not only for economic reasons but also for achieving quality in the social, cultural, and political life that developing countries strive for (Sweeney, 1982).

According to Thai customs and beliefs (Tongprateep, 2000), Thai rural communities in the past lived successfully on the four basic needs; enough food, suitable clothing, adequate medicine and comfortable dwellings. However, the development of information technology has changed life in rural and urban societies, often causing disruptive social and economic change (Thailand Development Research Institute, 2004). At present, the 1997 constitution is in operation in Thailand. It can be regarded as a "Constitution for the People" because people from all walks of life participated in its development (King Prajadhipok's Institute, 1997). In this respect, the government has encouraged the people to participate in policy formulation, in

political, social and economic decision-making, and in controlling the operation of government officials at all levels. Local communities can be self-reliant, making their own decisions about community development activities and also on promoting gender equality and community empowerment. Local organizations can enjoy their rights by making their own policy on financial and personnel administration and handling financial and personnel management in order to respond to the decentralization policy (Jobnson, 1993).

Information, it may be argued, is an essential ingredient of self-actualization (Rubenstein, 1997) and goes a long way to satisfying this fifth basic need as shown in Figure 1.1. In the information age, people must have adequate knowledge to earn their living and have suitable development. The effectiveness with which information is generated and communicated determines the rate of progress of a society and the fulfillment of its people (Durrance & Pettigrew, 2000). It seems evident that “an information database system is essential to serve the information needs of the community” (Ginman, 1990, p.26). This is supported by Martin (1995) who asserts that ‘to help a community develop and keep up with the rapid changes of globalization, an understanding of information in society will help it adjust to its social consequences’. Each community has its body of knowledge and its own local intelligence, which have enabled it to survive and prosper (Dordick & Wang, 1993a; Friedmann, 1979). Thus, an information database system together with an understanding of information in society can help fulfill the fifth basic need of modern communities.

An Information Technology system and an Indigenous Knowledge system are similar in the sense in that they are both systems that help to link data enabling the empowerment of communities, and also powerful community developments such as community developments, and management of local knowledge. Consequently, they both are strategies of sustainable development.

Each community has its own body of knowledge and its own local intelligence, which enable it to survive and prosper (Dordick & Wang, 1993b; Friedmann, 1979).

Community information includes information related to infrastructure, natural resources and hazards. Typically, such as utility companies and government agencies develop and maintain such databases (Kamojjala, 1999).

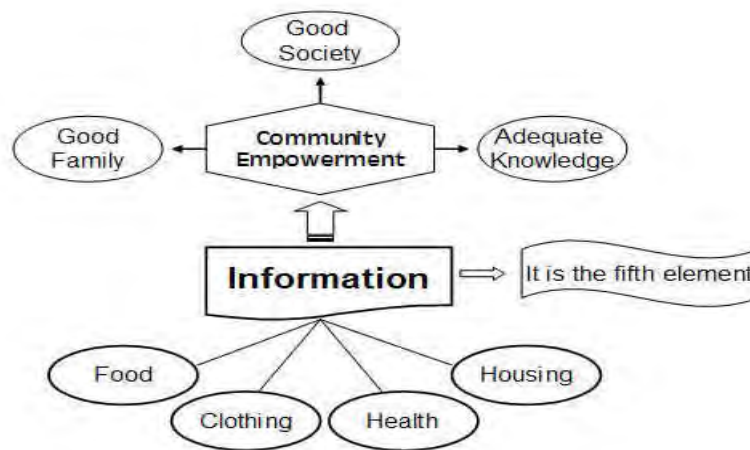


FIGURE 1.1 QUALITY OF LIFE AND THE INFORMATION SYSTEM

1.1 The Significance of the Research

In the past, communities have had their own local knowledge, which may have been sufficient for earlier generations. However, in the future, new generations will require both local and new knowledge to survive and prosper in the new information age. Information technology and a community information database system (CIDS) can serve as a link between the past and the future (Brown & Duguid, 2000; Dillman & Back, 1998; Shuffstall, 1999).

In this context, a CIDS can be used to span the gap between resources and needs. If people in communities know where to turn, they can be assisted in making the required connections between the information technology resources and their needs. This study aims to develop a new paradigm for community building and community technology; it is the fundamental premise of socio-cultural constructionist theory for community empowerment and sustainable community development. This should

bring Thailand towards the forefront of an information society by in the year 2010 (Thailand Development Research Institute, 2004).

This research focuses on the distribution of new knowledge for community development to empower their communities and help them with community action plans. It will involve community groups and other partners to manage and monitor their own crisis-response initiatives so as to achieve sustainable results. The CIDS evolved is expected to be a model or prototype of an information database that can serve community development.

The creation of the CIDS will enable all information needs and local knowledge to be collected, retained and utilised. The system will further empower community development in the future. It is envisaged that the system will be accessible from anywhere and at anytime.

1.2 The Purpose of the Research

This thesis focuses on community development to empower Thai communities to help themselves so satisfying their fifth basic need: the need for information and knowledge, for a better quality of life. The Inpeng Community Network (ICN) (described in Chapter 4) has been selected for this research. This is because ICN is considered by many to be a network of strong communities due to its committed self-support and empowerment. The above research focus is planned to be achieved through

1. Investigating the information needs and local knowledge of this community.
2. Classifying the information needs and local knowledge into a retrieval form of knowledge.
3. Designing a model CIDS for rural community development in Thailand.

4. Creating a prototype of the CIDS to empower local communities to deal effectively with their own problems and to achieve sustainable development.

1.3 Research Questions

Several fundamental research questions arise.

Research question number one:

What are the information needs of the Inpeng Community Network? How can it be classified?

Research question number two:

What is the local knowledge of the Inpeng Community Network and how can it be collected?

Research question number three:

What is the potential role of CIDS in the empowerment of the community? What is an appropriate model for the information system that is applicable to rural communities in the Inpeng Community Network in terms of their information needs and local knowledge?

1.4 The Organisation of the Thesis

At the outset, this chapter introduces the subject of the thesis by explaining the significance of the study and its purpose, and the research questions which guide it. The remainder of the thesis is organised as follows.

Chapter 2 presents a review of the literature relevant to this research. This includes fundamental theories and investigations about the inter-relatedness of information needs and community information needs with specific reference to Maslow's 'Hierarchy of Needs' and Gibson's 'Community Information Needs'. Other areas covered are community empowerment, information models and systems, and community information database systems. Case studies from both developed and developing countries are discussed before the chapter is concluded.

In Chapter 3, a review of the research strategy, the rationale for its design, and the research method used to enable data to be collected and analysed, is provided. The theoretical underpinnings which classify the study as an 'Ethnographic Case Study' are given.

Chapter 4 looks at the concepts 'community', 'community development', 'empowerment' and 'community empowerment' as processes. This is followed by a discussion about community development and community empowerment in Thailand specifically. The Inpeng Community Network (ICN), the Thai community selected for this research, is then explained in detail.

The Community Information Database System (CIDS) for rural development in the ICN is presented in Chapter 5. In its application to the ICN it aims to empower local communities to deal effectively with their own problems and to achieve sustainable development.

The three research questions are addressed in Chapters 6-8: Chapter 6 deals with the respondents' data from the Questionnaire Protocol after its implementation, collection and analysis in order to answer Research Question One, which seeks to ascertain the information needs of the ICN.

Chapter 7 addresses local expertise and knowledge of the ICN as a prelude to an explanation of the data processing methods used in seeking an answer to Research

Question Two. Practical examples are given of the particular skills available in the ICN.

Chapter 8 pursues an answer to Research Question Three as the investigation seeks to evaluate the potential of a model CIDS to empower the community. In-depth Interview techniques are used after a carefully phased implementation of the CIDS to a wide sample of variously prepared respondents.

Lastly, Chapter 9 presents discussion, contributions from this research, limitations, suggestions for future research, and conclusion

CHAPTER 2 :

REVIEW OF LITERATURE

This chapter first presents fundamental theories and investigations about the inter-related nature of information needs and community information needs with specific reference to Maslow's 'Hierarchy of Needs' and Gibson's 'Community Information needs' (Gibson, 2001; Norwood, 2003). Next, community empowerment, information models and systems, and community information database systems are described. Information Services for Community and community development and social quality are then described. The chapter concludes by discussing relevant, instructive case studies from both the developed and developing countries.

2.1 Community Information Needs

Much research is available on theories about community information needs and information. The most relevant to this study are 'Maslow's Hierarchy of Needs and Information' and 'Gibson's Community Information Needs' (Gibson, 2001; Norwood, 2003).

In the late 1960s Abraham Maslow (Norwood, 2003), a humanistic psychologist and information theorist developed a hierarchical theory of human needs. He believed that people were not controlled by mechanical forces (the stimuli and reinforcement forces of behaviourism) or the unconscious instinctual impulses of psychoanalysis alone. Maslow instead focused on human potential, believing that humans strive to reach the highest levels of their capabilities. He set up a hierarchical theory of human needs in which people's basic needs are at the base of a pyramid-shaped model, and the needs with highest potential are at the apex. Information needs can also be set in an hierarchical manner, and juxtaposed with the Maslow hierarchy for comparative purposes (Norwood, 2003; Rubenstein, 1997).

This hierarchical theory (Figure 2.1) has the larger, lower levels of the pyramid representing basic needs, with the apex representing the need for self-actualization. Each level of the pyramid is dependent on the previous level. For example, a person does not fulfil the second need of self-actualisation until the demands for the first have been satisfied (Norwood, 2003; Russell, 1992).

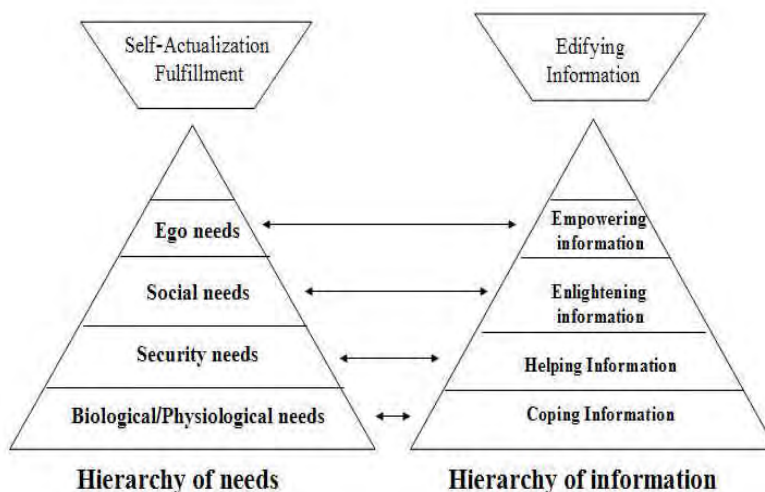


FIGURE 2.1 MASLOW'S HIERACHY OF NEEDS AND INFORMATION (NORWOOD, 2003)

A person's information needs is shown as a hierarchy of needs in Figure 2.1. Each level in the hierarchy of needs seeks information on how to deal with what is important to him. Examples are:

Coping information such as seeking information when lost, when out of food, or when sick, is at the lowest level and important to all. This is then followed by;

Helping information such as seeking information on how to be safe during time of enough food, adequate shelter and emergency supplies;

Enlightening information such as seeking information on how to have a happier marriage or more friends; and

Empowering information such as seeking information to help the ego; and

Edifying information such as seeking moral and spiritual uplifting with the word of God, spiritual music, or great literature and art (Morton, 1997).

Ginger Gibson (2001) has reviewed community information needs in the meaning life cycle. This report lists factors that affect community participation in making informed decisions about mining activities. Communities are often seen by mining executives as the least important audience and they executives do not consult with or provide information to community members. However, it is this group which is most affected by mining operations. Impacts include increases in cost of living, taxation increases and outsiders moving into the community.

Gibson's (2001) research focused on four factors including community rights, information access, varying information needs and encouraging access to information. These factors were:

Principle of consultation, in which communities have the right to: be informed of development before the mine operation begins; to seek multiple accounts of the effect of mining; and to seek information from sources that they trust.

Access to information, meaning regular access to communication by meaning, format, information channels and information sources.

Information needs specific to the various sectors, by providing different information during the various phases of mining. Each mining site and community is unique, so information needs are different for: mining companies, the government, various community groups, and other sectors

Information access, which includes sharing mechanisms and such capacity building such as local resource centres, clearing houses and databases, electronic and printed bulletins, access to independent expertise, technical capacity, capacity building, monitoring realities, funding mechanisms and translation services.

Seven practical outcomes were identified during Gibson's (2001) the study and research and, though specific to the mining cycle, are instructive as to the information needs which flow from the introduction of any large industrial enterprise into a community. These outcomes were:

Successful communication with community members means that communication must start during the initial exploration and continue throughout the cycle of the mining operation.

Communication must be two-way. It is about listening as much as it is about providing information. Communities are best placed to advise companies and governments on the channels, formats and plans for communication in an area.

Companies play a critical role in generating information, and should provide communities with information on the scope, impacts and benefits of the proposed development. Communities may want to know about a company's background and track record, as well as structures for sharing benefits. Most communities currently struggle to get access to this information.

Agencies can drive change and should therefore support communities to access and use information about the new development, as well as the possible economic opportunities. They should also describe the role of the government in permitting and monitoring the new enterprise. Further, a key role of agencies is to drive the process of emergency response planning with communities and companies. Many companies still steer clear of joint planning for emergencies.

Communities provide information which can be critical regarding the mine effects on the proposed development of the area. The community may need support to foresee the impacts of the enterprise and plan to mitigate them.

Mechanisms and funds are necessary to support community access to information. Many structures and mechanisms exist to support community involvement in

negotiating mining development, eg, local resource centres, clearinghouses and databases, bulletins, and access to independent expertise. Capacity building programs to encourage community involvement are critical. Companies, governments and independent foundations could provide funding for these initiatives.

Companies hold more power than communities and efforts must be made to reduce power imbalances. Companies have the funds to pay for experts and research studies, but communities associated with the proposed enterprise are often remote and seldom have funds for studies or independent reviews. Further, companies are usually located near lending institutes, regulatory agencies and media outlets. Strategies to reduce the power imbalances that communities face must be considered through capacity building.

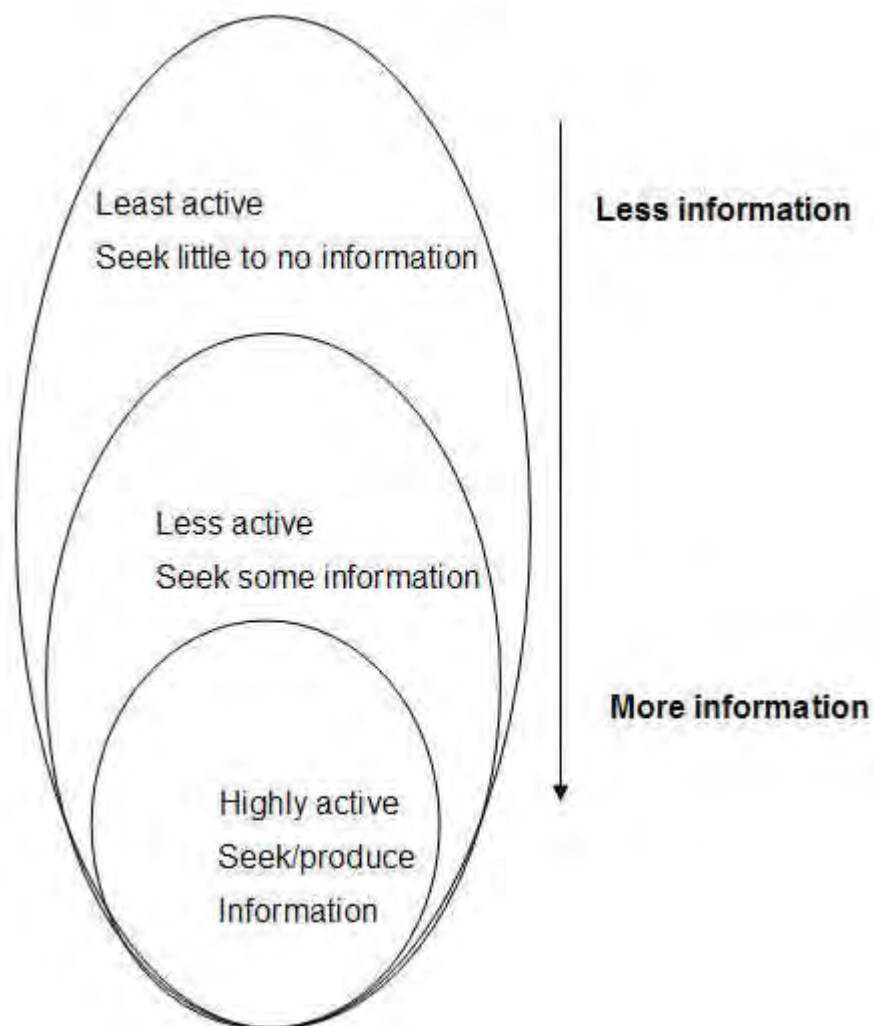


FIGURE 2.2 SEGMENTING COMMUNITIES BY INTEREST IN INFORMATION (SOURCE: GIBSON, 2001)

A diagrammatic representation of how community information sources are inter-related is shown in Figure 2.2. The figure shows the relationship between individuals' concern for the adequacy of the information available and their interest in that information. A range of materials and responses is required to ensure each of these segments is covered at a suitable level of detail.

2.2 Community Empowerment

In 1997, UNESCO Bangkok submitted its final report (UNESCO's Principal Regional Office for Asian and the Pacific, 1997; United Nations Development Programme, 1999c) on literacy as a tool for the empowerment of the poor. This report defines empowerment, in general terms, as the process that enables human individuals to develop the capacities needed to take control of their lives, to take action to overcome oppression and to realize their full human potential.

The report stated that the process of empowerment is a long and complex one. It involves building awareness of the situations/conditions requiring critical review, which pertain to causes and effects. It thinks critically about human capacities so that people realize they can do something to improve their situation, for example, the development of skills, capacities and others human potentials; the acquisition of technical expertise and external assistance; and finally becoming self-dependent or self-reliant. Schematically, the empowerment process may be depicted as shown in Figure 2.3.

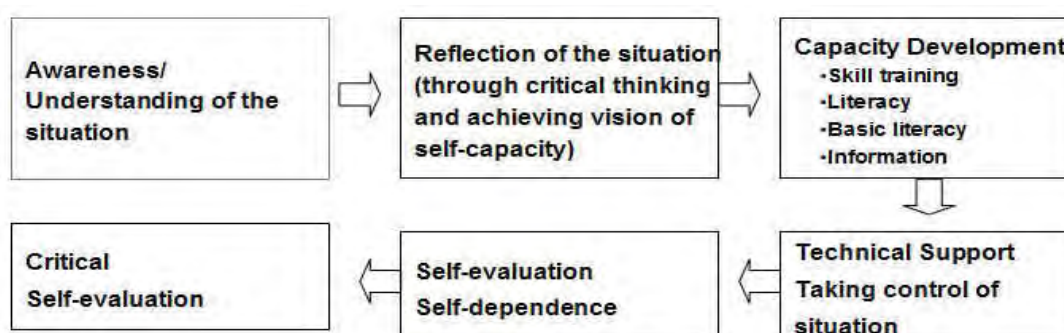


FIGURE 2.3 THE EMPOWERMENT PROCESS (SOURCE: UNESCO'S PRINCIPAL REGIONAL OFFICE FOR ASIAN AND THE PACIFIC, 1997)

Apart from developing appropriate knowledge, skills and attitudes, individuals also need the active, external conditions of resources and opportunities for their empowerment. Specifically, they need support in terms of capital (funding/loans), resources, equipment, facilities and literacy.

For the empowerment process to be effective, the challenge is for empowerment of the poor to be integrated into the national development policy, institutionalization of socio-engineering activities and proper coordination of empowerment programs. Governments and researchers have already begun to address this challenge.

In 1997, the Asian Economic Crisis had a tremendous effect on development issues in the countries throughout the Asia-Pacific region, including Thailand (United Nations Development Programme, 2000). The obvious negative economic effects have, however, overshadowed the social impact of the crisis. As a result, the Thai government has proposed a policy framework and strategy to empower communities to respond to the present economic situation, and to prepare them to respond better to new crises in the future. Consequently the Community Empowerment for Response to Crisis Action Plan (CERCAP) was formulated to support local communities which undertake proactive crisis-responsive initiatives (United Nations Development Programme, 1999b).

In the United States, Jafar (1998) provided a more refined understanding of the concept of community empowerment. Jafar's aim was to illuminate the processes needed to transform community empowerment from a complex theoretical construct into a quantifiable and practical development concept. Community empowerment was seen as the implicit and explicit objective of interventions designed to enhance development at the community level.

This research focused on the development of a comprehensive framework to assess the impact of community-based development interventions. To gauge community empowerment, a method was designed to provide both subjective and objective

measures of the concept. Jafar argues that there is a direct relationship between both measures, as socio-economic development factors significantly influence the extent to which residents perceive the degree of empowerment of their community.

Jafar's research (1998) also establishes the multivariate nature of community empowerment by identifying community management, community participation, and a sense of community identity as three principal components of the concept. Additionally, the research analyses the effect of the residents' gender and age on the overall perception of empowerment, and shows that, although gender and age in general do not directly influence perceived community empowerment, socio-economic factors combined with age and gender do influence these perceptions.

Based on the results of this study (Jafar, 1998), certain indicators of social and economic development are seen as the most significant determinants of perceived community empowerment and its components.

In Canada, Thomas (1998) explored the current and potential role of Community Computer Networks (CCNs) in the empowerment of communities through participation in the planning process. This study addressed the concepts of community empowerment, the place of community empowerment in the planning process, and the theory and practice of CCNs as a product of information technology. It included the framework of a case study of the Seattle Community Network (SCN), and an exploration of the SCN through the eyes of three fictional character explorations. The study revealed that the concepts of community empowerment and planning were compatible with radical planning practice and theory within the context of CCNs; and it could empower communities by increasing the perception of personal power through greater knowledge and co-operation with the rest of community. Thus, Thomas (1998) was able to show that CCNs can be useful in achieving empowerment of communities through their participation in the planning process.

A Ministerial Conference on the Information Society in Belgium was held in 1995 (Scholtz, 2003). The many speakers highlighted the desirability of including Africa in the Global Information Society in order to attract foreign investment, to participate in global markets and international scientific debate, and to facilitate the innovative provision of health, education and government services.

In South Africa the digital divide is a significant issue. Scholtz (2003) warns of the danger that all of Africa becomes marginalized by the development of the global information society. Consequently the government has been forewarned of the importance of membership of this society. Centuries of underdevelopment, coupled with crippling national debts, has left many African countries without the infrastructure, resources, and often the social and political structures to join the global information society.

This 'Information Revolution' has led to the formation of a global economy based on 'knowledge'. This information revolution has spawned a parallel process - the privatisation of knowledge. Knowledge dissemination through the mass media has been compounded by an offshoot of the "Information Revolution": the use of technology to 'legitimise knowledge'. No form of quality control exists for material posted on the World Wide Web.

African values are many and contradictory, as evidenced by the variety of practices, structures and models enacted throughout the continent. The information revolution is significant for these values, because of 'increases in the standard of living' (Scholtz, 2003), but this has been increasingly uneven. Globalisation, with its potential for increased standard of living for all, has actually brought increasing inequality poverty and social exclusion, between rich and poor countries, and also between rich and poor sectors within countries.

In Africa, the Digital Divide continues to deny many people accesses to knowledge, and to knowledge production and dissemination. Similarly, because of the cacophony of voices, only the sophisticated can count on being heard. However, since much of

the Global Information Society rests on ‘projective’ or ‘enactive’ texts, there exists a vision of a new world.

2.3 Information Models and Information Systems

Rowlatt Day, Morris, & Robert (1998) describe the SEAMLESS project in the United Kingdom. This two year research project, funded by the British Library, aimed to develop a new model for citizens’ information which would enable co-operation between various information providers, and covered the designed and implemented common standards of data transfer between different systems, and facilitation on communication between all users, including the end users, the customers. Thus the SEAMLESS project enabled co-operation between various information providers, the design and implementation of common standards for data transfer between different systems, and facilitation of communication between all users. The SEAMLESS project has had considerable impact at local, national and regional levels, with the project’s teams working with significantly more organizations than originally envisaged, thereby demonstrating the need for, and viability of an information technology model to assist in community empowerment.

In Western Australia an information database system (Infolink) (The Library & Information Services of Western Australia, 2001a), shown in Figure 2.4, has been initiated through co-operation between the Western Australian government and community organizations. The purpose of the database is to provide referral services to other organizations may satisfy the particular information needs of their clients.

This Infolink database is protected by copyright, being part of the Library and Information Services of Western Australia (LISWA). LISWA’s mission is to provide and promote equitable access to information resources and services which support the intellectual, economic, cultural, social and recreational needs of the people of Western

Australia. The Infolink database covers statewide, regional and some local organizations and services.



FIGURE 2.4: THE NAME SEARCH FOR INFOLINK DATABASE. (SOURCE: THE LIBRARY & INFORMATION SERVICES OF WESTERN AUSTRALIA, 2001B)

In the United States O'Leary (O'Leary, 2000) describes an information model for community information, NorthStarNet (NSN). This community services model has transformed the local library into a twenty-four hour regional information resource for the 1.6 million residents. NSN started in 1995 with four local libraries (O'Leary, 2000).



FIGURE 2.5 THE NORTHSTARNET: A MODEL FOR COMMUNITY INFORMATION (SOURCE: O'LEARY, 2000)

Figure 2.5 above shows the menu of the NorthStarNet website which provides many services. It is a large public library consortium serving the suburban regions north and west of Chicago. It involves regional library systems, dozens of medium and small local public libraries, and hundreds of local community organizations and businesses.

2.4 Community Information Database Systems

In 1999, Davis (1999) using a survey with two goals investigated a Web-based community information system in the United States of America. The first goal was to compare the demographics of cities, as to whether a city had a web site, and the relative quality of a city's web site. The second goal was to identify high quality, model sites that could be used as templates for other communities to build their own web-based community information system. To accomplish these goals, 539 cities from across the U.S. were identified. Of these 309 with official city web sites were surveyed using a 28-question instrument that measured the content and design of the web site.

The study identified three different models showing how a community disseminates information via the Internet and World Wide Web - the community marketing model, the community services model, and the community empowerment model (Table 2.1).

TABLE 2.1 INFORMATION DISSEMINATION MODELS OF COMMUNITY INFORMATION SYSTEM (SOURCE: DAVIS, 1999)

Model	Goal
Community Marketing Model	Market the community to external business and visitors for economic development
Community Services Model	Gateway to publishing and private services available in community
Community Empowerment Model	Provide access to information and communication channels to enable citizen participation in government

The primary differentiator found between the different models of community networks stems from the type of information included in the systems. Doctor and Ankem (1996) developed a taxonomy for categorizing community information systems using this approach. Their taxonomy (Table 2.2) provides a useful starting point, but it ultimately lacks the detail required to evaluate a community information system effectively.

TABLE 2.2 TYPE OF INFORMATION TAXONOMY (SOURCE: DAVIS, 1999)

Category		
Commerce	Consumer Affairs	Education & Schooling
Employment	Financial Matters	Governmental Processes, Politics & Policy
Health & Medical	Home & Family	Housing
Legal Matters	Nature & Environment	Recreation & Culture
Social services	Transportation	

Doctor and Ankem (1996) use the type of services provided as a second dimension to their taxonomy. They include five categories of services: advocacy, counselling, factual, directional, and interactive communication. This dimension can be generalized as the mode of information delivery. A state community Web site can provide factual and directional information, but interactive communication eliminates the need for the advocacy and counselling categories as these are subsumed within this mode of information delivery (Table 2.3).

TABLE 2.3 MODEL OF INFORMATION DELEVERY TAXONOMY (SOURCE: DAVIS, 1999)

Category	
Factual (reference)	Interactive communication-Directed (e-mail)
Directional (reference)	Interactive communication-Directed (chat-mailing list/discussion database)
Hyperlink (non-e-mail)	
Phone/Fax/address	

Despite the limitation of the Doctor and Ankem (1996) taxonomy, it can be used to identify each of the three different models for a community information system. The Community Marketing Model is significant for the predominance of Economic Development and Convention and Visitor Information. The Community Service Model, on the other hand, contains information primarily on community services. The Community Empowerment Model focuses on community decision making related information, ideally with interactive communication support to allow citizens to interact with public officials and each other.

These three models delineated by Doctor and Ankem substantiate the need for the development of a further model, combining the best of their models, for a web-based community information system that can be easily adopted and utilized by communities to support the development of more effective sites.

2.5 Information Services for Community Development

Uhegbu (2001) discussed information services for community development in Nigeria (Uhegbu, 2001). Four components of community information services were identified: the information itself; the sender; the medium or channel of communication; and the final consumer. Figure 2.6 shows the inter-relatedness of the four components.

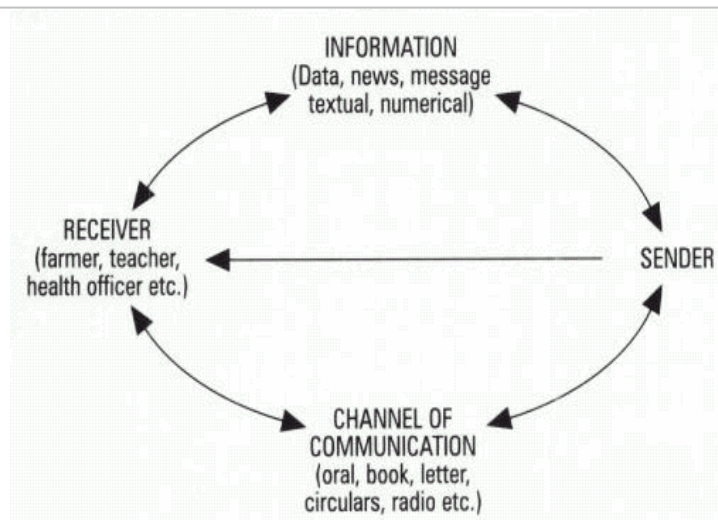


FIGURE 2.6: STRUCTURE OF COMMUNITY INFORMATION FLOW (SOURCE: UHEGBU, 2001)

It also illustrates the pattern of communication found in rural areas based on an input and feedback mechanism. This input and feedback mechanism allows information dissemination in rural communication through a network of activities. Because a community information service is to inform, it can be defined as a services designed to assist individuals and groups with their daily problems through the provision of information, or by putting them in touch with a helping agency. Uhegbu recommends that, amongst other things, traditional institutions and town development associations are utilized more effectively to disseminate information to the people.

In Mexico, Robert M Kossick (2003) studied the role of information technology in developing countries, resulting in his paper, 'Information & Communications Technology in Strengthening Citizen Participation & Shaping Democracy: An Analysis of Mexico's Initial Experience & Pending Challenges'.

The paper in two parts initially puts the issue of citizen participation into both political context and comparative technology perspectives. In the second part he evaluates the current state of online citizen-generated participation at the level of federal executive and legislative branches of the Mexican government. He concludes the paper by arguing, as a basic proposition, that the elevated quantity of citizen generated information derived from online citizen participation mechanisms has positively

informed law and policy making and safeguarded the information technology processes in Mexico.

2.6 Information and Social Quality

The idea of ‘social quality’ was launched in June 1997 at a public ceremony in Amsterdam timed to coincide with a meeting of European Union Heads of State. But it wasn’t until several years later that serious consideration was given to the concept.

Berman and Phillips (2001) explored the concept of ‘social quality’ as a measure of the quality-of-life, and set out a framework for identifying social indicators of the relationship between information and social quality. Social quality was conceptualized as consisting of four elements: social-economic security, social inclusion, social cohesion and social empowerment.

Table 2.4 and 2.5 below show four different aspects of the relationship between social quality indicators nationally and social quality indicators for the community.

TABLE 2.4 INFORMATION INDICATORS FOR THE NATION-STATE (DEMOS) (SOURCE: BERMAN & PHILLIPS, 2001)

Elements of social quality	Input	Process	Outcomes	Impact
Socio-economic security	National information Infrastructure.	Information needs covered. Number and type of information sources.	Proportion of population accessing information services relevant to material standard of living.	Information utilisation by citizens in relation to GDP. Prevalence of usage of information sources as a taken-for-granted part of daily social life.
Social inclusion	Accessible information.	Proportion of the population with information skills. Awareness of information.	Proportion of population using information skills and finding information useful.	Utilisation of information in enhancing inclusion. Use of information by demographic variables.
Social cohesion	Informational foundations of civil society: constitutional guarantees of freedom of information. Material conditions enabling equitable access to information to all groups in society.	Legislation and regulations to ensure equity in information use. Provision for information use in the public domain. Distribution of information skills and awareness of information availability among different groups in society.	Equitable distribution of use of information among different groups in society.	Subjective perceptions of participation in the information society. Strengthening of informational networks and institutions that enhance societal solidarity.
Empowerment	Information resources available: networks, public access points, websites etc.	Accessibility of information resources, participation in information networking.	Achievement of informational competencies and capabilities; utilisation of information in daily life.	Self-reported subjective and holistic evaluations of personal empowerment and quality of life achieved through use of information resources.

The Table also record the results of an analysis of the four social quality indicators according to four different but similar aspects: input, process, outcome, and impact at the national level, and community level respectively.

The manner in which information and social quality are distributed between the national and community levels provides the data summarized in Table 2.4 and 2.5.

TABLE 2.5 INFORMATION INDICATIONS FOR THE COMMUNITY (ETHNOS) (SOURCE: BERMAN & PHILLIPS, 2001)

Elements of social quality	Input	Process	Outcome	Impact
Socio-economic security	Community information infrastructure.	Range, accessibility and relevance of community information resources.	Range and amount of information amenities and services used within the community	Community information used as information capital.
Social inclusion	Community information networks. Information sharing. Accessible community information.	Proportion of different social and demographic groups in the community with information skills.	Proportion of community accessing and using community information networks.	Use of community information within the community by different social and demographic groups.
Social cohesion	Informational foundations for a unique and strong community identity	Availability of community information infrastructures and networks. Distribution of information skills and awareness of information availability among community members in society	Participation, collaboration and information sharing. Community communication in relation to information on community history, traditions and identity. Extent of community information capital.	Effect of changes in community information capital on community social cohesion. Enhanced community solidarity and sense of identity
Empowerment	Information creation, transmission and control focused on community issues.	Direct access to community information resources. Community participation in information creation and networking.	Extent to which information plays a central role in community identity	Self-reported and holistic community evaluations of the role of information in the fulfilment of community identity and independence.

From the results it can be concluded that usable indicators for all aspects of each element of social quality can be identified, and that the analysis of information at the national and community levels can add to knowledge about information provision and policy. This is particularly pertinent for minority and marginal communities.

2.7 Some Relevant Case Studies

Relevant studies have been conducted concerning community building, empowerment and self sufficiency both in developed and developing countries. It is instructive to review two case studies from each category in order to gauge the direction of progress in this particular field.

2.7.1 Developed Countries

2.7.1.1 United States of America-1

In 2000, a study ‘Creating Community Connection’ was conducted and followed by a report (Pinkett & Bryant, 2001). The project was conducted by the Camfield Tenants Association (CTA) and the Massachusetts Institute of Technology (MIT) in partnership. The CTA of the Camfield Estates, formerly Camfield Gardens, is a predominantly African-American, low-to-moderate income housing development in the Roxbury section of Boston, Massachusetts.

The goals being attempted were: to build community, empowerment and self-sufficiency; and to establish Camfield Estates as a model for other housing developments. It aimed to show how individuals, families, and a community can make use of information and communications technology to support their interests and needs. To achieve these goals, CTA and MIT formed a unique partnership, garnering the support of various organizations in the public, private, and non-profit sectors.

The role of technology in community building, empowerment and self-sufficiency in a low-income community seemed particularly relevant to this study.

To implement the project, appropriate infrastructure at Camfield Estates was created to combine three primary models for community technology and community network, namely:

- State-of-the-art desktop computers, software, and high-speed Internet connectivity being offered to every family:
- The location of a community technology centre (CTC) on the premises in the community centre; and
- Community content being delivered through the Creating Community Connections (C3) System, a community-based web system.

Technology and Community Building: One of the project goals was to explore the synergy between community technology and community building. Community technology has been referred to as “a process to serve the local geographic community, to respond to the needs of community and build solutions to its problems”, and “using the technology to support and meet the goals of a community” (Pinkett & Bryant, 2001, p.32).

Community building has been an approach to community revitalization that focuses on “strengthening the capacity of residents, associations, and organizations to work, individually and collectively, to foster and sustain positive neighbourhood change” (Bailey, 1997, p.26).

The integration of these domains involves participants as active agents of change, rather than being passive beneficiaries or clients; and as the active producers of information and content, rather than passive consumers or recipients.

Technology, and Empowerment and Building Self-Sufficiency: One of the project’s goals was to investigate the role of technology in empowering low-to moderate-income residents in the efforts they make toward becoming more self-sufficient. As noted earlier, community technology can be defined as using “friendly” technology to support and meet the goals of a community,” whereas empowerment and self-sufficiency are integral parts of the strength of a community (Pinkett & Bryant, 2001, p.34).

Community empowerment emerges from a process characterised by determination and inspiration of the individual. It involves a three-stage approach, which begins with psychological empowerment of each individual and builds into what can be called an Empowerment Pyramid as shown in Figure 2.7.

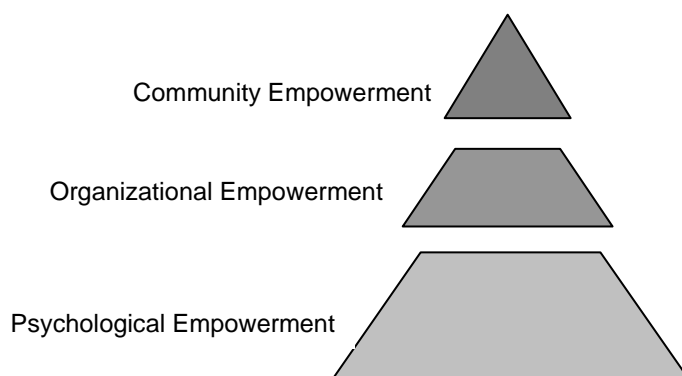


FIGURE 2.7 EMPOWERMENT PYRAMID (SOURCE: PINKETT & BRYANT, 2001)

Theory has been developed which suggests ways to measure community empowerment in different contexts, to study empowering processes, and to distinguish empowerment from other constructs, such as self-esteem, self-efficacy, or locus of control. Community empowerment literature separates out the levels of analysis at the individual, organizational and community levels (Table 2.6).

TABLE 2.6 A COMPARISON OF EMPOWERING PROCESS AND EMPOWERED OUTCOME ACROSS LEVELS OF ANALYSIS (SOURCE: ZIMMERMAN, 1999)

Level of Analysis	Process('Empowering')	Outcome ('Empowered')
Individual	Learning decision making skills	Sense of Control
	Management Resources	Critical awareness
	Working with others	Participation
Organizational	Opportunities to participate in decision making	Effectively compete for resources
	Shared responsibilities	Networking with other organizations
	Shared leadership	Policy
Community	Access to resources	Organizational coalitions
	Open government structure	Pluralistic leadership
	Tolerance for diversity	Resident's participatory skills

The foundation for community empowerment is ultimately the empowerment of the individual. The individual begins with his/her belief that what he/she is trying to accomplish is in fact possible. The psychological aspects of empowerment begin to emerge. Psychological empowerment can be disaggregated into three components- interpersonal, interaction and behavioural (Figure 2.8)

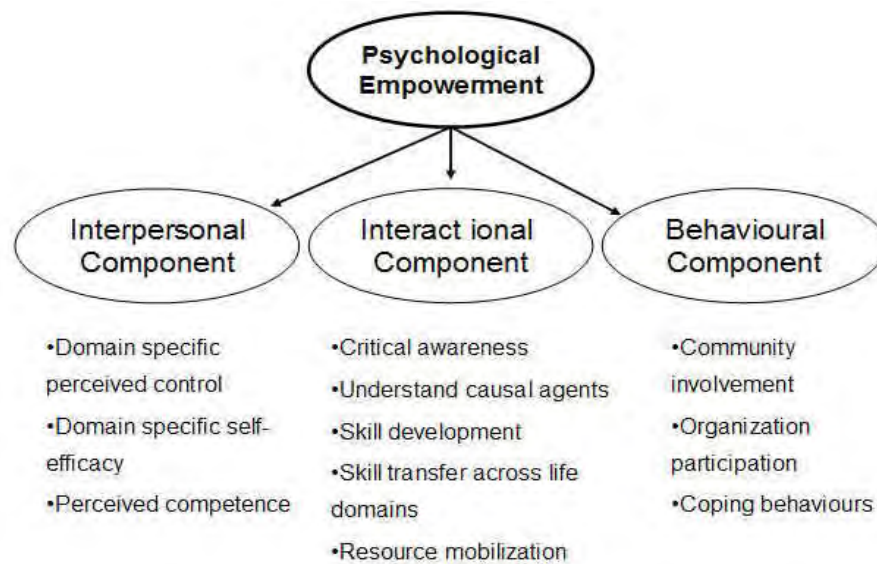


FIGURE 2.8 DISAGGREGATION OF PSYCHOLOGICAL EMPOWERMENT (SOURCE: ZIMMERMAN, 1999)

By involving technology in the empowerment model, an acknowledgement of the critical role of information emerges, and how a sense of control can also play a role in the representation and/or indication of empowerment and participatory behaviour. In addition to the practical nature of technology's presence, it also plays a psychological empowering role in assisting with the efficient and effective means by which information can be accessed.

Self-sufficiency: The Asian Neighbourhood Design Networks (1996) offer a more comprehensive definition of self-sufficiency, which relates to having some semblance of control over the basic functions and fundamentals of an individual's and/or family's life. In addition to a stable income, the elements of self-sufficiency also include education and skills, housing and nutritional stability, safety and environmental stability, the availability and accessibility of needed services, relationship and social networks, and the strength of personal attributes (motivation, desire, etc.). Self-sufficiency in these basic terms can be at different levels for each individual and/or

family, which suggests that a continuum may be a better representation as opposed to an end state because ultimately, in today's society, total self-sufficiency is unachievable.

Technology and self-sufficiency are emerging as a critical issue, not based solely on having computer skills but including the fact that a vast array of societal resources are being made available electronically on the Internet. Self-sufficiency means not having to rely on others for things that can be acquired or produced for one-self. Therefore, in today's information-based society, access to information about what affects one's life is becoming a necessary element in reducing dependence on various external supports. In summary, technology can contribute to a greater sense of freedom and control over one's life toward becoming more self-sufficient.

Ultimately, the post-assessment provided greater insight into the milieu at Camfield, as well as offering the challenges and opportunities of building community, empowerment, and self-sufficiency. These challenges and opportunities are grouped into three interrelated categories: technological, social, and cultural.

Technological challenges: These together with opportunities have been primarily centred on skill development, continuous learning, and cultivation of technological fluency. The question is not whether participants have the requisite ability to become technologically fluent, as they most certainly do, but how to establish a convenient means whereby they develop their skills on an ongoing basis. Another finding from the post-assessment was of participants' strong desire to use technology in creative ways, e.g., building a website, designing a flyer for a newsletter, etc., yet lacking of time to engage in the activities or attend follow-up courses.

Social challenges: Together with offline opportunities these are informed by the fact that, although the number of residents recognizable by name and contacted via telephone and e-mail increased, the baseline numbers for these measures and related measures were relatively low to begin with. In order to use technology for

communication and other social purpose the user must have an audience or critical mass of community members with whom to connect.

Cultural challenges: The project has shown that at the core of these opportunities is not only residents' re-orientation toward integrating technology into their daily lives, but rather, residents' re-orientation toward integrating technology and notions of building community, empowerment, and self-sufficiency into their daily lives. Such a paradigm shift is fundamental to the arguments put forward by socio-cultural constructionism, asset-based community development, and the literature surrounding empowerment and self-sufficiency. It is anticipated that as the technology and social changes will be addressed via continuous learning and greater levels of engagement among the families at Camfield. This cultural shift should lead to further advances as residents gradually adjust their habits and expand their vision of the possibilities.

2.7.1.2 United States of America-2

In the United States, the Penn State U.S. Department of Agriculture and the Pennsylvania Cooperating and Equal Opportunity University have worked together studying a Community Network in a project, "Creating a sustainable Community Information Network (CIN)" (Shuffstall, 1999, p.42), The task required commitment and participation from all segments of the community. It was found that new relationships and partnerships must be formed to allow community organizations to develop and share community information technology infrastructure.

The following were some key steps deduced which will should be help communities; develop a successful Community Information Network.

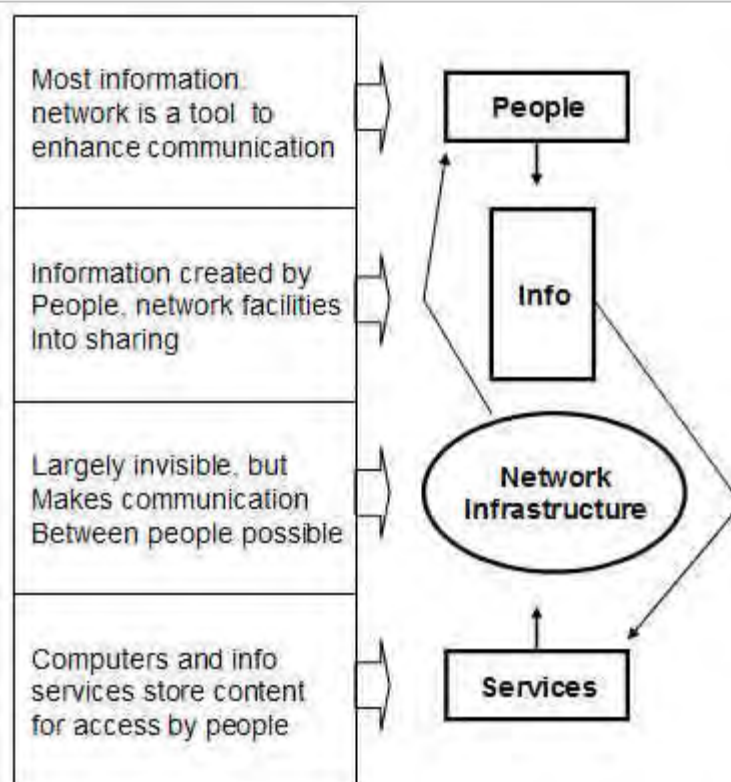


FIGURE 2.9 KEY STEPS FOR COMMUNITY INFORMATION NETWORK (SOURCE: SHUFFSTALL, 1999)

The study showed that successful community information networks have one individual who serves as the project champion. The champion needs to have a thorough understanding of how digital technologies can benefit the individuals and organizations in the community and be able to communicate the benefits in non technical terms.

Throughout, the project champion performs the following duties:

- Arranges for meetings with other Task Force Members
- Arranges for one-on-one or small group discussions with key community leaders
- Attends meetings of community organizations such as government boards, services clubs, non-profits, etc.) to discuss CIN effort; and
- Identifies and recruits residents to serve on CIN committees

The CIN champion must be charismatic, have good communication skills, understand the importance of digital technologies for the future of the community and be able to build commitment for the effort among members of community organizations.

The development of a CIN Task Force sets the tone for the CIN process. The individual members must understand, or be willing to learn about the benefits digital technology will bring to the community's children and families, schools, businesses, local government, librarians and non-profits organizations.

The Task Force should have from 3 to 9 members. Task Force members must believe strongly that information technology is crucial to the future well-being of the community. The members don't have to be "technology experts" as long as they are willing to learn and work together to bring the community's leadership and resources to focus on the helping to move the community into the Information Age.

Members of the Task Force should have access to the formal (governmental, business, religious and non-profit organizations), and non-formal (social organization, service clubs) leaders in the community.

2.7.2 Developing Countries

2.7.2.1 Thailand-1

In 1999, the situation existing then in Thailand was studied for community empowerment through the existing community learning centres (Pyakuryal, 2000; United Nations Development Programme, 2002). The aim was to provide any necessary technical assistance to Thailand's efforts which were aimed at creating open-learning communities, with particular emphasis on innovative community-based programmes combining non-formal education and skill training for income-generation, poverty alleviation, and empowerment of disadvantaged groups.

The Asia-Pacific Programme of Education for All (APPEAL) run by UNESCO-PROAP (Bangkok) had facilitated development of Community Learning Centres (CLC). They were to serve as focal points of local capacity-building efforts for income-generation and self-reliance among the people, particularly the under-served, and the disadvantaged members of the population (United Nations Development Programme, 1999a).

CLC are local educational institutes outside the formal education system, for villages or urban communities. They are usually set up and managed by local people to provide various learning opportunities for community development and improvement of the people's quality of life. The functions of the CLC are: to serve as community information and resource service centres, to provide skill training and lifelong learning; and to coordinate with various agencies for community development. CLCs have proved to be effective mechanisms for empowering local people and promoting community development (United Nations Development Programme, 2002).

The project was implemented, envisaging the following expected results:

- Pilot community-based information systems developed to facilitate easy access to information on development opportunities, experiences and entitlements;
- Innovative community learning centres set up in Bangkok and selected CERCAP provinces;
- Demand-driven management skills for community empowerment through CLCs and a labour force with changed attitudes and knowledge/skills for poverty alleviation and human development;
- Replicable 'models' of CLCs as elements of community empowerment; and
- Guidelines and a manual for management and self monitoring of open CLCs serving whole communities, particularly the disadvantaged groups.

2.7.2.2 Myanmar

The Asia and Pacific Regional Bureau for Education in Myanmar submitted its final report on Community Learning Centre Experience in 2002 (Jorn, 2002). This report defines a Community Learning Centre (CLC) in general terms, as a local educational institution outside the formal education system, for villages or urban areas, usually set up by and managed by local people to provide various learning opportunities for community development and improvement to people's quality of life. The ultimate goal of the CLC is empowerment of individuals and communities and improving people's quality of life through education and community development activities.

Myanmar is the largest country in mainland South-East Asia with a population of around 52 million inhabitants (UNESCO Asia-Pacific Programme of Education for All (APPEAL), 2004) Formal primary education in rural areas in Myanmar has a host of problems. In a survey in 1991 it was found that less than 30% of pupils completed the five year cycle of primary education (Jorn, 2002).

Buddhist monasteries have been the traditional sites for non-formal education and life long learning in Myanmar since there is a monastery in every village throughout the country. However, monastic education has mainly catered to boys and men. Non-formal education in Myanmar is hampered by a weak infrastructure and system of delivery, and very few funds are allocated for non-formal education in the government's budgets. The basic literacy rate was around 83% when the last census was carried out in 1983.

Therefore current numbers are estimates, and projects are usually carried upwards. Also, the functional literacy rate may be substantially lower. As a consequence of the poor quality of primary education, there is a large number of semi-literates in the country.

The notion of a Community Learning CLCs was first introduced in Myanmar in 1994 as a small part of an education project under the Human Development Initiative (HDI) programme of UNDP (United Nations Development Programme, 2002). The CLC

offered several forms of non-formal education, beginning with basic literacy courses. Over the past thirty months until 1998, 106 courses have taken place, with the assistance of volunteer village literacy trainers. 1,479 participants followed the courses, three quarters of them being women. Almost 80% of participants have reached a satisfactory level of literacy and numeracy. The CLCs also offer post-literacy activities whereby 39 classes have been functioning over the project period, with 718 villagers participating in these courses, 84% being women. There are also 11 CLCs, one in each township, each experimenting with a new non-formal primary education model of 12 classes (247 participants), consisting mainly of out-of-school youth and neo-literates.

The demand for CLCs is high, word of mouth having spread from successful CLCs to neighbouring villages, resulting in requests to the project by other communities to organize CLC activities.

The important impacts of the CLCs has resulted in increased confidence among learners to deal with each other and outsiders, as well as better collaboration and understanding among community members. CLC activities have also contributed to breaking the isolation, not only physical but mainly mental, many communities in Myanmar endure due to lack of educational opportunities.

Capacity building has received a high priority with attention from the project for 817 members of CLC management committees who have participated in 31 workshops. In addition, 160 volunteers have taken part in 12 capacity building workshops, and other training sessions have been held to strengthen capacities in non-formal primary education, work skills, puppet shows used for communication purposes, and others. Well-trained, dedicated human resources are a major factor in determining whether the CLC will succeed in reaching its objectives. One important advantage has been that all CLC volunteers are indigenous members of the community; hence, they are less likely to view their work as temporary, and are less likely to leave their functions after taking part in capacity building.

In the Myanmar Model of a CLC, the main function of the CLCs was to offer several forms of non-formal education, beginning with basic literacy courses. Over the past eighteen months until 1998, 98 courses have occurred with the assistance of volunteer village literacy trainers.

Impact on the community's quality of life in Myanmar:

The CLCs were only expected to improve education and income opportunities but they have had many other positive effects, both culturally and economically, on the quality of life of the community members. Other areas where the communities and individuals have benefited include increased coherence and collaboration in the villages. Most important is probably the increased confidence several villagers have expressed in relating to others in the community as well as to outsiders. This has probably benefited women most since their level of literacy is often lower. Many participants also declared that a better mastery of the Myanmar language as well as literacy helped them in breaking the isolation they felt when staying inside the bounds of their villages.

2.7.2.3 Thailand-2

Impact on community's quality of life in Thailand:

In 2001, UNDP (United Nations, 2001, p.38) and Seri Phongphit from the Village Foundation, Thailand studied "people development as a community government tool". The aim was to develop local people's potentials and to rediscovering indigenous wisdom. This knowledge base, together with resources provided, commenced a solid platform for building a community's HIV resilience. This approach, based on traditional South-East Asia culture, also equips the rural communities to be competitive in the global economy.

The approach presented is called 'The People's Community Governance Tool' because the people themselves implemented their own research and development.

They collected and analysed their own community data, learned from other people and communities, synthesized their knowledge, defined their own strategic plan, developed projects and related activities, and implemented what are possible bases for their own capital.

The study has been used at the village level, as well as at sub-district and provincial levels. Working together, communities established new relationships, formed a new network and a new movement. The learning process does not end once the plan is developed and projects designed; it is ongoing. Learning by doing, acting, reflecting and sharing of knowledge with others strengthens communities.

These three elements plus a crosscutting agenda form a community-development strategy directed toward self-reliance, where one lives with sufficient basic needs and dignity, and is capable of decision-making. Self-reliance does not mean relying on oneself solely. There is a need to rely on other communities because mutual support is part of self-reliance. A network of communities forms a larger community.

The study showed that to understand the meaning of research and community development, there is a need to place it in the context of a development paradigm. In developing counties, development during the past 50 years could be grouped according to three models, Welfare, Participatory, and People's Development,

Table 2.7 Summarizes the community's and the outsider's role in relation to each of these three models.

TABLE 2.7 THREE MODELS OF "DEVELOPMENT" (SOURCE: UNITED NATIONS, 2001)

Model	Community' role	Outsider's role
Welfare	Receiver of grants and receive individual assistance	Donation, provision of loans
Participatory	Participation in: 1. Programming 2. Projects as local counterpart	Promotion of certain projects and community organizations
People's development	Development of 1. Community leaders and Community-based organizations to facilitate and catalyse 2. Community-Based Organizations to coordinate and network 3. A process of learning	Minimal

The study found that the learning process requires a common crosscutting agenda. People need to learn and relearn to regain the three essential elements:

- Self-confidence;
- Self-help; and
- Efficient management of local resources.

But there is a need for new knowledge with a holistic dimension which integrates with the extant "local wisdom", thereby becoming an integral part of the whole.

Self-confidence: Most rural inhabitants, as well as the urban poor, have lost their self-confidence after decades of the low opinion of others resulting from their poverty. The process of regaining self-confidence is a process of identifying and rediscovering local resources, local wisdom and local capital. It is a rediscovery of one's own roots, history and linkage, in part to hear how ancestors survived and dealt with problems using their wisdom. They were self-reliant and survived because they relied on one another.

Self-reliance: this means being free in decision-making, implementing one's own development plan while relying principally on one's own resources and capital, succeeding in meeting basic needs and living in dignity. Self-reliance does not mean living independently in the strictest sense of the world. It's the opportunity and the capacity to develop one's own potential in the continuous process of "self realization".

Self-reliance is having a balanced relationship with nature, family, community and society. When there is a balanced relationship with oneself; and there is a feeling of 'sufficiency' where one does not do, acquire or request more than necessary. The limits and goals of life are recognized.

Figure 2.10 shows how the accumulation of local capital has made it possible for many communities to discover that self-reliance is the core value of popular and local wisdom.

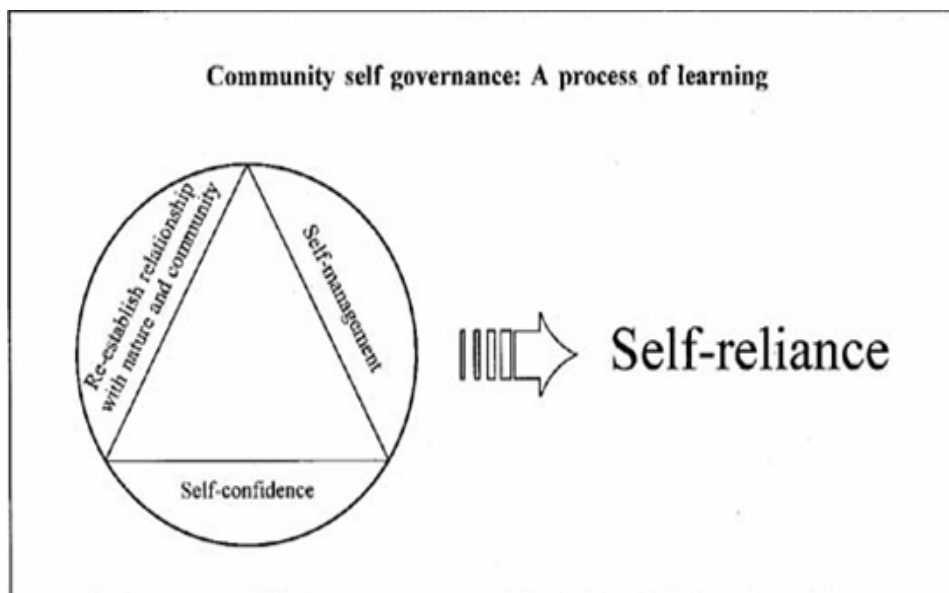


FIGURE 2.10 COMMUNITY SELF GOVERNANCE: A PROCESS OF LEARNING (SOURCE: UNITED NATIONS, 2001)

Efficient management of the local resources: The study concludes that people's development is one approach for rural community development used by communities in Thailand to facilitate the development process. This process needs to be facilitated from the beginning by community leaders or outsiders who are familiar with and accepted by the community. This approach is called 'People's Development' because

the people themselves play a key role throughout this activity as researchers when they plan, collect data, synthesize the outcome, plan strategies, and design development projects and activities. The outside facilitators complement the process. In effect these are the people's own projects.

2.8 Conclusion

From the considerations above it is clear that considerable intellectual ferment has been caused by the theoretical meanings and the practical applications given to the broadly interpreted concepts 'community development' and 'community empowerment'. These have become especially pertinent now that the twin challenges of technological change and the information age have surfaced. The findings of the research and case studies noted to be most relevant to this investigation would appear to be, among others:

1. The accumulation of local capital has made it possible for many communities to discover that self reliance is the core of local and popular wisdom
2. Strengthening the capacity of residents to work individually and collectively to foster and sustain neighborhood change
3. People themselves must implement their own research and development
4. Emphasis should be on community-based programmed ... and during this process, self-confidence, self-belief, and efficient management of local resources are re-learned
5. The foundation for community development ultimately is the empowerment of one individual
6. Technology can contribute to a greater sense of control over one's life
7. The three models for community information systems identified by Doctor and Amken (1996) provide the inspiration for constructing the architecture of a model CIDS combining all three – community marketing, economic development and community service

2.9 Summary

This chapter comprises a review of the relevant literature which relates to this investigation. At the outset the interrelatedness of information needs and community information needs together with some of the related theoretical considerations behind these concepts are explicated. The mining industry is examined as an example of how a community and the advent of a business enterprise might interact. Then follows discussion of the following concepts: community empowerment, information models and information systems, community information database systems, information for community development, and information as it relates to social quality. Some application of these concepts to real life situations are recorded, and Case Studies are presented exemplifying their use in developed and developing countries. The review ensures a better understanding of the above concepts, thus providing insights into the many aspects of community in general, and for the aims of this research to develop a new model CIDS. Finally, several inferences instructive for the conduct of this study have been drawn from the above theoretical and practical discussions.

CHAPTER 3 :

RESEARCH STRATEGY

The purpose of this research is to investigate the information needs and local knowledge of the Inpeng Community Network and classify them into a retrieval form. A model community information database system (CIDS) suitable for rural community development in Thailand is then designed. The provision of a CIDS aims to help empower local communities so that they can deal effectively with their own problems, so achieving sustainable development.

This chapter presents the framework for the research and the rationale for the research design and research methods used. An abbreviated demography of the target population is described. The theoretical underpinnings which classify the study, and support the data collection techniques and data analysis, are given. This chapter also includes an explanation of the role played by the researcher and his research assistants. Finally, issues related to the study, and the limitations are addressed.

3.1 Research Study

Suitable research methods are required in order to obtain answers to the proposed research questions. There are many ways of classifying research methods. In education research, however, one of the most common distinctions is between qualitative and quantitative research methods.

3.1.1 Quantitative Research

Quantitative research supports investigations that researchers can repeat to determine whether the same validity of the initial investigation results can be obtained by using the same procedures in another study (Bryman, 1989). It emphasises the testing of theory rather than generation and developing theory (Guba & Lincoln, 1991). Quantitative research, quantified, analysed and summarised to produce a more generalisable research, enables researchers to collect facts and study the relationship of a set of facts to another by using scientific measuring techniques to produce information in the form of numbers that can be quantified and summarised to produce a more generalisable picture of a problem (Bell, 1993). The most common quantitative research techniques include experimentation and surveys.

3.1.2 Qualitative Research

Since the early 1970s, there has been an increasing move in education towards qualitative research, which is concerned with gaining a deeper understanding of the individuals being studied (Bayman, 1989; Miles, 1994). “Qualitative methods permit the evaluator to study selected issues in depth and detail. Approaching fieldwork without being constrained by predetermined categories of analysis contributes to the depth, openness, and detail of qualitative inquiry” (M. Patton, Q., 1990, p.13). It seeks to gain insight into human characteristics such as motivation, attitudes and behaviour in order to increase the understanding of a problem (Bell, 1993); and it involves analysis of such data as words, pictures or objects.

3.1.3 Comparison of Methods

Both quantitative and qualitative methods have some advantages and disadvantages. A major difference between the two is that qualitative research is inductive and quantitative research is deductive. Quantitative method seeks to answer the question ‘What is?’ which stresses how the social experience concerned is created and given meaning; qualitative method seeks to answer the question ‘What if’ which

emphasises the measurement and analysis of the causal relationship variable, not process (Allison, 1996; Denzin, 1989; Moore, 2002). In quantitative research, a hypothesis is needed before any research can begin; qualitative research, however does not require a hypothesis to begin any research.

3.2 Choice of Research Strategies

Based on the attributes of quantitative and qualitative research methods discussed earlier a judicious mix of two research types was inevitable. However the qualitative aspect predominated as being better for answering more fully the research questions posed by this study. If the answers to research questions (and these are NOT hypotheses) were obtained by the use of simple statistical results the relevance of the CIDS program would be difficult to assess.

As the proposed investigation was shaping up to some form of case study, (Yin, 1994) has emphasised the importance of the qualitative aspects in answering the 'how' and 'why' questions of the research study. An important aspect of their concern is 'how' and 'why' the proposed refined model CIDS might empower the Inpeng community. Indeed, one of the study's purposes is as Bell (1993) suggests, to understand the problem by gaining insights into the motivation, attitudes and behaviour of a particular sample of respondents with regard to their future technological requirements.

Accordingly, adding qualitative flesh to the quantitative bones is a good strategy for overcoming, such problems as interpretation of outcomes, from questionnaires and interviews. Bryman (1989) has suggested techniques for data collection need to be suited to specific research questions, while for Sproull (1995), there are four main techniques for collecting qualitative and quantitative data: questionnaire and interviewing; instrument administration; observation; and examination of documents, materials and artefacts.

Data collection strategies to be used in this study are questionnaires, in-depth interviews and semi-structured interviews. Observation and analysis of related materials are also used sometimes when necessary, theforemost being Triangulation. This technique is a major purpose of mixed-method design for it tests the consistency of findings obtained through different instruments. The mixed-method design also demands in-depth interviews. Such in-depth interviews, combined with the other techniques of a mixed-methods design, enable a model CIDS to be hypothesed, tested, refined, considered for its potential to be disseminated, and evaluated for its potential to empower the community further. Thus, in this study investigation, new insights are expected into the development, implementation and possible dissemination of CIDS. The variety of questionnaires and analytical techniques selected should help in ensuring that the data fully and accurately answered the research questions.

In this study the manner in which the research instruments were used is described hereunder:

- Questionnaire: to ascertain information needs, level of local knowledge and local expertise of individuals;
- In-depth interview comprising some open-ended questions: to find out in detail about individual local expertise;
- Semi-structured interview: to gain further information for refining CIDS; and
- Observation (of):
 - Respondents who answer the questionnaire
 - Identified experts having local knowledge
 - The CIDS users at CLCs

3.2.1 Questionnaire

One instrument used in this study was a Questionnaire (Appendix B). Sproull (1995) defines the term '*instrument*' and gives the following examples, which includes the questionnaire.

An instrument is whatever device is used to measure variables. Instruments can range from written or oral materials to physical devices. Examples of instruments include: (1) questionnaires (e.g., asking opinions of recent mergers), (2) rating scale (e.g., rating major corporations on the social goals), (3) skill test (e.g., a testing test), (4) checklists (e.g., checking cities which have a high 'quality of life') and (5) materials created by Sc (e.g., Ss designing parts for a computer). (Sproull, 1995, p. 175)

The initial Questionnaire Protocol (Appendix B) was used to gather the information needed from the respondents, enabling the researchers to determine the extent of local knowledge and ascertain the number of local experts in the community. This data assisted the researcher to answer Research Questions One and Two.

3.2.2 Interviewing: Openended In-depth and Semi-structured

Interview techniques involve systematic collection of verbal information about the interviewee's opinions, attitudes, values, beliefs or behaviours (Sproull, 1988). Interviews have been used in a wide variety of research projects and can be unstructured, semi-structured, or structured. The main benefit of using the in-depth and semi-structured interview technique is that interviewees can express their feelings and opinions in their own terms. Having the interview structured but with open-ended questions enables more comprehensive answers to be given. Sproull (1995) writes that the interview technique is most useful for:

- Evaluating programs that are aimed at individualised outcomes;
- Capturing and describing processes;

- Exploring individual differences between participants' experiences and outcomes;
- Evaluating participants' evolving understanding of a program; and
- Documenting variations in program implementation at different sites.

Patton (1990) describes three basic approaches for data collection using open-ended interviews:

- The informal conversational interview;
- The general interview guide approach; and
- The standardised open-ended interview.

The standardised open-ended interview format was chosen for this study because it seemed more appropriate for obtaining additional information about the effectiveness of CIDS and its features preferred by respondents. This technique was thought best to facilitate the collection, organisation and analysis of completed data in a limited period of time. Patton (1990) writes that there are basically six kinds of questions that can be asked of people:

- Experience/behaviour questions;
- Opinion/values questions;
- Feeling questions;
- Knowledge questions;
- Sensory questions; and
- Background/demographic questions.

The interview conducted for this study aims to assess the utility of the initial model and then the refined CIDS. This allows for exploration of respondents' perceptions of the ease of use, appearance (format), feelings about content, contribution to their

intellectual development, and their level of understanding of the concept being promoted.

The strengths of this interviewing format—each respondent giving complete answers to the same question, thereby reducing possible interviewer bias and facilitating the organization and analysis of data, outweigh its alleged weaknesses of lacking flexibility and having the possibility that the standardised wording of the interview instrument might inhibit some of the respondents.

The In-depth Interview was used to collect data from selected experts to assist in developing a model CIDS whereas a Semi-structured Interview was implemented over a 4-5 month period to obtain data related to Research Question 3. This question concerns the possibility that the refined CIDS, if accepted for installation in the CLCs within ICN, might impact positively on individual and community empowerment.

3.2.3 Observation

The observation technique is the systematic recording of a subject's behaviour patterns without questioning or communicating with them. Sproull (1988, p.10) defines this as “A data collection method in which a person (usually trained) observes Ss or phenomena and records information about characteristics of the phenomena”. There are two main types of observation: participant and non-participant observation, which can be part of either quantitative or qualitative research (Bell, 1993).

Observation enables first hand knowledge of the context in which events occur and allows the researcher to see things that the participants themselves are not aware of or unwilling to discuss (M. Patton, Q., 1990). Patton also notes that:

What people say is a major source of qualitative data, whether what they say is obtained verbally through an interview or in written form through document analysis or survey responses. There are limitations, however, to how much can be learned from what people say. To understand fully the complexities of many situations, direct participation in and observation of the phenomenon of interest may be the best research method (M. Patton, Q., 1990, p.25).

This notion is supported by Marshall and Rossman (1999, p.107) who claim that “Observation is a fundamental and highly important method in all qualitative inquiry: it is used to discover complex interactions in natural social settings”. The non-participant observer method was considered to be a useful data collection strategy for this study because only this type of data would help to confirm respondents’ opinions. Observation was used in three different ways in this study:

- Observation of respondents who were given the questionnaire as in the first step of data collection;
- Observation of local experts during the In-depth Interviewing and;
- Observation of respondents using CLC/CIDS during the Semi-structured Interviewing phase.

3.3 Theoretical Underpinnings

This research concentrated its investigation at the outset on the four provinces comprising the area of the Inpeng Community Network (ICN). The initial data obtained was used to design and implement a model CIDS which, when refined, and implemented, may help the development and empowerment of the ICN communities of the four provinces. This refined model, if accepted by the local communities, should then form the basic model for wider dissemination ultimately throughout the ICN.

To pursue the research outlined above reference was made to Keeves (1988, p.49) who describes the research to be used as a type of Quantitative Research, one requiring a Case Study Method. Specifically this form of investigation is, “the collection of data on site [throughout the four provinces of ICN] which generally involves participant or non-participant observation and interviewing; the collection of documentary evidence and descriptive statistics, and the administration of questionnaires; and possibly the use of electronic recording media”. According to Stenhouse (1980, p. 16), the form of this study classifies the research as an “ethnographic case study”. Here a “single case is studied concentrating on the understanding of human societies particularly through the observation and interpretation of inter-personal relations”.

Ethnology is a methodology that is *concerned with how people make sense of their everyday world* (Cohen, Manion, & Morrison, 2000). According to Wolf & Tymitz (1997), ethnographic research presents as closely as possible, how people feel, what they know, and what their concerns, beliefs, perceptions and understandings are, while Wiersma (1986, p.40) provides several limitations to the use of ethnology, the essential one being that the findings are not widely generalisable. Therefore any conclusions of this study can be generalised only to the ICN.

Instructive, supportive and cautionary advice for the questionnaire/interview mode of seeking data adopted for this study is given by Denzin (1989, p.14), who advises that research objectives must translate into specific questions which must assist the questionnaire/interviewer in motivating the respondent, so that the necessary information is given. Further, he contends “the meaning, not the wording, of questions should be fixed; there must be a probing of the meanings which lie behind answers; and any problem being framed in way that have meaning for the respondents”.

3.4 Theoretical Framework of the CIDS

This section presents information regarding the envisaged Community Information Database System (CIDS) and other background information.

CIDS is the model of a community information database system which will result from this study. Sakon Nakhon Rajabhat University (SNRU) has agreed to administer and manage the CIDS as a part of its information technology service system. In particular, this responsibility falls on the computer centre, the office of academic services, and the academic service unit to the community. The foregoing role of SNRU fulfils one of its many objectives for local development as described below.

According to article 7 of the SNRU (Rajabhat University Council), the SNRU's objectives for local development are:

- to provide an academic and high level vocational education;
- to conduct research and provide an academic service to the general public;
- to improve, transfer and develop technology;
- to preserve and promote arts and cultures; and
- to produce teachers and elevate their status.

The potential relationship between the model CIDS, and the mission and responsibility of the SNRU, which is a higher education institution for community development, is shown in Figure 3.1.

An Investigation into a Community Information Database System in the Northeast of Thailand: Community Empowerment through Community Learning Centres

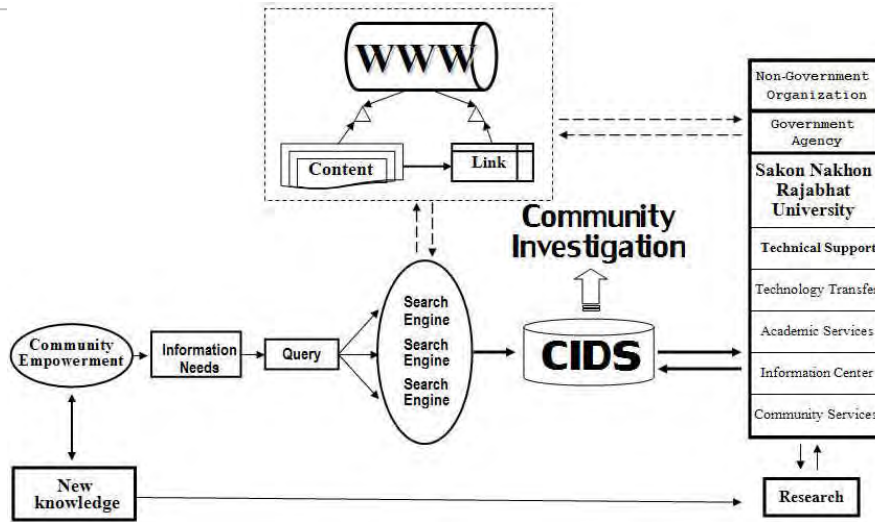


FIGURE 3.1 RELATIONSHIP BETWEEN THE COMMUNITY INFORMATION DATABASE SYSTEM (CIDS) AND THE SNRU

Figures 3.2 and 3.3 show the significance of CIDS which acts as the knowledge bank of the community.

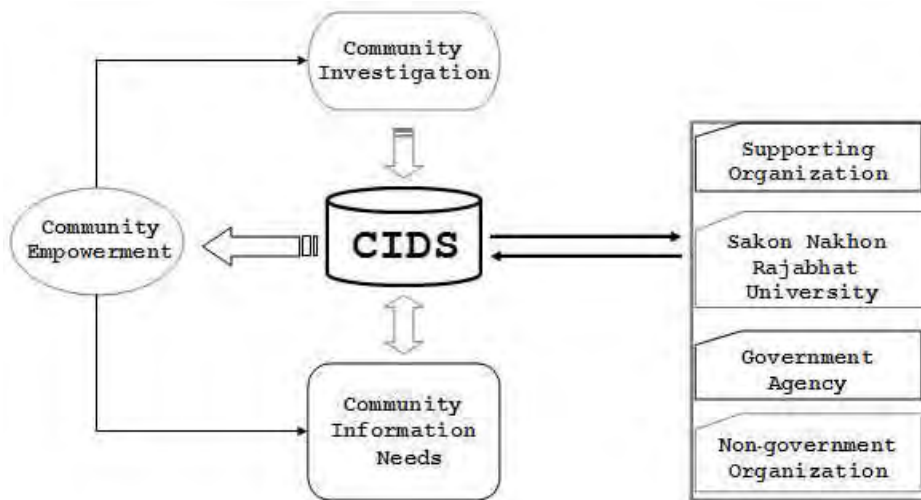


FIGURE 3.2 THE CIDS AND COMMUNITY INFORMATION MODEL

Apart from collecting knowledge in the community, it also supports non-formal education. It is the intelligence storage of the community that may promote self-support development.

The CIDS will be a source of new knowledge that encourages new information and strengthens the community.

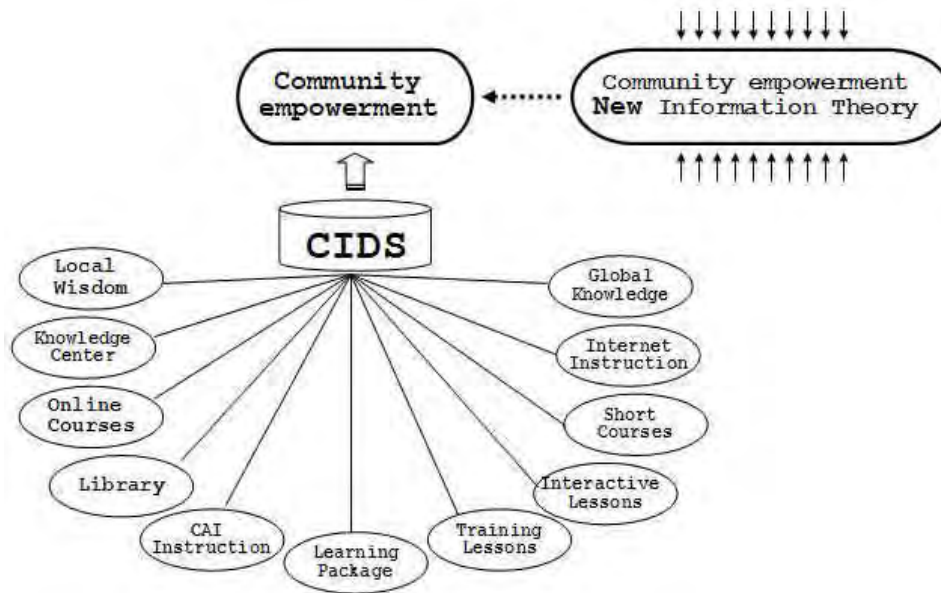


FIGURE 3.3 THE CIDS AND COMMUNITY EMPOWERMENT

3.5 Data Matrix

The data for this research was collected using the strategies which follow.

1. Subject-questionnaire
 - ICN members
2. In-depth Interview with selected experts
 - Selected local experts
3. Semi-structured Interviews
 - CIDS users
4. observation
 - Respondents who answer the questionnaire
 - Experts with local knowledge
 - The CIDS respondents at CLCs

The data collection strategies with their means of analysis are summarised according to their application to each of the three research questions, and tabulated in matrix as follows:

Research Question	Method	Data Collection	Data Analysis
<ul style="list-style-type: none"> What are the information needs of the ICN, and how can they be classified? 	A G & D	<ul style="list-style-type: none"> Action research Questionnaire administered to sample of community respondents. (Appendix B) 	<ul style="list-style-type: none"> SPSS Software Descriptive analysis Investigate information needs and local knowledge and identify local experts
<ul style="list-style-type: none"> What is the current level of local knowledge in the ICN and how can it be collected? 	B G D & F	<ul style="list-style-type: none"> Action research Questionnaire administered to sample of community respondents. (Appendix B) 	<ul style="list-style-type: none"> Qualitative analysis Assess the body of local knowledge and local experts
<ul style="list-style-type: none"> What is the potential model for an information system that is applicable to rural communities of the ICN in term of their information needs? 	C G E & H	<ul style="list-style-type: none"> Semi-structured Interview for a sample of respondents variously trained in use of model CIDS (Appendix D) Refinement of CIDS ready for dissemination 	<ul style="list-style-type: none"> Inferential analysis Evaluate potential of CIDS to empower local community
Note A: Questionnaire protocols B: Local knowledge analysis C: Semi-structured interviews D: Researcher's responsibility		E: In-dept interview F: Visit Local experts and families G: Visit Community Learning Centre (CLC) H: Selected by ICN committee	

3.6 Target Population: Sampling and Training

The ICN is already considered to be a network of strong communities, self-supporting and empowered. It is a model for other community networks in Thailand being one of the community models used as a part of an international UNDP project concerning community governments whose purpose has been to develop the local people's potential and rediscover indigenous wisdom. In this UNDP project the successful community governments became the base, with other resources added, to provide the solid platform needed for building each community's HIV resilience (United Nations, 2001).

The ICN consists of more than 800 communities and 84 sub-districts in 4 provinces in the Northeast of Thailand namely, Sakon Nakhon, Kalasin, Mukdahan and Udon Thane provinces. Every year the community leaders and various members of the CLCs in the Network meet, between two and three thousand people in all. The initial target population, the ‘snowball sample’ was chosen therefore from among community members, community leaders, government officers and local knowledge experts who conclave once a year. The study was commenced in selected communities from this Network.

3.6.1 Sampling

During one such Annual Meeting, opportunity was taken by the researcher, who was accompanied by his small team of previously trained research assistants, to explain his intentions for the proposed research. Five hundred participants from CLCs grouped by Province, were invited to be members of a cluster sample to commence the research project by responding to a research-related questionnaire about the proposed model CIDS.

The first step in a two phased sampling process started with this snowball sample which Denzin and Lincoln (2003) typifies as using one sample to produce another which may change from a simple random sample to a non-random sample. However, the Internet article, *Sampling Methods* (StatPac Survey Software, 2004) warns that as this sampling method relies on referrals the technique itself may reduce the likelihood that the samples will represent a good cross section from the population.

Subsequently, in the second phase of sampling, two other samples were required – a sample of ten experts selected by the ICN Committee, and a sample of 165 variously qualified and trained respondents to trial the model CIDS and respond to the Semi-structured Interview. Many of these respondents overlapped with those from the initial ‘*snowball sample*’. This method of sampling has been termed a ‘convenience sample’, one that is ‘used in exploratory research where the researcher is interested in getting an inexpensive approximation of the truth’ so the sample was selected

because the respondents are convenient, this method being ‘used during preliminary research efforts without incurring the cost or time required to select a random sample’ (StatPac Survey Software, 2004).

3.6.2 Design and Development of the Instruments for the Study

In designing the research-related questionnaire and the interview protocols, several steps were involved in the development of these instruments.

At the outset, draft questionnaire and interview protocols were prepared before being presented for review to several expert bodies: the Research Development Institute (RDI), and the Department of Library and Information Science, Faculty of Social Sciences and Humanities at Khon Kaen University, Thailand. Then the questionnaire protocols alone were previewed and tested with 35 students whose homes were in the various communities, but studying at SNRU. After further revision the questionnaire was again previewed and tested with 35 community members of Sakon Nakhon province. Finally, the amended questionnaire documents were reviewed by other relevant experts.

3.6.3 Implementation of the Questionnaire

Phase One: The standardized questionnaire was implemented with the snowball simple sample of 500. They gave 465 (see Figure 3.4 Research Design Summary) usable responses to the questionnaire. These responses provided the data which, when analysed enabled Research Question One to be answered, and yielded the small sample of respondents for Phase Two.

Phase Two: A sample of ten respondent experts from among this 465 was chosen for In-depth Interviews, by the ICN Committee. In particular, they were chosen from the list of individuals with expertise, Experts, identified when the data from Phase One were analyzed. A particular Expert was chosen because of his/her expertise in a wide

variety of subjects following analysis of the data from the questionnaire in Phase One.

Phase Three: The samples to undertake this phase, Semi-structured Interviews of users of the prototypic CIDS developed, were selected from four groups. Some of the personnel in this sample had already been members of the samples used in Phases One and Two. The first 30 respondents who may be described loosely as Technicians, 15 from the nearby SNRU and 15 from the Network, were given three days of technical training. A further 30 respondents who were new users of the prototypic CIDS, were given two days general training to enable them to be knowledgeable about the use of CIDS and be able to promote it. The third group of thirty or so neophyte users of CIDS were chosen and allowed three months to familiarise themselves with this new technological tool. The fourth groups comprised the remaining untutored, personnel who made up the total of 165 respondents. This cohort of respondents included several ICN Committee members who agreed to become respondents to the Semi-structured Interview.

3.6.4 Training

Coincidental with the three phases during which sampling and implementation of the research instruments occurred; specific training of segments of the total sample took place. Thus, before the introduction of the proposed research to the large Annual Meeting of Community and CLC leaders and the implementation of *Phase One*, a small team of research assistants, students from SNRU, was given training about the purpose of the research, the construction, meaning, purpose and use of the questionnaire and the latter's analysis.

Prior to the implementation of *Phase Two*, the ten respondent experts to be interviewed in-depth by the researcher were familiarized with the analysis of *Phase One Data*.

The *Phase Three* sample was trained in four categories as described above.

Several research phases commencing with the implementation of the first questionnaire on Community Information Needs and ending with Refined CIDS Database Design are succinctly shown in Figure 3.4.

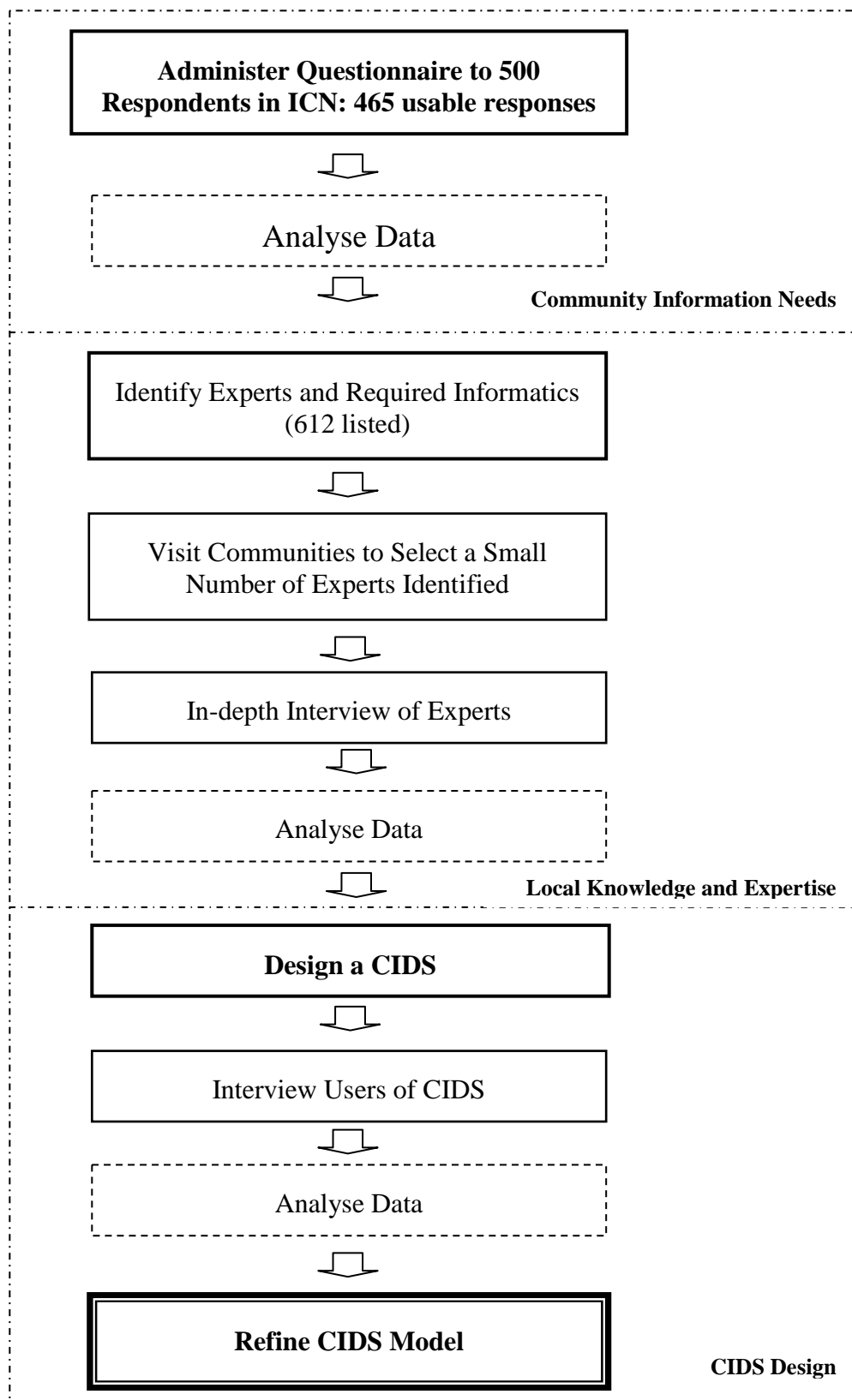


FIGURE 3.4 RESEARCH DESIGN SUMMARY

3.7 Data Collection

Several stages of data collection were undertaken, from the questionnaire through in-depth interviews and semi-structured interviews with appropriate snowball and convenience samples of respondents.

3.7.1 Phase One

The researcher visited 500 respondent members of the snowball sample cohort in their home communities. These were the personnel who had volunteered to be respondents to the Questionnaire Protocols at the Annual Meeting of senior personnel from all the CLCs of the ICN (See Appendix B). The researcher's purpose was to administer the 500 Questionnaire Protocols concerned with community information needs. These were distributed among the volunteer respondents from the interested communities. Explanations sought were given and most respondents were able to answer the questionnaire independently. Some expressed the need for assistance and this was given by the researcher and the team he had previously trained. Of the 500 responses 465 were deemed to be valid.

In the next part of Phase One, the data derived from these Questionnaires were analysed using a Statistical Package for the Social Science (SPSS) and other electronic tools, such as tape recordings of those who needed help from the research assistants to complete the protocols. The SPSS Package was able to analyse and synthesise the data for community information needs, local knowledge and experts in their fields. It provided an applicable transfer scheme suitable for the retrieval of relevant knowledge from the data input, including the subjects most needed by the participants for inclusion in the data base. Formats were designed so that the data processed could be catalogued using the 'Sears List of Subject Headings of the Library of Congress' (Maxwell, 1980).

3.7.2 Phase Two

The researcher next returned to the communities to meet the local experts and their neighbors prior to conducting in-depth interviews (Appendix C) with those chosen by the ICN Committee after the previous phase. The main criterion for their selection was that each expert had multiple knowledge about many of the subjects indicated to be of local interest in Phase One. The researcher interviewed the experts while other research assistants took notes during the interview, another used a tape recorder for further accuracy of reported answers, and yet another used digital video recording and other electronic media so that meaningful gesticulations might also be recorded, then interpreted.

After the full analysis of each respondent's answers made during the in-depth interview was complete, a transcript of the interview was taken back to the interviewee for comment, correction of any misapprehensions, and final validation.

After this phase was completed the researcher completed a prototypic CIDS and its Homepage in anticipation of their use during Phase Three.

3.7.3 Phase Three

As described in Section 3.6, the Third Phase of the investigation required Semi-structured Interviews with 165 respondents from the SNRU, various CLCs, and members of the ICN Committee. At the time of implementation they had experienced varying degrees of familiarity with the model CIDS. Implementation of this phase took between four and five months before all interviews could be processed, and the results being entered for analysis into the basic CIDS model created after Phase Two.

3.8 Analysis of Data

In order to answer the first research question, ‘*What are the information needs of the Inpeng Community Network*’, the main questionnaire (appendix B) was analysed using the SPSS package and other electronic tools. The purpose was to identify, describe and summarize community information needs. This involved an interactive process incorporating several stages of community feedback and modification. The research question posed is answered during the evaluation of the community database.

To answer Research Question Number Two, ‘*What is the local knowledge of the ICN and how can it be collected*’, information from the Questionnaire (appendix C) was analysed using SPSS tools. The purpose was to identify the local experts and their areas of expertise, before describing how best to collect necessary details for analysis and inclusion in the model CIDS. The research question was answered after the implementation of the second phase - In-depth interview (Appendix C) the researcher with some support interviewed the 10 Experts chosen by the ICN Committee from the comprehensive list generated from analysis of the Questionnaire Protocols by the ICN Committee. The In-depth Interviews took place in the Experts’ home communities, the information given enabling the researcher to assess the format of the website and homepage of CIDS model network system such as text, font, menu and format design, etc.

The third research question is ‘*What is the potential role of CIDS in the empowerment of the community?*’, was answered after the main responses to the Semi-structured Interview questionnaire (Appendix D) were analysed using various technological tools. The purpose was to identify, describe and summarize data in a retrievable knowledge form so as to refine the model CIDS. This procedure made the refined CIDS applicable to information needs, development and empowerment of rural communities in ICN.

3.9 Reliability & Validity of Data Collection

Aiken (1997, p.165) writes that “An instrument must be reliable in order to be valid, but it is not necessarily valid because it is reliable.” Reliability and validity have been variously defined, the former by Rosenthal and Rosnow (1991, p.13) who contend that, “*Reliability is the degree to which observations or measures are consistent or stable.*” Joppe (2000, p.3) similarly defines reliability as “*the extent to which results are consistent over time and an accurate representation of the total population under study*”. Reliability is said to be present if the results of a study can be reproduced using a similar methodology, the research instrument is then considered to be reliable (Golafshani, 2003).

Triangulation is the essential strategy used for improving reliability and validity of the instrumentation and data collecting techniques in the qualitatively-oriented, mixed research design used in this investigation. It increases the controls of bias and causes which have the potential to influence the results of the research. This enables valid statements to be made. As explained elsewhere, to reinforce this major aspect of the research design, multiple sources of data were triangulated, the data being viewed from more than one source of information to ensure veracity wherever possible. It is acknowledged that the external validity of this qualitatively-oriented research leads to limited generalisability of the study’s result, but this weakness in research methodology is tempered by the homogeneity of the districts being studied with respect to culture, religion, and general sociological factors. Internal validity is considered to be strong through the rigour which all aspects of the mixed-method design are implemented, and the taking into account of any other perceived causal relationships. An extra positive factor is what might be termed ‘respondent validity’ whereby the researcher’s interim findings are painstakingly checked with all respondents and altered accordingly if necessary.

Additionally, in the matter of External Validity and the generalisability of the generalisability of the study’s results, Paton (2002) warns of this inherent weakness in the methodology too. A further negative consequence, which must be acknowledged,

is that the population samples used are not random. The mitigating factors here pertain to terrain and transport difficulties, the 'developing nation' status accorded the districts under investigation, and the time available for the investigation. A major compensatory factor lies in the richness of the data received which leads to a more positive formation of a firm, final hypothesis regarding a refined model CIDS and its expected outcomes.

Further, reliability of the research instruments is enhanced when as many means as possible are used to cross-check and triangulate respondents' answers. In this study, as a prelude to the researcher's interim findings being fed back to respondents for comment, notes taken at the time of interview/questionnaire, video, voice tape and body language came heavily into play when the interim reports were being finalised. In short, instrument reliability and validity were under review constantly to justify data interpretation.

Validity determines whether the research truly measures which it was intended to measure or how truthful the research results are, i.e., 'Is the degree to which what is observed or measured the same as what was purported to be observed or measured?' (Rosenthal & Rosnow, 1991) In other words, does the research instrument allow you to hit 'the bull's eye' of the research object? Respondents' reactions indicated that the study accurately assessed the specific concepts to be measured, i.e., it hits 'the bull's eye'. The degree to which this important factor was achieved was tempered by the study's inherent weaknesses. First, the acknowledged weakness of Case Study method is that generalisability of conclusions is limited; and secondly there were simple deficiencies in internal rigour, e.g., in the matter of such causal relationships as: what were the possible reasons for there being a preponderance of male respondents to the Questionnaire Protocols and the reverse in the case of female respondents to the Semi-structured Interview Protocols.

It is believed that for this study, the face validity criteria were met: the instrumentation was well designed and capable of eliciting the information expected. Though the unexpected was always possible, the instrumentation was theoretically sound. In

terms of *content validity*, the instrumentation and research design allowed it to reflect the intended domain of content.

Consideration of the relevant aspects of reliability and validity, and the use of triangulation would suggest that the design of research instruments and methods of data collection have some minor flaws which conspire against generalisable conclusions. Patton's (1990) caution that, 'There are no perfect research designs; there are only tradeoffs,' may tip the balance of probability so that the conclusions are of limited generalisability, given that the research instruments remain squarely reliable and valid. If not, the best that can be hoped is that the conclusions reached using field methodology with un-randomised cohorts of respondents in this study only point the way to the future.

3.10 Ethical Consideration

Before the study was commenced, the researcher met with the ICN Committee and representatives of SNRU and Sakon Nakhon province, outlining the basic thrust of the planned study, and gaining their agreement to cooperate. Later, the ICN Committee, the community leaders, and the researcher again explained the aim of the study to the cohort of respondents obtained as a snowball sample to take the Questionnaire. The researcher, in particular, explained clearly the reasons for the study and the methods to be used in implementing the instrumentation. The respondents were also informed of the importance of the study and if, for any reason, they felt uncomfortable with their participation, they would be able to withdraw their consent at any time.

To protect the subject's right of privacy, the data were treated with the strictest confidence. The subjects, except the Experts, were not identified by name in any reports. The names of these Experts were in the public domain already. The interviews, which were transcribed verbatim, were stored on a computer media in a private and secure location. Furthermore, the respondents were promised that all data

collected would be destroyed five years after completion of the study. Finally, a consent form was given to those subjects who indicated that they were willing to be part of the study. Respondents were asked individually for their consent to use recording devices.

3.11 Limitation of the Study

Local communities under this research are those in Inpeng Community Network covering the following four provinces in the Northeast of Thailand: Sakon Nakhon, Kalasin, Mukdahan and Udon Thani. This study does not intend to design a package of software but will design only the model of database system.

3.12 Summary

In this chapter, the framework for research and the rationale for research strategies are presented. The use of questionnaire and interview protocols is discussed from a theoretical point of view, and from practical aspects such as their development and implementation. The type of research, a Qualitative Research Method-Ethnographic Case Study, is identified. The target population and the sampling for the three phases of the research are described. This chapter also presents the design, development and implementation of the research instruments. The reliability and validity of the research instruments and data collection procedures used are discussed. Finally, ethical consideration and limitation of the study are addressed.

CHAPTER 4 :

THE INPENG COMMUNITY NETWORK (ICN)

This chapter looks at ‘community’, ‘community development’, ‘empowerment’ and ‘community empowerment’ as processes. This is a way of working together to bring about a positive change in people’s lives. Next, community development and community empowerment in Thailand are described. The Inpeng Community Network (ICN), the Thai community selected for this research, is presented in detail.

4.1 Community Development and Empowerment

The section presents the four major elements that underpin the current research. They are: community and community development, empowerment and community empowerment.

4.1.1 Community and Community Development

The term ‘**community**’ has two meanings. It may refer to a group of people who live in the same area; for example they belong to a geographical community. It can denote a group of people sharing common interest or identity, having something in common such as gender, religion, etc. It is important that while people may have something in common which gives them a sense of community identity, it does not mean they are homogenous. Even within communities, people may have differing needs and circumstances.

Community development can be defined to emphasize on the aspect of empowering people to take ownership and control over their own lives and bring about a positive change. Community development is essentially about empowering people who are

socially excluded or marginalised, and to bring about social change actively, shaping the society of which they are a part of. It is a collective process that helps people to identify and articulate their needs, and influences the process and structures that impact on their everyday lives.

Community development actually falls between social planning and social action. It often involves partnerships with knowledgeable and committed professionals who believe that citizen involvement is crucial to the planning, empowerment and building of stronger communities. There are a growing number of communities across the country which is undertaking community development. One benefit of the community development approach is that a group's needs are more likely to be met, because it is having a direct say in what is happening. Many projects aim to link community development, health, leisure and empowerment. The benefits are being documented in several communities.

4.1.2 Empowerment and Community Empowerment

Empowerment is a process whereby individuals struggle to reduce personal powerlessness and dependency by having increased control over their lives. Empowerment is an important outcome of community development. Empowerment has been defined in the literature in two ways: individual empowerment and community empowerment.

Individual empowerment refers to benefits individuals attain from being involved in a community development or a similar process. As individuals become involved, they gain invaluable personal skills. Individuals have the ability to tap into potential they did not know existed within themselves. They acquire self confidence and self esteem.

Community empowerment, on the other hand, refers to broader benefits to the overall community. The community development process attempts to instil a growing sense

of the enhancement of community life; individuals develop a sense of caring for their community and are therefore more motivated to be involved in their community and to have an impact on it.

Thomas (1998) provides us with more comprehensive pointers to the identification of community empowerment. They are:

A principle founded on the belief that communities have the capacity and right to manage their own affairs. Community empowerment is the process by which communities establish and sustain their identity.

Community empowerment is the combined strength of two sources: power-from-within and power-with-others. Power-from-within is the realization of personal power and abilities, and power-with-others is the combined abilities to work together.

Community empowerment is composed of two key elements: self-realization of individuals, and individuals working together as a community to achieve a common purpose.

4.2 Community Development and Community Empowerment in Thailand

Three major elements together influence the development of a community in Thailand: family, religion, and school. These are depicted in Figure 4.1 below. Each has an overlapping, integrated effect. The developments in unison of these three elements unify, strengthen and empower a community.

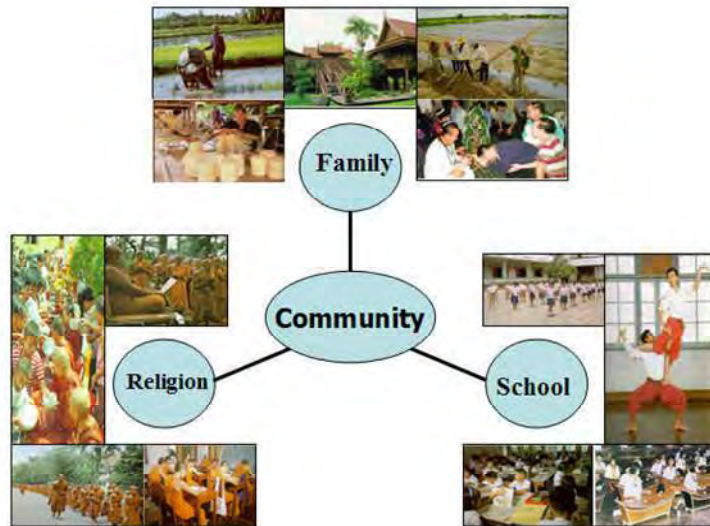


FIGURE 4. 1 THE THREE MAJOR COMPONENTS OF A COMMUNITY IN THAILAND

Community empowerment has emerged in parallel with the community development that has taken place in Thailand since the 1970s. Several hundred thousand community-based organizations and networks have been developed since then. These groups and networks have been created to cover a wide range of issues such as people's livelihood, environment, culture, alternative farming, nature resource management, micro-finance, basic industrial management, eco-tourism, health care, and education. Some of these groups originated wholly within the villages; some were started by 'development monks'; and some were promoted by Non-Government Organizations (NGOs).

Community empowerment therefore has been, and is a learning process on a national scale. But the motivation force for empowerment must come from within communities themselves. However success requires understanding and acceptance by government and civil society. Among the many community groups which had emerged by the 1990s, largely under their own steam, two types stand out. The first are saving and credit groups; the second are groups trying to manage the local environment. These reflect the two main problems facing local communities in the midst of rapid economic and social change, namely the vulnerability to debt, and the importance of the community's natural resources. Groups formed to confront these two issues often served as the basis for other community projects, including social

protection, health care, and education. Some experiments in cooperation between communities and outside actors/artists emerged from the 1980s onwards. Companies sponsored income-enhancing projects and donor agencies began to channel funds directly to community groups.

Interactions among various elements in community development and community empowerment in Thailand are shown in Figure 4.2. Various individuals within a community define a community problem particular to the aspirations of a section of the community. A wider interest group then works together to develop a solution to the particular community need, and to implement it. In the process a great deal of learning together and participation takes place, resulting in individual, group, and ultimately community empowerment.

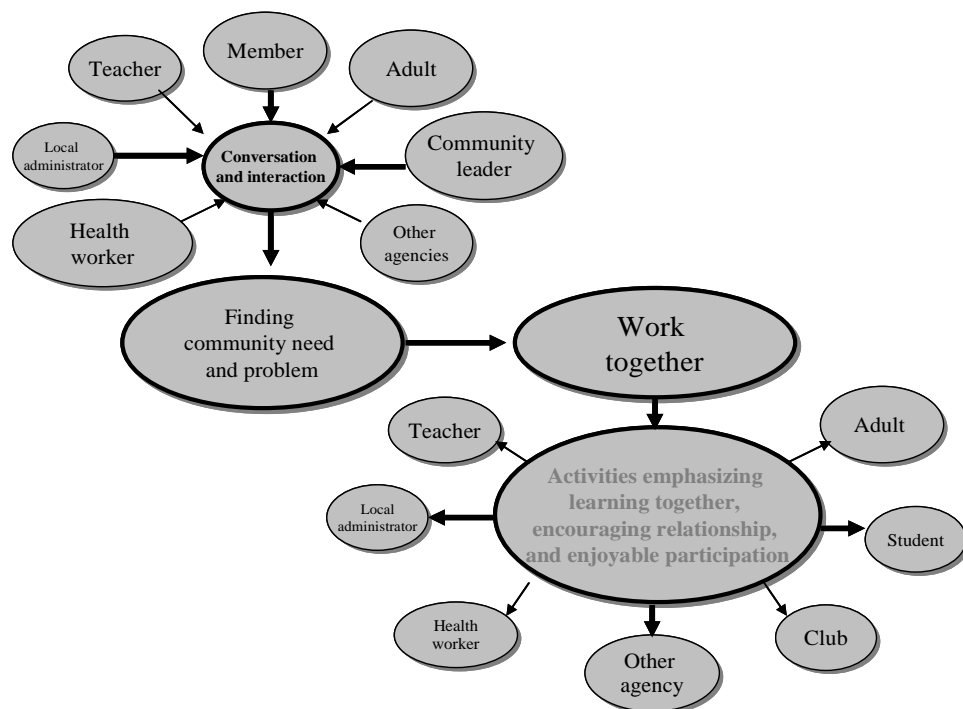


FIGURE 4. 2 COMMUNITY EMPOWERMENT IN THAILAND & ITS ELEMENT (MODIFY:BRUNS, 1992)

Overall, community development ensures the empowerment of both individuals and local communities through involvement, education, skill development, and proposed changes in existing conditions.

4.3 Background of the Inpeng Community Network (ICN)

The Kingdom of Thailand, covering an area of 514,000 square kilometres, lies in the heart of Southeast Asia, roughly equidistant between India and China. It shares borders with Myanmar to the west and north, Lao P.D.R. to the north and northeast, Cambodia to the east and Malaysia to the south.

Thailand is divided into four distinct areas: the mountainous North, the fertile Central Plains, the semi-arid plateau of the Northeast, and the peninsula south, distinguished by its many beautiful tropical beaches and offshore islands. There are 76 provinces around the country.

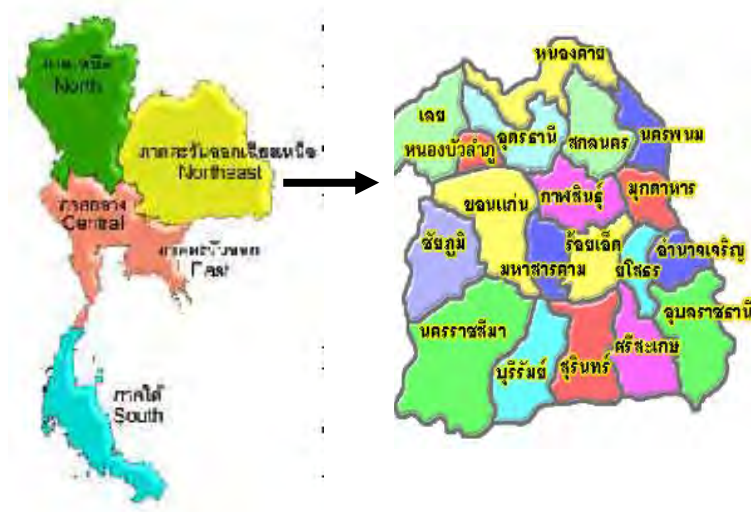


FIGURE 4. 3 LOCATION OF INPENG COMMUNITY NETWORK

Inpeng Community Network (Figure 4.3) is located in the Northeast of Thailand (covering 19 provinces and called ‘Isan’ by Thai). “Inpeng” Community started in 1992 in Sakon Nakhon province. At present, Inpeng Community Network (ICN) has expanded to include more than 800 communities from 85 sub-districts, 21 districts in 4 provinces in the Northeast of Thailand. These provinces are Sakon Nakhon, Kalasin, Mukdahan and Udon Thane provinces (United Nations, 2001, p.6).

Inpeng was the name of an organization of local farmers, which was established in 1987 initially being called the 'Local Plant Fund Group'. This group was founded as a result of a mutual study between the Village Foundation and Sakon Nakhon Teacher Training College (now Rajabhat Sakon Nakhon University: SNRU) in order to help villagers become self-sufficient once again and live healthier, sustainable lives.

The name 'Inpeng' was given by a wise man who once visited the Inpeng Centre in nearby Sakon Nakhon city, which is located in Ban Bua, Kudbak district, Sakon Nakhon province. He was so fascinated by the beautiful scenery of that area that he likened it to God's creation. 'Inpeng' means 'Indra has created' (Indra is a Hindu God). It is the name of a network of community-based organizations situated around the foot of Phu Phan Mountain in Northeast Thailand. Until 1999 this network consisted of 84 village communities in seven districts of Sakon Nakhon, Udon Thane and Kalasin provinces. In 2000, the network expanded to include another 10 districts of Sakon Nakhon, totalling over 150 village communities.

The story of the Inpeng Community Network really began in 1987 when Thawatchai, new graduate from Sakon Nakhon Teachers College, was sent to Ban Bua as a volunteer from a joint programme on community development being launched jointly by the Sakon Nakhon Teachers College (later to be named Rajabhat Sakon Nakhon University) and the Village Foundation. His supervisor instructed him not to advise the community about any development projects for at least one year. Instead, he was to live in the village as a villager and learnt about the community's culture, way of life, values, strengths and weaknesses, aspirations and needs, as well as the difficulties they faced and their potential they had to solve their problems (Sakon Nakhon Consultant Office, 2004).

Thawatchai followed these instructions. In the beginning, he was suspected of being a former Communist or a secret police agent. Slowly, the community accepted him as a member. He spent most of his time in the village helping anyone who needed

help. He gradually became a facilitator in community discussions. He knew how to raise questions and argue with the people.

It was a year of learning for both Thawatchai and the villagers who recalled their own stories while answering his many questions. He questioned, for example, how the community came about; from where did the founders of the village originate; how many families were initially in the community compared with today; how people lived in the beginning and how things had evolved; what natural resources existed in the forest and river; what people found as food in the forest; what problems were encountered; how people solved their problems and so on.

Inpeng community, introduced in 1992, has been blessed with the bountiful natural resources of Phu Phan Forest. As a result, one major aim of the network is to continue the sustainable development of the forest and local resources relying on a self-learning process. Because Inpeng community network has been considered by many to be a network of strong communities due to its committed self-support and empowerment; it has been selected for this research.

4.4 The Eight Principles of the ICN

Members and the committee of the ICN are governed by the ‘Eight Inpeng Principles’ (Sakon Nakhon Consultant Office, 2004). One aim of the governing principles is to ensure that no families will be forced to opt out from the community because of having fallen into poverty.

The eight governing principles are:

Principle 1: Inpeng family members must learn together such matters as curriculum for the ‘University for Life’. The learner must use their personal data, family data and community data for their learning. They must participate in learning together, at

least at district level; and save some income for network activities. The member should enjoy learning in some area of interest and aim to solve the day-to-day problems of living.

Principle 2: Inpeng members must help solve all problems together. A problem must not be accepted as inevitable, but ideas must be changed so as to solve the problem, maybe together. Learn from out side or bring others together for a solution to be found.

Principle 3: Inpeng families must implement the three main of rules of agriculture in order to avoid toxins or poisonous substances:

- Grow all vegetation and plants for living needed for daily sustenance.
- Move all forest plants to the kitchen garden and improve quality of life.
- Reserve sufficient food for the family, and sell any excess.

Principle 4: Inpeng families must engage in savings, knowing how to manage all income earned, while adding value to the family and community.

Principle 5: Inpeng families must learn and know the value of the national resources around themselves and in the community. Local knowledge from experiences must be applied, as well as what has been learnt from outside, thus creating new ideas for application in their daily living.

Principle 6: Inpeng families must know about the changing world and envisage to apply new knowledge they can apply to their present agriculture. They must try to create new theories to improve the quality of agriculture and life.

Principle 7: Inpeng families must cooperate with the community bang called ‘Inpeng Bang’ so as to serve all family members and support community business (Community SME).

Principle 8: Inpeng families must make merit, stand on goodness, and bring love to community and peace to the world.

4.5 Activities of Inpeng Community Network

At present, Inpeng Community Network (ICN) consists of 800 communities from 84 sub-districts in 4 provinces in the Northeast of Thailand. These include Sakon Nakhon, Kalasin, Mukdahan and Udon Thani provinces.

The ICN centre premises cover about 5 rais, comprising an office, wine and juice processing factory, herbal medicine processing factory, local plants seeding housing, and products selling shop. Essentially the ICN’s activities can be grouped under four categories as follows:

Ecological Agriculture: The main theme for this category is: ‘Bringing Phu Pan forest into the garden’. The intention is to change from mono-cropping to integrated cropping, utilizing various species of plants from the Phu Phan forest. This kind of farming can support sustainable agriculture and reduce external dependency. Furthermore, Phu Phan forest will suffer less intrusion from surrounding dwellers. At this moment large numbers of farmers around Phu Phan forest practise this type of farming.

Community Industry: The implementing of industrial process at the community level for agricultural product transformation will raise the value of farm products, and provide supplementary and alternative jobs for new generation of farmers. It also reduces the import goods from the factories outside the area.

Community Financial Institute: The community fund is supported by the regular savings of the community members. This fund aims to support community welfare, farming investment and self-reliability.

Community Learning Institute: The community learning centre is fundamental to the operation of the ICN. Enlightenment is the most important factor for a development scheme rather than dealing in matters related to money. ICN has developed a concept of the self-learning process through workshops during which experiences are shared among community members. Many learning courses have been developed - sustainable farming, local youth development, to name a few.

Inpeng people learned about the past and present, and are planning for the future of themselves and their children. An integrated farming system that is well planned and implemented could serve as a form of social security when they are too old to work. Today ICN members serve as resources by telling their stories about how they became self-reliant, and teaching about sustainable development. Members of many communities visit the Inpeng Centre to learn hands-on lessons in self-reliance.

All of the mentioned processes above make the farmers realize the value of natural resources. They study how to add value to the basic cost of their agricultural products learning how to do it for themselves. Farmers can also obtain money from community welfare fund or money for local investment from Community Investment Fund.

The knowledge gained gives the farmer self-confidence. He/she is part of the process of development, and coincidentally he/she and the community are becoming empowered. The relationships promoted among members and in the network are real, and ensure the successful achievement of the activities they have planned and geared towards sustainable development.

The four elements of ICNs development schemes strengthen the Inpeng community, bringing with it self confidence, self-reliability, self knowledge and most importantly, empowerment of individual and community development and empowerment. ICN is an example of strong community development and community empowerment to be emulated in the Northeast of Thailand and indeed throughout the whole country.

Figure 4.4 below shows how the Inpeng Community Network (ICN) is structured today. The ICN, supported by its Committee, is committed to 'Education for all' and so has established over time a curriculum based upon the expertise in the ICN and the educational needs of its members. Two practical outcomes are interdependent with the 'University for Life', the Community Bank, and Community business.

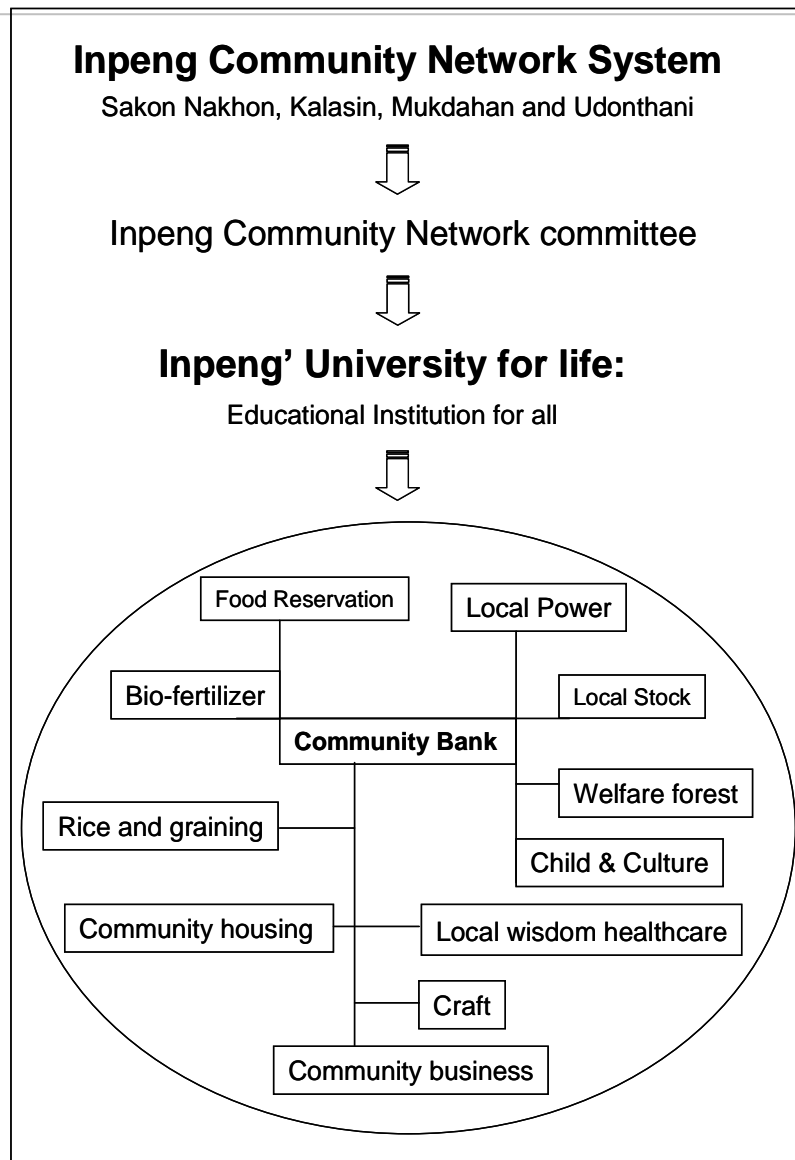


FIGURE 4. 4 INPENG COMMUNITY NETWORK SYSTEM (SOURCE: UNITED NATIONS, 2001)

4.6 Inpeng Community Learning Centres

In Thailand, a Community Learning Centre (CLC) is a resource centre that provides information and life-long learning activities for everyone in the community in order to make that community stronger. CLCs have been established in Thailand similar to those in many countries in the Asia-Pacific region (United Nation Educational, 2003). Most CLCs may be located in temple compounds, sub-district administrative

offices, upgraded community halls and public health centres, inside the building of village pace and development councils, and at public primary schools.

A community Learning Centre (CLC) is a local education institute outside the formal education system, for villages or urban areas, usually set up and managed by local people to provide various learning opportunities for community development and improvement of people's quality of life. The ultimate goal of the CLC is empowerment of individuals and communities and improving people's quality of life through education and community development activities (Jorn, 2002).

Inpeng Community Learn Centre is one of four main activities of Inpeng Community Network system. The learning centre is fundamental to the Inpeng Community Network. Enlightenment is the most important development factor here rather than understanding the use of money. ICN has developed a concept of the self-learning process through workshops which involve community members in sharing their experiences. Many course syllabi have been developed, for example, sustainable farming, local youth development, community health caring, management of sustainable natural resources and so on.

This centre is organized by the community committee for the community itself. It's the place for conducting community learning and development activities that meet the identified needs of community members. It's a training centre and provides continuing education for community people so that they have the knowledge and skills to improve the quality of life in terms of education, income, health, environment, religion, art and culture. A CLC creates self-reliance among community members who can thus contribute to the sustainable development of the community and eventually the overall development of the nation (United Nation Education Scientific and Culture Organization, 2003).

CLCs provide a variety of categories of supports/functions to Inpeng community network system such as education and training, community information and resource

services, community development activities, co-ordination and networking. In some communities there may be more different facilities provided such as library and post literacy, library or reading corners.

There are many things and many activities in CLC. Community members can organize a variety of activities in the following areas: learning, quality of life improvement, community development and economic development (Pyakuryal, 2000).

The community learning centre (CLC) is a resource centre where community member work for benefit of the people themselves. A successful CLC may have the following outcome:

1. The CLC promotes self-learning through community self-relevance. It helps strengthen the empowerment of community of the community where people have the freedom to pursue life-long learning at their own pace to meet their own needs. Community members learning how to solve their own problems by sharing ideas and identifying solutions. They join together in planing, implementing a solution and reaping, the benefits of successful results. The CLC also contributes to the survival and promotion of local community culture.
2. People are provided with the opportunity to organize their own development activities according to their identified needs, to solve problem effectively, and to do their jobs more appropriately. The CLC is an outstanding example of the principle of community self-government, which makes the people self-reliant and finally leads to an empowered community.

In this study, In Inpeng community learning centres in six communities have been selected by the community committee to participate in the use of the CIDS and the Information and Communication Technology (ICT) in the CLC.

4.7 *Inpeng Community Empowerment*

The ICN are presently considered to be a well-developed, empowered network of strong self-supporting communities. Their network is a model for other, less developed, less empowered community networks in Thailand. It is one of the examples in a series on community models which is part of a UNDP funded project on community government which is developing local people’s potential and rediscovering indigenous wisdom. This capacity, along with other resources, forms the basis for a solid platform to build a community’s HIV resilience(United Nations, 2001).

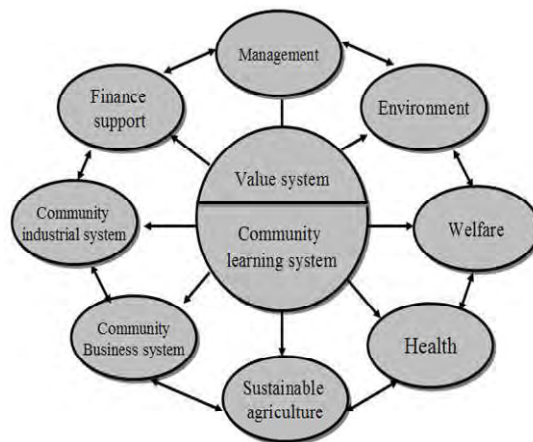


FIGURE 4. 5 THE INTER-RELATED FEATURES OF THE ICN (MODIFY:BRUNS, 1992)

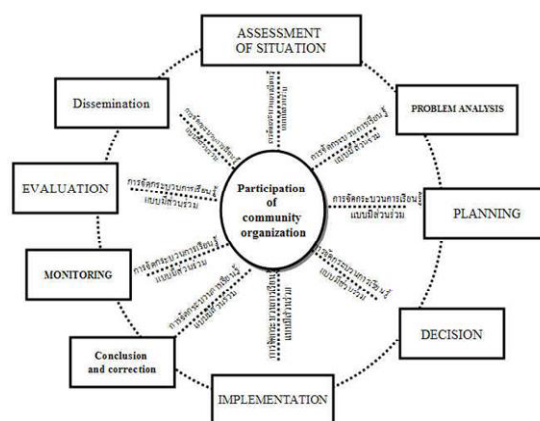


FIGURE 4. 6 PARTICIPATION OF COMMUNITY ORGANIZATION (MODIFY:BRUNS, 1992)

Figure 4.5 above depicts the eight inter-related features/concepts which operate and underpin the continuous and increasing success of community governments like the ICN. The value system and the learning system are central to the successful development of any community. The co-dependence between value and learning systems are inter-related through the eight features as shown. In turn, the role in the community of each of these concepts may be analyzed, and function, according to Figure 4.6. This shows that a particular community element, for example, *Health* in Figure 4.5, assesses the situation, defines the problem, decides on the best solution, implements it and proceeds logically around the stages isolated until dissemination of the solution takes place.

4.8 Summary

This chapter began with an explanation of some possible meanings for the key concepts *community, community development, and empowerment*. Then ‘Community development’ along with its outcome, and community empowerment, as applied to Thailand, were explicated. The background of a particular group, first called Inpeng Centre was given, with the section on its development focusing on the organizing work of UNDP (Bangkok). The particular role played by NGOs in surfacing two problematical groups was explained – namely the unexpected emergence of savings and credit groups and environmental management groups. A brief background to what is now the Inpeng Community Network (ICN) was presented and followed by a section on the activities developed by the ICN over the years. The activities undertaken during the ICN’s formative years were recorded; and the lessons learnt by the now mature ICN being summarised in the 8 basic principles derived and now used as an aid to struggling and new networks. All this ferment of community development has as its outcome, and emerging side by side with it, empowerment. This is succinctly summarized in the final section, Inpeng Community Empowerment

CHAPTER 5 :

COMMUNITY INFORMATION DATABASE SYSTEM (CIDS)

This chapter begins by introducing the Information and Community Information Database System (CIDS)'. The CLCs currently in place throughout the Inpeng Community Network (ICN) provide the actual examples used in this discussion of a model CIDS. The chapter traces what has led to the formulation, implementation and refinement of a model CIDS. Modern developments in technology are integrated with the methods used formerly. The purposes of a CIDS are stated, with four model bases being delineated - Local Knowledge, Data, Architectural and User Interface. An explanation of the three elements necessary—Communication, Infrastructure and Establishing, for an enterprise such as creating a model CIDS follows. The use of Questionnaire, In-depth Interview and Semi-structured Interview protocols is explained in the context of the phased development of a refined model CIDS. The phases for making CIDS operational are explained. The process has demonstrated that existing CLCs can be modernised by integrating this new technological tool in the interests of exploring the potential of the CIDS for community empowerment.

1.1 Information and Community Information Database System (CIDS)

The term 'information' here means knowledge gained from local persons who have expertise in local wisdom about such matters as agriculture, manufacturing, art, culture and the society in general (Pettigrew & Wilkinson, 1996). These persons may also possess some special wisdom that enables the people like them to survive in community life. Persons having such wisdom are highly valued, not only for economic benefits they bestow on the community, but also for the improvement they

can make to the quality of social, cultural, and political life for which developing countries strive (Dordick & Wang, 1993a; Pettigrew & Wilkinson, 1996).

The term ‘community’ as used here can have two meanings: a group of people who live in the same area - a geographical community; or a group of people who have something in common such as gender, religion, or ethnicity - a community of interest or identity. It is important that, while people may have something in common which gives them a sense of community identity, it does not mean they are homogenous. Even within communities, people may have differing needs and circumstances (Pettigrew & Wilkinson, 1996).

CIDS has the potential to become a community information facility. In essence, it is a large structured set consisting of electronic databases which are usually associated with software to update and query the data in the database.

CIDS, when fully operational, will be a technological tool that may help people cope with the problems of daily living and facilitate their greater participation in the community. The CIDS stores data about such human services as healthcare, financial assistance, housing, and information on recreation programs and clubs, and community events. Information about all levels of government, including participation in the political process can be retrieved. The system also enables contact to be made with clubs, organisations and community groups that operate in and around the community and the wider surrounding district.

5.2 Significance of the CIDS

Several utility companies and government agencies are usually involved in the development and maintenance of various information database systems. They often include information related to infrastructure, natural resources and natural hazards. But often effort declines and maintaining the system’s integrity becomes difficult.

There are no standard procedures for agencies to maintain and share community data. Furthermore, the widely distributed nature of the data, and the heterogeneity of the operating system and databases systems, makes sharing of the data difficult. In addition, users of these systems such as administrators, data-entry personnel, customers and the general public need to interact with experts so that the information to be shared is as current as possible.

Knowledge gathering for information database systems requires extensive effort (cost and resources) and time. The availability of necessary expertise is very limited. For example, someone might be required to analyse damage caused in an area by an extremely severe flood, the worst in 100 years. Information available from experts who have had exposure to such conditions elsewhere must be shared and documented. A well-designed CIDS performs this role by documenting the data in a database, extracting the knowledge for experts, and providing training tools and scenarios for them. Recent developments in the communications and internet technologies and related software advances simplify the task of resolving issues like this.

Technological changes in computer hardware and software have induced a major shift in the use of computers for community applications. With the help of information systems, it is possible to collect and retrieve community information. Furthermore, the development of World Wide Web technology has made a CIDS really central to community decisions.

The model CIDS is planned to include demographic data as a part of two kinds of data: basic data such as a family's basic minimum needs, and village-level geographic and other demographic data; and data relating to history, natural resources, topography, tourist attractions and the locations of schools and religious institutions. The CIDS contains information about the community chosen for this study, ICN. This information database can be used by the ICN and other community planning, decision making and problem solving bodies.

5.3 CIDS Requirements

To address the research questions proposed previously, the following architectural requirements have been formulated as the framework for developing a model CIDS.

1. The CIDS should be a community database model which stores the basic community knowledge and information needed to support and empower the local community.
2. The CIDS should provide a platform where local expertise can be readily accessed by local communities.
3. CIDS is to be the technological tool for an online community learning centre that users can access from anywhere and at any time through a personal computer (PC) which has an Internet connection and a web browser.
4. CIDS dependency on local need and local knowledge should also be compatible with the Thai National Plans of helping local communities to help themselves.

5.4 The Elements of the CIDS

Three major interwoven elements comprise the CIDS – the elements of communication, infrastructure and establishing. These three elements are described in the following sections.

5.4.1 The Communication Element

In an operative CIDS the element of communication is a basic necessity. In the past, there have been many ways in which communities have devised systems to communicate with each other at the local, national, and international level. Community Information Networks (CINs) have been driven by the information and communication needs of local communities. In Europe, the European Commission (EC) has been working for some years encouraging the development of the 'Information Society'. By looking at the various EC programmes, it is easy to identify those especially connected with a community information network, which creates business opportunities for local newspapers (Durrance & Pettigrew, 2000).

There are lists of synonyms for these community information systems or networks: community networking, civic networking, community bulletin boards, community computing, community tele-computing, tele-community systems and community information systems are but a few.

The meanings of all these synonyms can be subsumed under a summary definition of a community information system provided by Durrance & Pettigrew (2000). They conclude that 'a CIS (CIDS) is anything that helps people cope with the problems of daily living and facilitates community participation'.

There are two directly related and definable parts of a CIDS-community information which, as has already been noted, is about human services (healthcare, financial assistance, housing, etc), as well as information on recreation programs, clubs, community events, and all levels of government, including participation in the political process; and the delivery of community information which is directed to the people of the community in a manner which facilitate their participation and empowerment.

Though there are active CLCs throughout Thailand, many networked, there is no coordinated technological approach to assessing, expanding and making old and new

information available through a Network System which a CIS would give. Therefore a kind of CIS system, such as a model CIDS, finds itself being developed in potentially fertile community education ground. The network chosen for the developing and assessing of the proposed model CIDS is the ICN, an active community network, but technologically uncoordinated. This network has been considered ready to become 'technologically coordinated' by developing, implementing and assessing a CIDS. The embryonic CIDS would thereby demonstrate its utility as a technological tool with the potential to advance the development of the ICN community and enhance the empowerment of that community.

5.4.2 The Infrastructure Element

Morino's (1994, p. 4) discussion of what constitutes a CIS is a useful starting point for examining the infrastructure CIDS needs when he states that a CIS is "*a process to serve the local geographical community, to respond to the needs of that community, and to build solutions to its problems*". The implication here is that of a small community, the people of which need to communicate with each other about matters that concern and baffle them; and then to use relevant information that the latest technology provides to help them reach for solutions to their self-defined problems. Hence 'CIS, or community networking in the social sense, is not a new concept, but one using electronic communication to extend and amplify it'.

Beamish (1995) defines CIS using electronic technology as a network of computers with modems that are interconnected via telephone lines to a computer. This computer then provides community information, and is a means for the community to communicate electronically. The definition covers, in part, the development of CIDS.

The elements of the National Public Tele-computing Network's CIS (Pinkett & Bryant, 2001) using an electronic network are defined as: multi- user systems with much of the power and sophistication of a commercial online service, each being

locally owned, locally operated, and designed to wrap itself around the information needs of the community. Any user with a personal computer and a modem can dial into this network, 24 hours a day, and access the information and communication services found there. Here another important element of the proposed CIDS is defined: 'locally owned, locally operated, and designed to wrap itself around the information needs of the community'.

These Free-Nets, as they are designated by the National Public Tele-computing Network, have the following characteristics:

- They are driven by the information and communications needs of the local community.
- Their governance and organisational roots are in the community itself.
- They are dedicated to bringing the benefits of the information age to as many people as possible, at the lowest possible cost.

In addition to the provision of local information to a local community there are two further aspects to examine when discussing the infrastructure of a CIS:

1. The community network's use as an 'on-ramp' in terms of internet access and usage by the local community. Once users become familiar with the system for finding local information, they are in the position to explore more extensively for other Internet resources.
2. The community network's use in attracting 'virtual visitors' to the community, and its use as a marketing tool for both it and its products.

It is apparent that all the positive attributes of a CIS are those which form a perfect basis upon which the model CIDS can be developed.

5.4.3 The Establishing Element

In spite of most of the attributes of a CIS being relevant it was thought best to start from the beginning in developing a model CIDS. Several phases must first be undertaken, with appropriate and necessary actions to develop a CIDS Network. They are:

1. **Establishing the Vision** for the CIDS model means that the following tasks should be accomplished: provision of an initial community website, analysing the basic requirements of community users, awareness raising in the community involving both the commercial public and community sectors, and identifying potential partners for the next step.
2. **Developing the Vision** by beginning to bring the vision into focus. For this, a forward thinking community of today must be selected, and with its approval, start the process of establishing a stable floor upon which a model CIDS can be built and then generalised to the whole of the selected community. Success for the original CIDS would lead to other communities trying to establish their own form of the CIDS.

The ICN was chosen as the community sufficiently developed and receptive for investigating the proposed CIDS model. Marshalling of resources should first occur, appropriate questionnaires and in-depth interviews implemented, and careful analysis of the data carried out. The beginning of a proposed CIDS model would come into focus, later to be refined following the analysis of data from Semi-structured Interviews.

Chapter three outlines the theoretical framework of CIDS and the training of ICN member and volunteers respondents.

3. **Improving Communities through Better Information** occurred and was judged when the CIDS model was tested by three groups. The three differently prepared groups who participated in the trialling of the model CIDS comprised:

- **Community Volunteers:** To assist in CLCs and with other community activities, volunteers comprising, thirty young community members in three sub-groups were each given different specialist training for three days in the operation of CIDS, and in setting up the Internet connections. They became the *technicians*.
- **Community Members:** To help community members understand more about using CIDS, the ICN Committee had selected thirty community members for two days of general CIDS-related training. These community members had to work with young volunteers and assisted others in their communities to use the CIDS.
- **Untrained Community members:** This group included members of the ICN committee.

These three differently trained groups of respondents were to tested a model CIDS and individually answered the Semi-structured Interview. The data from these interviews were analysed and, at the core of the data analysis, was a view that CIDS was very acceptable as the technological tool, which when installed throughout the CLCs of the ICN, would project the community into the Information Age.

5.5 Achieving Community Empowerment

It is planned to empower the local communities through the full implementation of CIDS after it has been accepted as a technological tool for implementation in the

CLCs currently established in areas such as ICN. The CIDS would help expanding the possible horizons of users of the system (Figure 5.1).

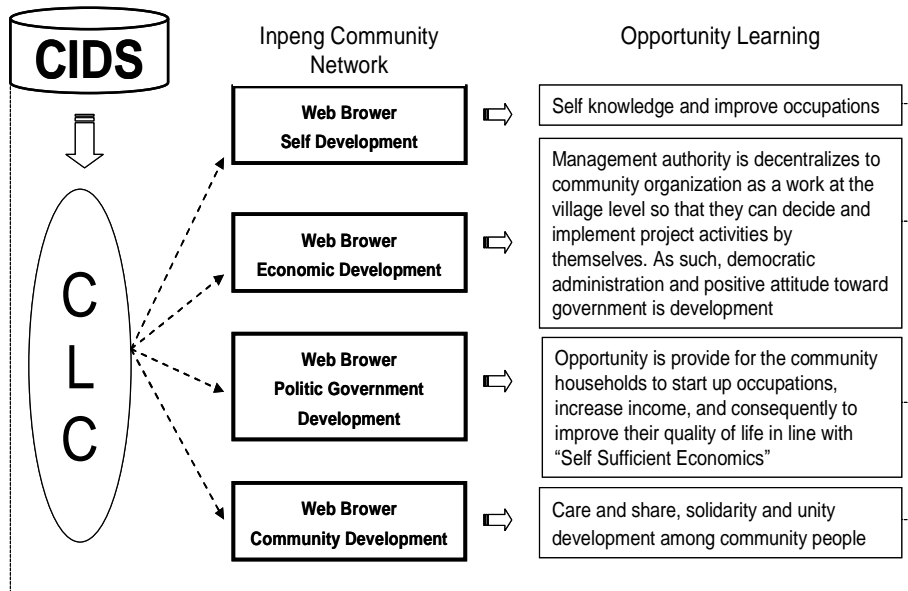


FIGURE 5.1 COMMUNITY EMPOWERMENT THROUGH CIDS

Self development, economic development, political development and community development are all possible for users. And the opportunities for learning become almost endless. The ultimate end for community development is a caring and sharing populace, united in the all round development of its people. This is individual and community empowerment at its best.

5.6 Developing the CIDS

There are three major components of the CIDS: computer hardware and computer software, the networking system and the Internet setup between CLCs and SNRU.

5.6.1 Hardware and Software

There were two kinds of computer hardware and software for the study: the hardware and software provided for use in the CLCs, and that provided in the community

itself. During the testing of CIDS, from three to five computers (PCs) were available in each community. The hardware and software for the main CIDS system were located in SNRU which provided and organized them. Each PC has at least a web browser and an Internet connection function.

5.6.2 Networking System

There were two main networks for this study. The first was the computer network in each CLC, belonging to the local government, and the second was that in the community, for example, most local government offices and the Public Library already have their own LANs.

5.6.3 Internet Setup between CLCs and SNRU

Both the SNRU technical staff and the CLC volunteers helped set up the Internet access and connection between the CLCs and SNRU for the duration of the study only. During the investigation they also regularly checked the connection between each CLC and the SNRU. During a period of four months, they sent emails or initiated telephone testing of the connections every day. The volunteers made note daily, reporting to technical staff week. An immediate report was made every time something happened to the system and its connections.

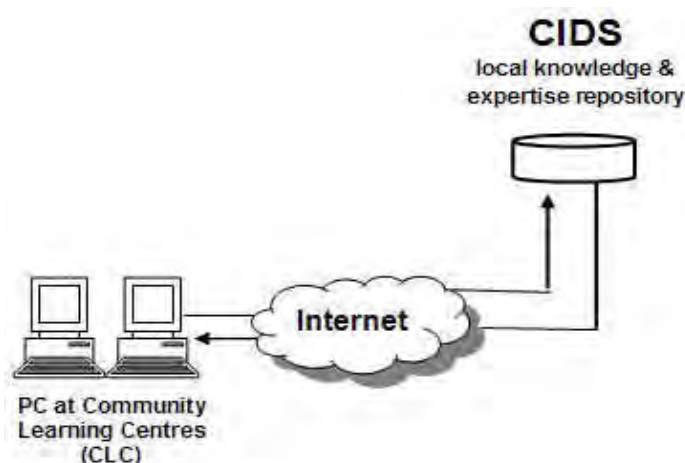


FIGURE 5.2 THE CIDS AND INTERNET ACCESS MODEL

Figure 5.2 above shows schematically the SNRU's interconnection with the CLCs through the CIDS.

5.7 Community Information Format and Subject Headings

The Library of Congress Network Development and MARC Standards Office (Net Dev/MSO) is concerned with the development, publication, and maintenance of the USMARC communications formats. The development of the newest USMARC format - the USMARC format for community information is addressed and some of its specifics are described (Hunter & Bakewell, 1991; Studwell, 1990).

What is community information? The definition found in the community information format is as follows: Community information records describe non-bibliographic resources that fulfil the information needs of a community. Currently, the format allows one to describe programs, services, organizations, single and ongoing events, and individuals (e.g., experts, public officials) about which people in a community might want information.

5.7.1 The CIDS Main Subject and Sub-heading

These entities can be for-profit, not-for-profit, or governmental, with a wide variety of missions or purposes (e.g., charitable, educational, informational, social, health, leisure), for a variety of audiences (children, youth, singles men, women, alcoholics, mentally ill, criminal, etc.). A library itself could be included as an entity in a community information file.

5.7.1.1 Main Subject and Sub-heading Level One

According to the AACR2 rules, the subject headings should be divided into three levels before the user can get through to the titles of local knowledge (Maxwell,

1980). The three subject's headings are the main subject heading and sub-subject headings. Figure 5.3 and 5.4 convey the idea of how the main subject heading links to the sub-subject heading at each level.

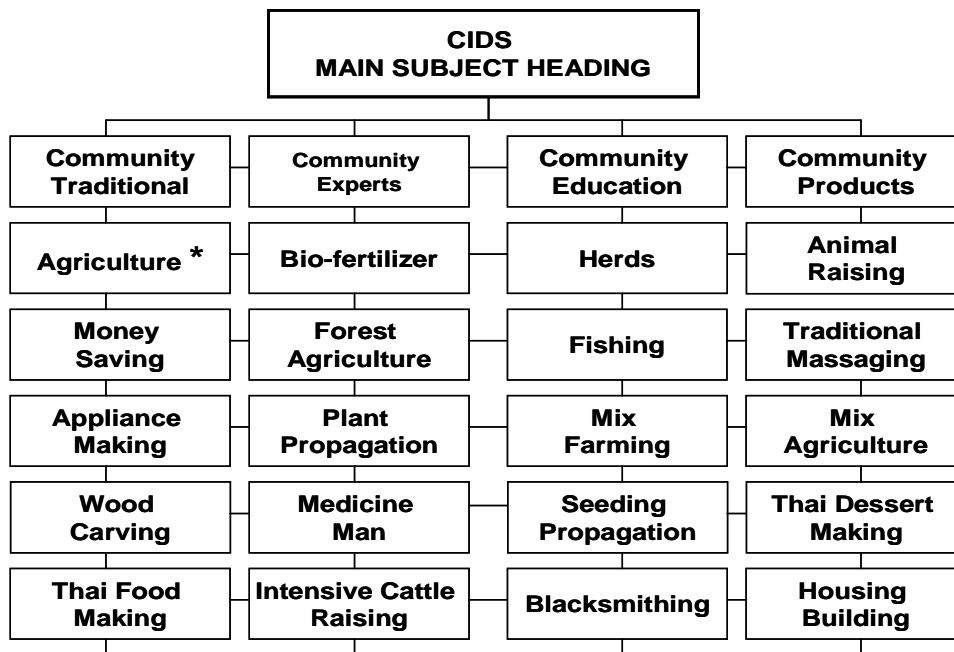


FIGURE 5.3 EXAMPLE OF MAIN SUBJECT HEADING AND SUB-SUBJECT HEADING

Figure 5.3 gives an example of the main subject heading which a CIDS user may use as a keyword to find information needs and local knowledge. Most of them are similar to what they learn and what they know. Sometimes the CIDS coordinator uses the hand book to help find the keyword.

5.7.1.2 Subject and Sub-heading Level Two

Figure 5.4 below gives an example of a heading in level two, when the keyword is used for the main subject to find information needed. Before getting through to the title and main body of knowledge a user will find the list of sub-subject headings related to the main subject being researched. From the sub-subject list, a click on a particular item will cause the screen to go to level three.

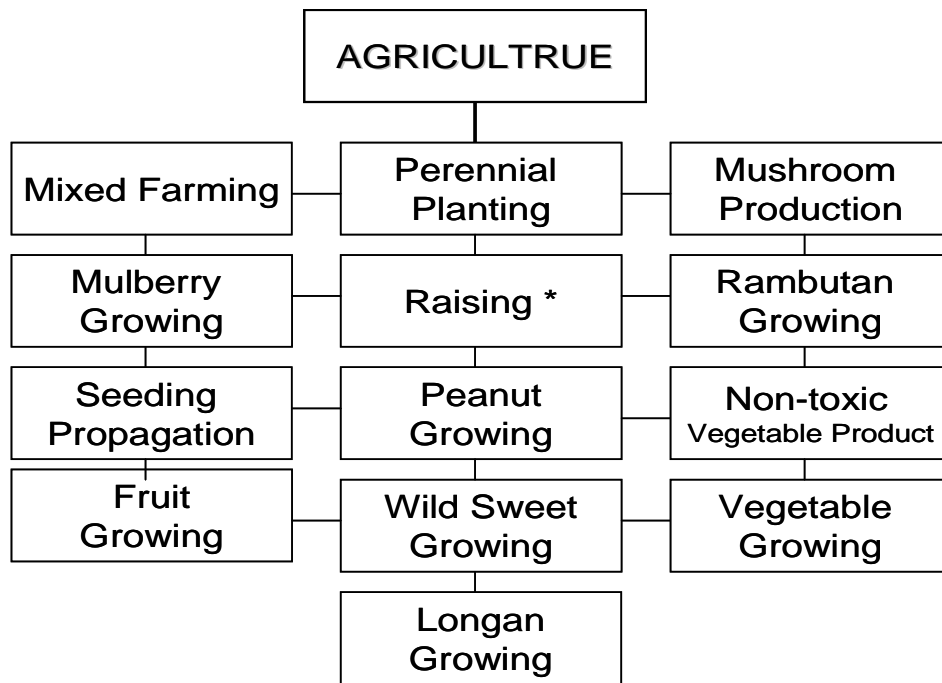


FIGURE 5.4 EXAMPLE OF MAIN SUBJECT AND SUB-HEADING IN "AGRICULTURE"

5.7.1.3 Subject and Sub-heading Level Three

In Figure 5.5, level three is the level at which the title of the information needed is given. The numbers of headings vary, depending on the extent of local knowledge found during field study and in-dept interview of the experts.

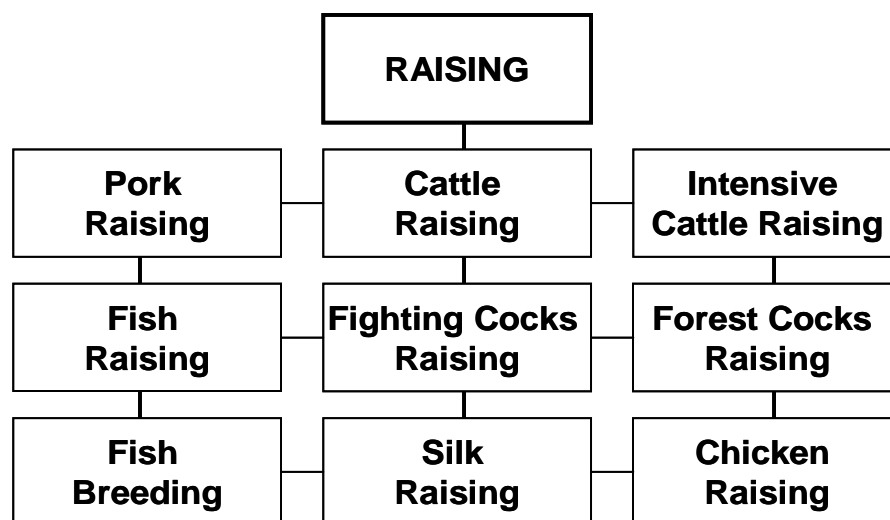


FIGURE 5.5 EXAMPLE OF MAIN SUBJECT AND SUB-SUBJECT HEADING IN "RAISING"

5.7.2 CIDS Homepage and Webpage Model

To design a CIDS homepage and other WebPages the researcher and assistant technical staff used all the summarised information from the community.



FIGURE 5.6 THE CIDS HOMEPAGE AND WEBPAGE MAIN MENU (MODIFY: STATE OF ALASKA, 2003)

Figure 5.6 shows the CIDS homepage, with its components, designed for the ICN. When users log on to the CIDS site they are always shown this page first, with details to follow.

5.7.2.1 Homepage Detail and Main Menu

A perusal of the site illustrated will reveal several features. They are:

Number 1: The heading of the homepage, consisting of the internet address of the CIDS, the name ICN, and scenes of university life. 1.1 also highlights the week’s activities at the university, and randomly highlights other activities every second

week. 1.2 on the tool bar shows the main subject or the hyperlink that the user can access directly.

Number 2: Information is given about the background, activities, local knowledge and expertise of the ICN, including the address and location of community members and the ICN Committee.

Number 3: The icon here is used for finding the newspapers online; it comprises all general newspapers and local newspapers.

Number 4: The list of television websites is provided.

Number 5: This gives links to some important community activities, the government and non-government facilities

Number 6: This search engine helps a user to find information needed. The user can search the subject, title, name and any word or key word appropriate for life style. The search engine responds in the same way as Google.

Number 7: This is an area for community activities and pictures. It is changed every week and conducted through the cooperation of the research assistants and the technical staff.

Number 8: This shows important dates for local government news, provincial matters, some of Rajabhat University news and ICN activities. These are all related to the interests of the community. The section is changed weekly.

Number 9: This section shows what products are available from the community. It's also the hyperlink to the names of experts and groups who have that area of interest. The link is changed weekly.

Number 10: This contains the body of local knowledge and expertise.

Number 11: This shows the link to other websites such as Sakon Nakhon Rajabhat University, the local government and the central government, non-government organizations agency (NGO), community radio, online newspapers and others institutions related to the community network and community activities.

Number 12: This contains all links about ICN such as background, community committee, name of villagers and experts, maps and locations to visit in each community of ICN and general information.

5.7.2.2 Second Webpage and Detail

After the user exits from the homepage menu they will find more detail about each area of local knowledge. This consists of text, picture, video and other information related to the topic. From this page the user can return to the tool bar for more details.

Figure 5.7 shows some examples in detail about forest agriculture. The user learns some background as well as how to find plants in the forest and mountains and how to transfer plants to be grown on their own farm or the plantation.



FIGURE 5.7 SOME DETAILS IN FOREST AGRICULTURE FROM THE CIDS

Figure 5.8 shows examples of mixed farming and applications to improve farmers' field rice and growing of crops.



FIGURE 5.8 SOME DETAILS IN MIXED FARMING FROM THE CIDS

In Figure 5.9 Mr Somporn, one of ICN experts explains the manufacture of “Peng Nhour” which he had learned from his mother and other ancestors. “Peng Nhour” is a powder made from sticky rice mixed with garlic, onion and other material. It’s something like a sauce for cooking and is in popular use in the Inpeng community even today.



FIGURE 5.9 SOME DETAILS ABOUT “PENG NHOUR” FROM THE CIDS

5.7.3 Main Subject and Subject Heading

These are in accord with the Sears List of Subject Headings of the Library of Congress for the cataloging and publication of data (Maxwell, 1980). The CIDS has a four volume set of subject headings, similar to that of Used For (UF), Broader Term (BT), Narrower Term (NT) and Related Term (RT).

5.7.3.1 Subject Heading, Sub-subject Heading and List of Local Knowledge

Figure 5.10 shows how the heading, sub-subject and hyperlink link together. Number (1) is the heading which users key in as a general keyword to find information that suits their needs. Number (2) is the next step after selection of a heading. There were many sub-subjects headings under the main subject heading or keyword. Number (3) comprises a list of local knowledge information from which the user can choose the body of knowledge required by clicking the appropriate item. Number (4) is for a user to request the web administrator to add other items to be in the list of local knowledge.

หน้าแรก > สัตว์น้ำ ← 1

ขณะนี้ มี 188 เพลงอยู่ในหมวด สัตว์น้ำ.

- [เรื่องทั่วไปของกุ้ง](#) (23)
- [อื่นๆ](#) (2)
- [การจัดการป่อกุ้ง](#) (13)
- [กุ้งก้ามกราม](#) (15)
- [กุ้งขาว](#) (1)
- [ปลา](#) (20)
- [สถานีวิจัยกุ้ง](#) (1)
- [ไรแดง](#) (22)
- [กุ้ง](#) (62)
- [กุ้งกุลาดำ](#) (13)
- [กุ้งฝอย](#) (16)

เพิ่มหน้าใหม่ อยู่ในหมวด สัตว์น้ำ

- [เตรียมบ่อเลี้ยงกุ้งอย่างประณีต](#) 6.07 kbytes
- [วิธีแก้ปัญหา : ปลาดุกที่ลพบุรีขาดแคลนน้ำหมกหมวนเวียน](#) 8.04 kbytes
- [การประหยัดค่าพลังงานในการเลี้ยงกุ้ง](#) 6.55 kbytes
- [ฝนน้อยน้ำกระด้างผลเสียต่อการเลี้ยงกุ้ง](#) 2.02 kbytes
- [พลิกดินในบ่อเลี้ยงปลาแทนปลอกข้าว ของ สะอาด ศรีวงศ์ ที่ กบินทร์บุรี](#) 21.55 kbytes
- [เลี้ยงปลากินพืช ต้นทุนลดต่ำ สูตรสำเร็จของ ดร.จิระ มังคลรังษี](#) 21.09 kbytes
- [การแก้ปัญหาหน้าเข้ปลาตายหน้าอทยานามัจฉาแม่น้ำท่าจีน](#) 2.23 kbytes
- [ไรแดงกินอาหารได้หลายอย่างจากหลายแหล่ง](#) 2.13 kbytes
- [ไรแดง : มาบัตน้ำเสียในบ่อไรแดงแบบป่อกุ้ง](#) 2.17 kbytes
- [หนอนแดง : ชีวิตและแนวทางการเพาะเลี้ยง](#) 2.13 kbytes
- [เพาะไรแดงขายเป็นอาชีพเสริม](#) 2.08 kbytes
- [เพิ่มแหล่งอาศัยของสัตว์น้ำวัยอ่อนด้วยปะการังเทียม](#) 2.05 kbytes
- [การเพิ่มจำนวนไรแดงตามการเพิ่มจำนวนจุลินทรีย์ในน้ำ](#) 2.13 kbytes
- [ฟาร์มฝ่นชกมีผลกระทบต่อกุ้งและการแก้ไข](#) 2.24 kbytes
- [เลี้ยงกุ้งแบบไม่ให้ออกซิเจนควรปล่อยหน้าบ่อทางเข้า](#) 2.5 kbytes
- [ไทยควรเร่งผลิตปลาเป็นโปรตีนแทนไก่และสุกร](#) 2.13 kbytes
- [ผลิตปลากินพืชใช้รีไซเคิลเองทดแทนเชลมนอนยุโรป](#) 2.16 kbytes
- [เลี้ยงปลากินพืช \(ผัก\) ร่วมกับผลิตผักปลอดสารพิษ](#) 2.15 kbytes
- [เลี้ยงปลาแบบเกษตรพอเพียงด้วยการสร้างอาหารธรรมชาติ](#) 2.28 kbytes
- [กุ้งป่วยและตายเพราะฝนตกสุมเปิดเครื่องต้นน้ำ](#) 1.77 kbytes

หากต้องการให้เราเพิ่มหมวดอื่นๆ ให้แจ้งเราทราบด้วย [คลิกที่นี่](#) ← 4

FIGURE 5.10 SOME EXAMPLES FOR THE HEADING FROM THE CIDS

เทคนิคการทำให้ฝรั่งกรอบอร่อยด้วยปุ๋ย และการห่อ

ผลไม้ไทยที่สามารถลดต้นทุนการผลิตลงได้และผลิตได้ตลอดทั้งปี พร้อมกับเป็นผลไม้ปลอดสารพิษ ก็คือฝรั่ง ลดต้นทุนการผลิตโดยใช้ระบบห่อผลตั้งแต่ห้าหัวแม่มือแล้วไม่ต้องฉีดยาฆ่าแมลง เพราะยาฆ่าแมลงปัจจุบันราคาแพง ต้นฝรั่งพอถูกตัดยอดเดิมไม่ซ้าก็แตกยอดใหม่ 2 ยอด แล้วออกดอกและติดลูกได้เองจึงทำให้สามารถผลิตได้ตลอดทั้งปี ส่วนการห่อผลตั้งแต่เล็กทำให้ไม่ต้องฉีดยาก็คือทำให้ปลอดสารพิษ การทำให้ฝรั่งขายดีเป็นที่ดีใจของคนกินคือเมื่อฝรั่งแก่จัดจนเก็บขายได้จะต้องกรอบและอร่อย ซึ่งปัจจุบันยังไม่ได้เป็นเช่นนั้นเสมอไป ยังมีฝรั่งที่ฝาดและไม่กรอบอร่อย อันเกิดจากการบำรุงดินไม่ถูกต้องและใช้ปุ๋ยไม่เหมาะสม

การมุ่งเน้นเร่งให้ผลฝรั่งโตเร็วหรือใหญ่พิเศษ โดยใช้แต่ปุ๋ยไนโตรเจนเช่น 21-0-0 หรือ 46-0-0 จะมีผลเสียมากต่อรสชาติ และผิวไม่เรียบ ที่จริงควรให้ปุ๋ยสูตรเสมอ เช่น 15-15-15 หรือตัวท้ายสูง เช่น 14-14-21 โดยผสมให้เป็นปุ๋ยละลายช้าทำเอง คือใช้ปุ๋ย 15-15-15 จำนวน 50 กิโลกรัม เทลงบนพื้นแข็ง พรมน้ำบนเม็ดปุ๋ยพอชื้น ใส่ซิลิโคเทรซ 50 ซ้อนแ่ง(หรือ 500 กรัม) คลุกเคล้าให้เข้ากันดีแล้วเติมภูไมท์ซัลเฟตสูงเหลือ 20 กิโลกรัม คลุกเคล้าอีกครั้งแล้วจึงนำไปใช้เพื่อใช้แร่ธาตุต่าง ๆ ในดินละลายออกมาเป็นประโยชน์อย่างเต็มที่ ควรตรวจพีเอชดินแล้วปรับกรด-ด่างของดินให้อยู่ที่ 5.8-6.3 ก็มีวิธีการเติมปุ๋ยอินทรีย์ให้ดินด้วย การให้ปุ๋ยแบบนี้ทำให้ฝรั่งรสกลมกล่อมอร่อยขึ้น

ฝรั่งที่ห่อผลแล้วเมื่อผลเริ่มโต ให้ใช้กระดาษหนังสือพิมพ์ห่อหีบอีกชั้นหนึ่ง เมื่อแดงสองไม่ถึงผิวผลฝรั่ง ตรงจุดนี้จะไม่สังเคราะห์แสง แต่ใบฝรั่งสังเคราะห์แสง เกิดน้ำตาลส่งไปเก็บในผลฝรั่ง ทำให้ฝรั่งหวานอร่อยขึ้น ผิวผลฝรั่งไม่ถูกแดดกินรสหวานน่ากิน ขยายง่าย

FIGURE 5.11 SOME EXAMPLES BODY OF LOCAL KNOWLEDGE AND DETAILS

5.7.4 Body of Local Knowledge

Some examples of the body of knowledge found when a user searches using the CIDS are shown in Figure 5.11 and 5.12 below. It explains the background, method,

material and detail which were summarized during process of in-depth interviewing and rechecking by experts.

เลี้ยงปลากินพืช (ผัก) ร่วมกับผลิตผักปลอดสารพิษ

การผลิตผักของไทยส่วนใหญ่มีผลพลอยได้ที่ทิ้งเปลืองมากมายคือ เศษผักต่าง ๆ ทั้งตั้งแต่ในแปลงปลูก ทั้งใบผักที่ปลิดออกขณะตัดแต่งผักก่อนใส่ภาชนะขนส่ง และใบผักที่แฉกผักในตลาดตกแต่งออกเมื่อใบนอกเริ่มเหี่ยวหรือสภาพไม่เข้าชื่อ ใบผักเหล่านี้กลายเป็นขยะที่จะต้องนำไปบำบัดแบบขยะอินทรีย์ทั่วไป ที่จริงถ้าเป็นใบผักที่ผลิตแบบปลอดสารพิษ ก็สามารถใช้ใบผักเพื่อเลี้ยงสัตว์กินพืช เช่น แพะ แกะ โค กระบือ สุกร ห่าน กระจับปี่ และแม้แต่ปลากินพืช เช่น ปลาตะเพียน ปลากินหญ้า (เจ้าฮือ , จ้อฮึง) เป็นต้น

แนวทางผลิตผักในอนาคตจะปรับเปลี่ยนแบบลดละเลิกการใช้สารพิษเป็นลำดับ โดยเฉพาะอย่างยิ่งยาฆ่าแมลง จะกลายเป็นสร้างความแข็งแรงแก่ผักโดยพันธุศาสตร์ด้านทาน ปรับสิ่งแวดล้อมให้ดี เช่น ใช้ภูมิโชนัลเฟดปรับพีเอชดินจนได้ 5.8 – 6.3 ทำปุ๋ยเคมีธรรมดาให้เป็นปุ๋ยละลายช้า ใช้สารปลดปล่อยซิลิกอนทำให้พืชแข็งแรง พัฒนาตัวห้ำตัวเบียนใช้ควบคุมศัตรูพืช ดังนั้นเศษผักและผักก็ปลอดสารพิษ ทั้งให้คนกินได้ สัตว์กินได้ งานเกษตรพอเพียงมีสระเก็บน้ำทั้งใช้ปลูกผักด้วย เลี้ยงปลาด้วย เกษตรพึ่งตนเองไม่ควรซื้ออาหารเม็ดราคาแพงจากบริษัทนายทุน ควรพัฒนาอาหารปลาใช้เอง เป็นการลดความเสี่ยงต่อการขาดทุนได้มาก

การกินหญ้าและใบผักของปลาตะเพียนและเจ้าฮือ ยังมีเศษเหลือตกหล่นอยู่ในน้ำเกิดการย่อยสลายมีสาหร่าย บักเตวี ไรน้ำเกิดขึ้น ซึ่งก็เป็นอาหารของปลากินน้ำเขียวหรือน้ำน้ำ จึงควรเลี้ยงปลากะตัก สลิด หมอตาล นิล ใน ร่วมด้วย เพราะไม่ทำร้ายกัน ถ้ามีสระน้ำประจำไรนาแบ่งเป็นหลายบ่อ ก็ควรเลี้ยงปลาเป็นหลายรุ่น เพื่อให้มีผลผลิตทยอยไปเป็นลำดับ การเลี้ยงปลากินพืชแบบผสมผสานควรทำร่วมกับกึ่งก้ามกรามและหอยด้วย เพราะแทบจะไม่ต้องลงทุนเพิ่มเติมอะไรเลย

FIGURE 5.12 SOME EXAMPLES OF BODY OF LOCAL KNOWLEDGE AND DETAILS

5.7.4.1 A Body of Knowledge about a Community Product

The community product section is the most popular being visited by many users. The section provides information about various products, their names as well as types, properties, the illustrations, producer and address, etc.

In Figure 5.13 below: number (1) shows the product originates from ICN with the name ‘A Leap Tamarind Herb Cream’; number (2) shows the product’s bottle; number (3) explains that this product’s properties include being good for dermatitis and brightening the face; (4) shows its contents number (5) displays the name and address of the producer; and number (6) shows the quantity of the contents of the bottle.

ผลิตภัณฑ์เครือข่ายอินแปง

① **ครีมอาบน้ำสมุนไพรมะขาม**



②

③ **สรรพคุณ :** ใช้สำหรับอาบน้ำ ล้างหน้า ทำให้ผิวชุ่มชื้น

④ **ส่วนประกอบ** เอ็น 70 เกลือ มะขาม น้ำผึ้ง ขมิ้นชัน

⑤ **ผลิตโดย :** กลุ่มโพนงามเกษตรสามัคคี (เครือข่ายอินแปง) 25 ม. 3 ต. โพนงาม อ. อากาศอำนวย จ. สกลนคร 47170 โทร : 0-1457-2541

⑥ **ปริมาณสุทธิ** 220 มิลลิลิตร

FIGURE 5.13 SOME EXAMPLES OF A LEAP TAMARIND HERB CREAM

Figure 5.14 below shows: number (1) as referring to ICN as the source of product called ‘Herb Shampoo’; number (2) illustrating a product bottle: number (3) outlines the properties; (4) lists the supported organizations and number (5) gives the name and address of the producer.

ผลิตภัณฑ์เครือข่ายอินแปง

① **แชมพูสมุนไพร** มะกรูดและดอกอัญชัน



②

③ **สรรพคุณ :** กำจัดรังแค แก้คันศีรษะ

⑤ **ผลิตโดย :** กลุ่มแม่บ้านวนเกษตรภูพาน (บ้านจัดระเบียบ) ม. 6 ต. หลุบเลา อ. ภูพาน จ. สกลนคร 47180 โทร : (0-4270-358) - (01-6705386)

④ **ร่วมสนับสนุนโดย :**

1. สำนักวิจัย และพัฒนาการเกษตรเขตที่ 3
2. ศูนย์ศึกษา และพัฒนานวนศาสตร์ ชุมชนที่ 3
3. เครือข่ายวนเกษตร ภูพาน
4. สำนักงานเกษตร อำเภอกุพาน
5. สำนักงานพัฒนาชุมชน อำเภอกุพาน

* ไม่ใช้วัตถุกันเสีย

FIGURE 5.14 SOME EXAMPLES OF HERB SHAMPOO

In Figure 5.15 below; number (1) is the product name which is ‘a curcuma/turmeric tablet herb medicine’: number (2) shows the product in its package; number (3) outlines the medicine’s properties; number (4) indicates the method of use; number (5) gives the address of the producer; (6) shows the name of the pharmacist who controls the production; and finally number (7) provides the product’s official number which permits its production and sale.

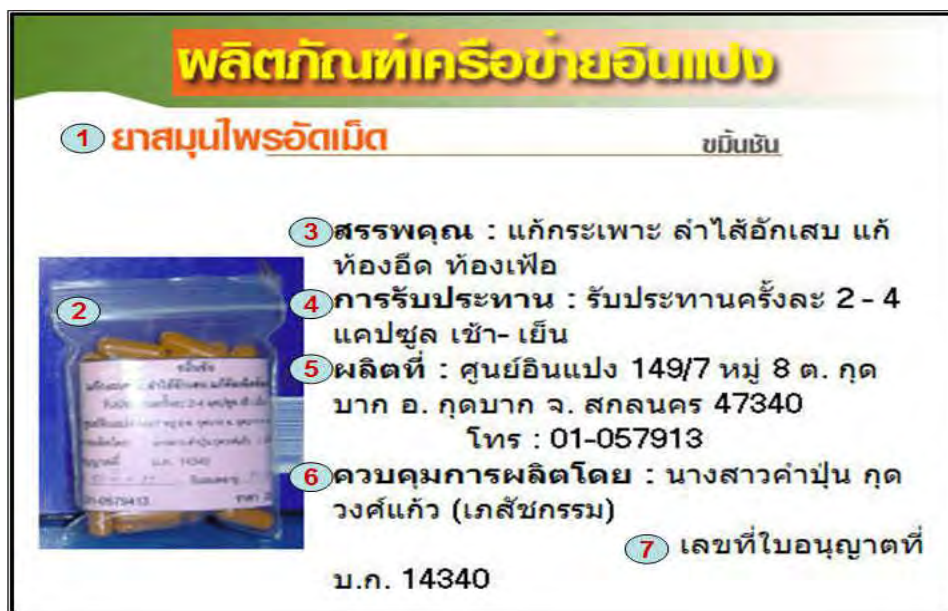


FIGURE 5.15 SOME EXAMPLES OF TABLET HERB MEDICINE

5.8 Summary

The chapter describes the model CIDS and the underpinning thoughts behind its development, trialing and implementation.

Previous chapters in this thesis have discussed how important community development is as a precursor to community empowerment. This chapter shows that CIDS, if accepted by the chosen ICN respondents, has a key role to play in this matter.

In the main however, this chapter provides a guided tour of CIDS. The opening section clarifies the meaning of the key concepts in the phrase, Information and Community Information Database System. It then launches into a fulsome explanation of the significance and purpose of CIDS, its architectural requirements, and an outline of the main elements necessary for CIDS infrastructure. Explanations follow of the three minor and three major elements needed in the development of CIDS. The role played by the samples of respondents in bringing the embryonic CIDS into full development is acknowledged. Then comes a very detailed, structure of a CIDS ready for installation as a technological tool in all CLCs in the ICN. The potential for achievement of community empowerment is discussed once the refined model of CIDS has been completed and accepted for dissemination among all CLCs in the ICN. Respondents interviewed have deemed CIDS to be a very important technological tool for projecting the ICN into the Information Age.

CHAPTER 6 :

THE INPENG COMMUNITY: ITS INFORMATION NEEDS

Three research questions were proposed in Chapter 1. This chapter discusses research question number one, while research questions two and three are discussed in Chapters 7 and 8 respectively. In order to answer the first research question: ‘What are the information needs of the Inpeng Community Network?’, a Questionnaire (Appendix A) was used to obtain data for analysis. A descriptive method of analysis was used to analyse the data provided in the usable responses. Of the 500 potential respondents sampled from the Inpeng community, 465 gave usable responses. The questionnaires were administered to respondents selected from among community members, community leaders, community leaders by appointment, religious leaders and several government officers. They were identified when a multistage cluster (‘snowball’) sampling method was used during the Annual Meeting of the ICN. The intention of this research question was to ascertain the information needs and the existing local knowledge of Inpeng Community Network (ICN) members.

6.1 Relevant Demographic Information

The questionnaires were successfully completed by 93% of the 500 respondents. Most of respondents, 60%, answered the questionnaire individually, 24% of answers were obtained by interview, and 16% of respondents did not specify. Table 6.1 gives more detail.

The ICN is characterised by personal independence as considerably more than half the respondents answered the questionnaire without the help of doing it by interview. This percentage corresponds closely with that for respondents whose educational

level is higher than elementary school. Some respondents requested help because their reading, writing and comprehension skills were inadequate.

TABLE 6.1 RESPONDENTS' MODE OF ANSWERING

Response to Questionnaire	Number
Independent	274
Interview	113
Unspecified	78
Total	465

Of 465 respondents who provided usable data by completing the Questionnaire Protocols, 69.2% were males and 24.3% were females (Table 6.2).

TABLE 6.2 GENDER OF RESPONDENTS

Sex	Number
Male	322
Female	113
Unspecified	30
Total	465

Assisting some respondents to answer the questionnaire and recording their answer using various media, provided the researcher, as a non-participant observer, with opportunities to note the multitude of ways in which respondents approached the questions. Respondents made such comments as: *'Why do you want to know about my expertise, please be free to give me a question?'*; *'How is my expertise of benefit to you?'*; *'I don't want to tell you more about my expertise because my government office has asked that many times already'* and; *'Can you come back some other time I am not available today'*. Their body languages told of their varying emotions-enthusiasm, frustration, and anger. One respondent was observed to be about to refuse to answer more questions but a quick, soothing word from the researcher altered the person's mood.

Despite the obvious newness of the approach used, and the difficulties noted with understanding the questions, perhaps due to the respondents' normal use of a local

dialect, satisfactory accomplishment of the Questionnaire resulted in a high proportion overall of usable responses.

Figure 6.1 shows that most respondents, 33.5% were aged from 40 to 49 years old, 27.7 % were from 50 to 59 years old, 17.4% were between 30 to 39 year old, 60 years olds or over numbered 6.2 %; and finally, 2.6% of respondents were 12 year olds. Therefore it is clear that a majority of those who completed the survey questionnaire were males between the ages of 40 and 59 years and represented 61.2%.

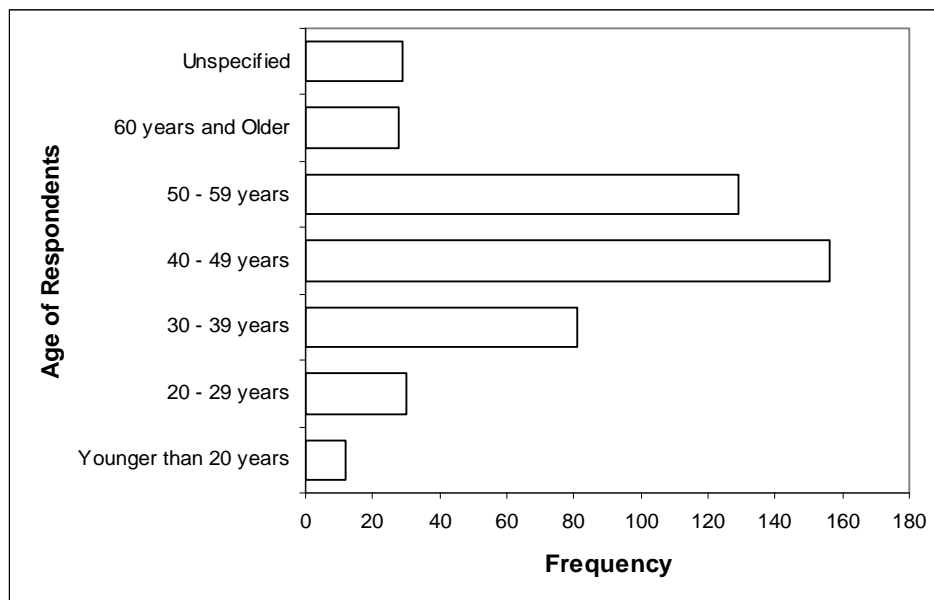


FIGURE 6.1 AGE OF RESPONDENTS IN YEARS

Figure 6.2 shows that the majority of respondents, 59.4%, have lived in or have been working in the Inpeng community for less than 5 years, while 29.5% of respondents have lived there for 6 to 10 years. ICN, as an informal educational network, was introduced in 1992 and most community members appear to have moved to the community since that time. The community is a growing one, many inhabitants having moved there because the Community Learning Centres (CLCs) throughout

the villages were very active, due to ICN having a very strong committee and good members.

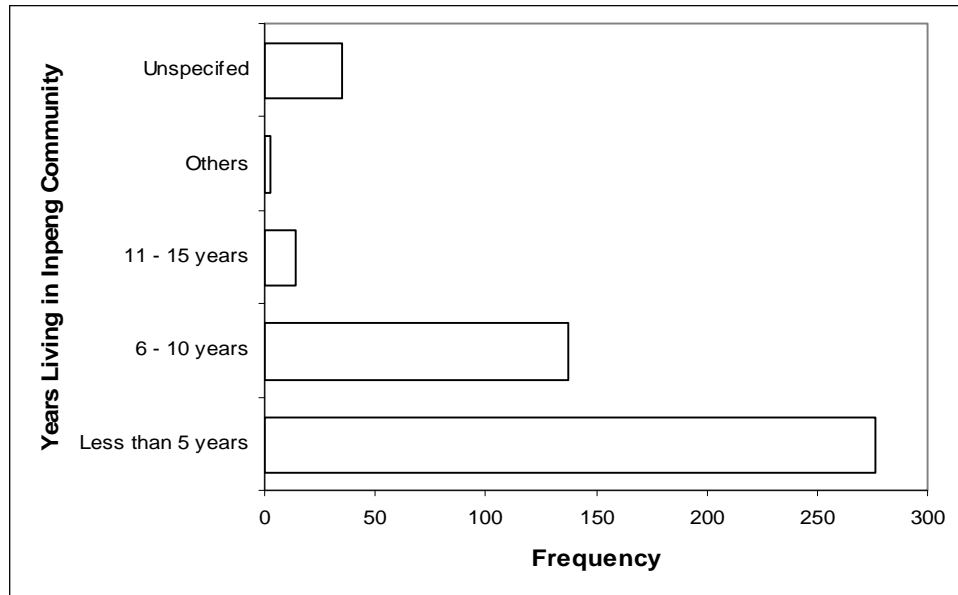


FIGURE 6.2 RESPONDENTS' YEARS OF LIVING IN INPENG COMMUNITY

Figure 6.3 shows the level of education reached by respondents from the ICN: 56.3% having reached elementary school educational level; 14.8%, Junior Secondary level; 13.3% having attended Senior High School; and 5.4% having achieved Bachelor Degree level. Only 7.5% had attended non-formal education and 1.1% who did not go to normal or non-formal schools but had learned from the monk schools.

The term 'Non-formal schools' refers to a special education system provided for adults or others who cannot attend normal schools. The people who live in this community appear to be sufficiently educated, nearly half of respondents being educated beyond the elementary school level.

An Investigation into a Community Information Database System in the Northeast of Thailand: Community Empowerment through Community Learning Centres

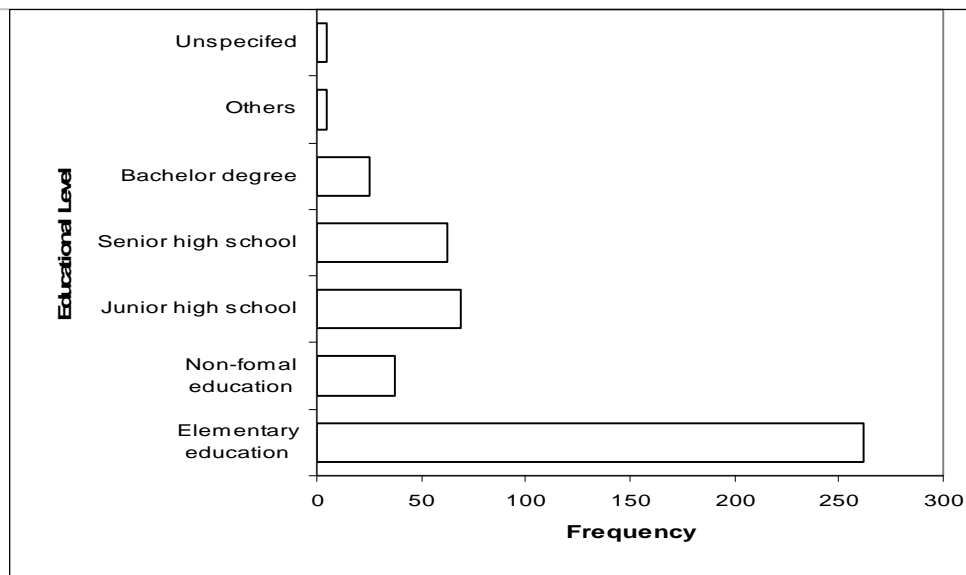


FIGURE 6.3 EDUCATION LEVEL OF RESPONDENTS

Figure 6.4 indicates that, of the respondents, 66.2% are agriculturalists, while 15.1% have the status of ‘appointed community leaders’. 0.2% of respondents are religious leaders, while 0.6% are from government offices with development officials being the non-respondents. The figure shows that agricultural life predominates for approximately two thirds of this community. Their information needs would be paramount in the model CIDS.

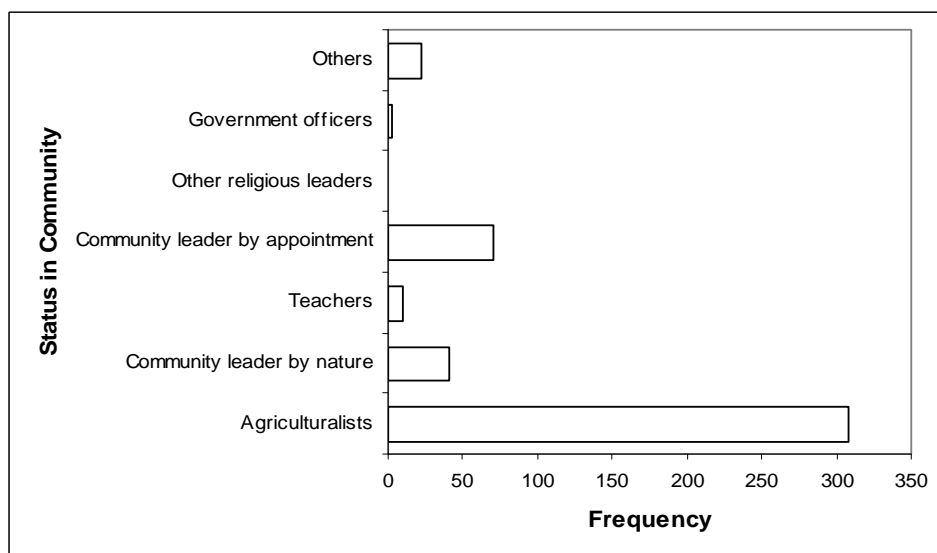


FIGURE 6.4 RESPONDENTS' STATUS IN THE COMMUNITY

Figure 6.5 below shows that most respondents, 78.3%, live in Sakon Nakhon province, with 9.2% from Mukdahan province, 7.3% from Kalasin province and 3.9% from Udon Thani province.

Data shows that the respondents came from 80 districts of the four provinces, and that most respondents (as well as most community members) live in districts that are 40 to 200 kilometres away from the main provincial city. As most people live in Sakon Nakhon province the data indicates that any functional headquarters of the CIDS should be located in the main city of this province.

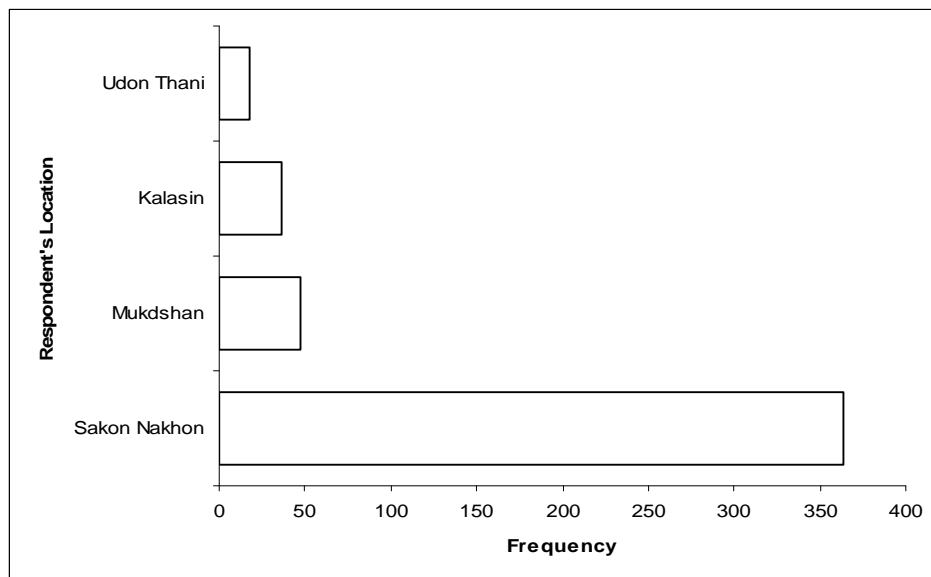


FIGURE 6.5 RESPONDENTS' LOCATION

6.2 Information Needs of ICN

To answer the research question, 'What are the information needs of the Inpeng Community Network?' data, drawn from the responses to Questions 6-14 of the questionnaire (Appendix A), has been tabulated in Figure 6.6.

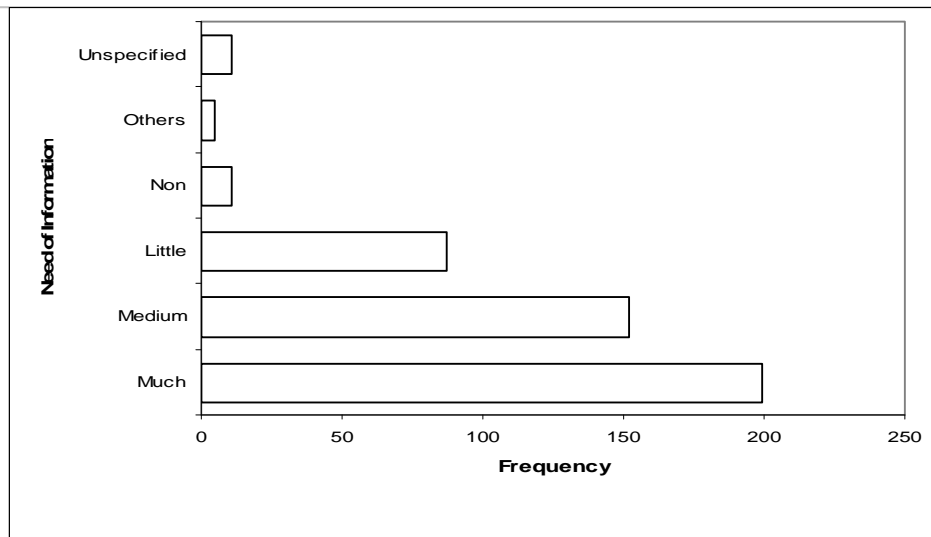


FIGURE 6.6 INDIVIDUAL LEVEL OF NEED FOR INFORMATION

This figure shows the level of need for information by the community. Most respondents indicated their need as ‘much’, 42.8% of respondents. The ‘medium’ level of information need was answered by 33.8% of respondents, while 21.7% saw ‘little need’ or ‘no need’ for information. Thus almost four out of five of respondents indicate a considerable level of need for information.

Figure 6.7 shows a breakdown of the 1,109 different responses to the question concerning the reason for respondents needing information. Most responses indicate an individual need for information which will help to improve in people’s present employment, 28.0%. Nearly 28% of respondents want to be ‘well informed’; 25% want to improve their knowledge; and 17.5% of respondents need information to help them find a new occupation. 1.4 % respondents answer the questionnaire by listing different needs: to develop the community, to add new knowledge to develop agriculture, to be more worldly wise, and to attend lectures or hear guest speakers regularly.

In general the respondents’ frequency of response shows an individual need for information focused on self improvement through improvement to present employment, general knowledge, and opportunities for future employment.

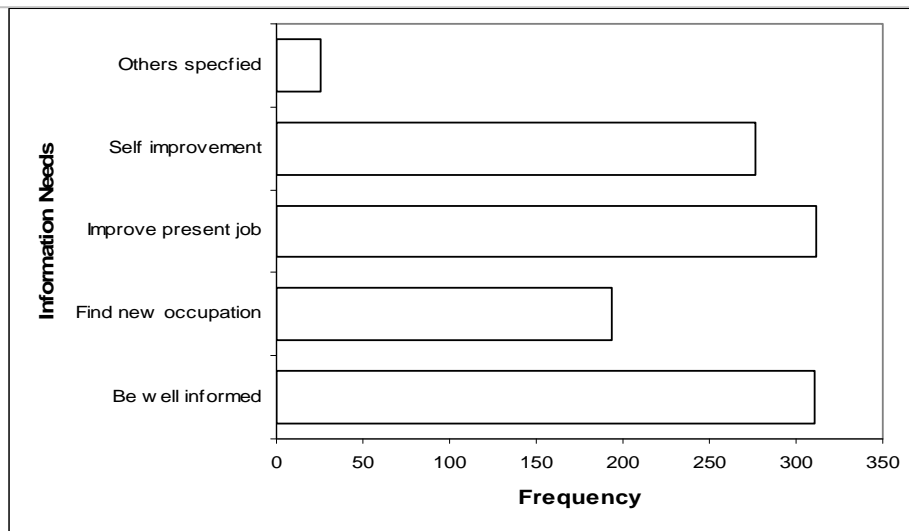


FIGURE 6.7 RESPONDENTS' INDIVIDUAL INFORMATION NEEDS

Figure 6.8 shows that from the responses there were 1,590 different subject needs of the respondents, of which 22.5% gave as their 'greatest information needs' being in agriculture; 19.7%, animal husbandry; 16.9% herb growing; and medicines, 14.2%. Better understanding of the law drew 8.6% of the responses and weaving 6.3%. Only 4% of responses, surprisingly, were for 'reading improvement', given that a considerable percentage of respondents sought help in answering the Questionnaire.

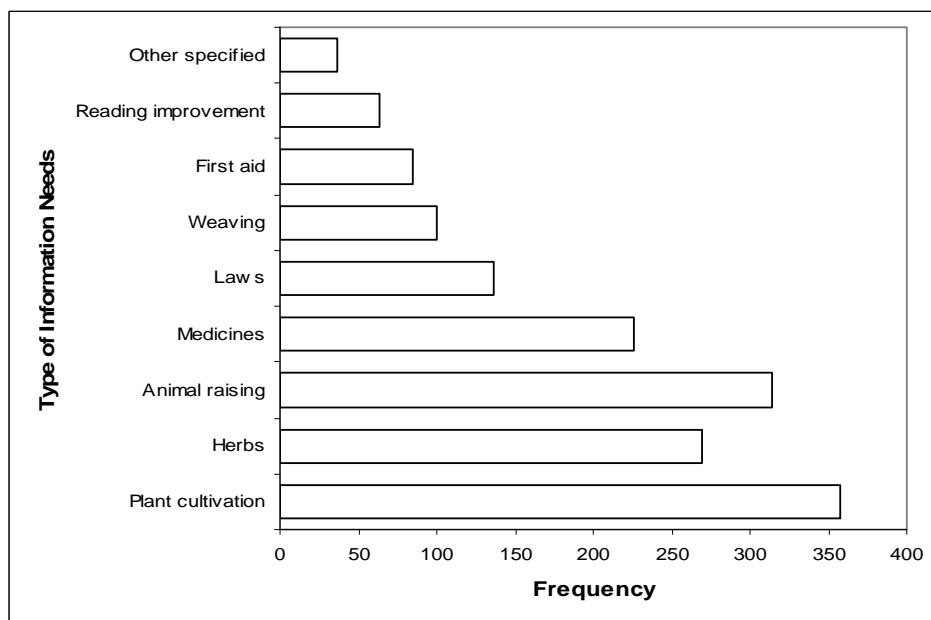


FIGURE 6.8 RESPONDENTS' PREFERRED INFORMATION NEEDS

The responses reinforced the conclusion that respondents were concerned essentially with ‘practical’ information needs. It becomes more and more apparent from the analysis of these results that an effective model CIDS should incorporate, as a minimum, information concerned with improving the agricultural pursuits typical of the ICN. It should also provide information on matters related to the law and health, and be conscious of the information need for such cottage industries as weaving.

Some respondents, 2.3% indicated that they had different information needs from the majority. These widely varying needs are tabulated in Table 6.3 suggesting a much wider scope for future community needs.

TABLE 6.3 UNUSUAL INFORMATION NEEDS OF SOME RESPONDENTS

• Weaving Invention	• Clothing and Printing
• Traditional massage	• Agriculture transformation
• Accounting	• Computer and computing
• Kitchenette	• Organic fertilizing
• Marketing	• Animal fodder
• Natural and environment	• Politics
• community forest	• Trade; do business, & commerce
• New occupations	• Technology in general
• Information technology	• Thrift & economics
• Agriculture & farming tools	• Health

Figure 6.9 shows that most of the information needs of respondents should be presented pictorially or by illustration-frequencies totalling 22.5% suggested audio-visual presentations; pictorial/diagrammatic presentations drew 21.6% of respondents; 18.1% wanted more detailed materials; 16.5% required film and motion picture material; while 9.9% needed more colourful information. The way information needs are to be met becomes an issue with a minimum of emphasis upon

text and written material. The media preferred should be pictorial, colourful, using film and audio-visual devices.

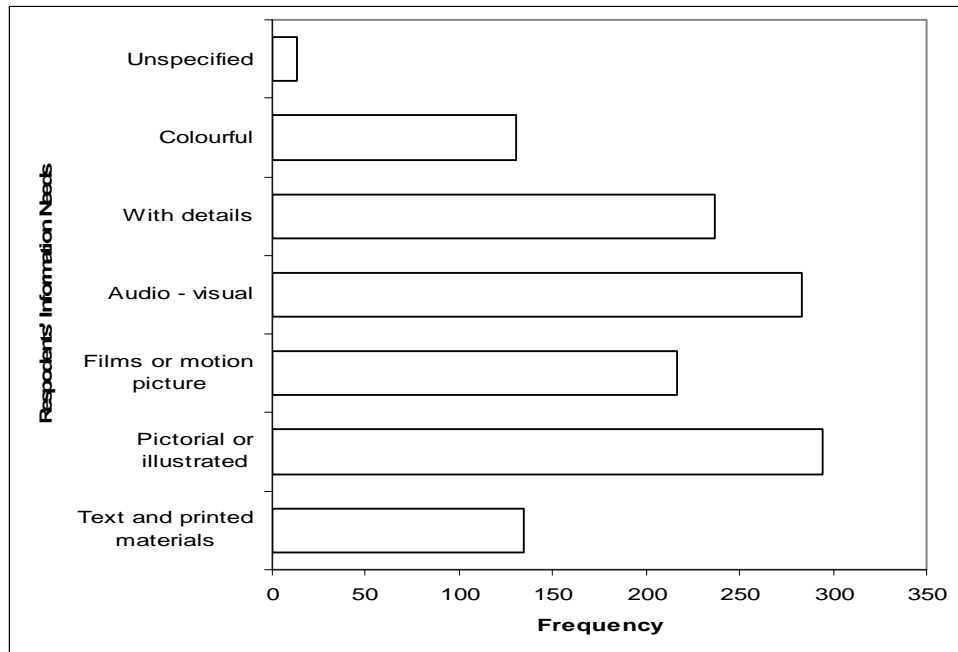


FIGURE 6.9 PORTRAYAL OF RESPONDENTS' INFORMATION NEEDS

Of the respondents, 1% indicated a need for more advanced choice of presentation methods. The scope of these is shown in Table 6.4.

TABLE 6.4 RESPONDENTS' PREFERRED MODE OF MATERIALS' PRESENTATION

- | | |
|------------------------------------|--------------------------------|
| • Books/journals in print | • Video Compact Disc (VCD) |
| • Picture with details | • Video Camera Recording (VCR) |
| • Computer Aided Instruction (CAI) | • Training programs |
| • Practical situations | • Demonstrations |
| • Journal or weekly printing | • Real situations |

Figure 6.10 below shows that most respondents, 24.2% prefer a CIDS model with complementary information services from radio and television programs.

Figure 6.10 also shows that frequencies of 21.9% suggested the more sophisticated information services of websites and internet as part of the proposal model. 18.2% prefer periodicals and magazines, and 16.5 % want the model to have community information in the new database system. A small number of responses, 7.1%, suggested general printed materials. Approximately 1.3 % of respondents made no comment about their information needs. It was apparent that only a few people had some understanding of the Internet, a website and a Community Information Database System.

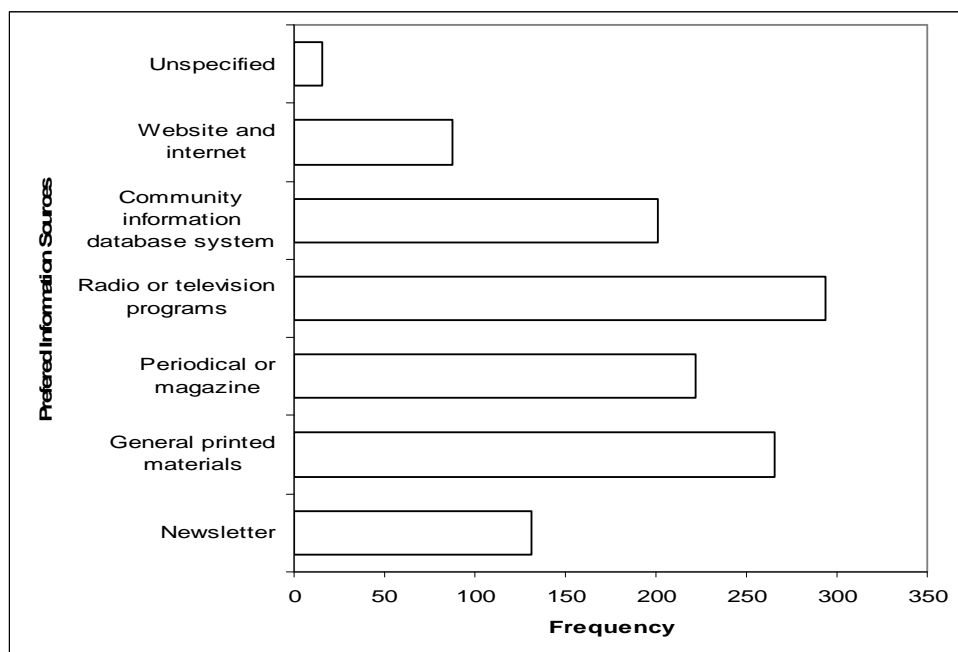


FIGURE 6.10 INFORMATION SOURCES NEEDED BY RESPONDENTS

Table 6.5 below indicates that future information needs of some respondents could be answered from several sources.

TABLE 6.5 FUTURE SOURCE OF RESPONDENTS' PROGRAM INFORMATION

• Data base system	• Short course training
• Exhibitions	• More learning centre
• Computer Aided Instruction (CAI)	• Community radio station

The nature of the data depicted in Figures 6.9 & 6.10 and Tables 6.4 & 6.5 show that the preferred model to enable information needs to be met should concentrate on general printed materials, periodicals, radio and TV, and a CIDS.

Figure 6.11 shows a small percentage of the respondents has already embraced the new technology which includes Website and the Internet. It shows that a model CIDS must project the ICN into the future. Further data provided by respondents in answer to the question, 'How much information do you need for yourself?' is also analysed, showing that most respondents thought the level of importance for more individual information to be 'very much, 40.6% while 45.8% chose 'much' as an alternative. A small number, 1.3%, saw 'little' need for information, and 12.3% were indifferent. The margin of respondents who saw a significantly high need for increased information flow was large, almost 87%.

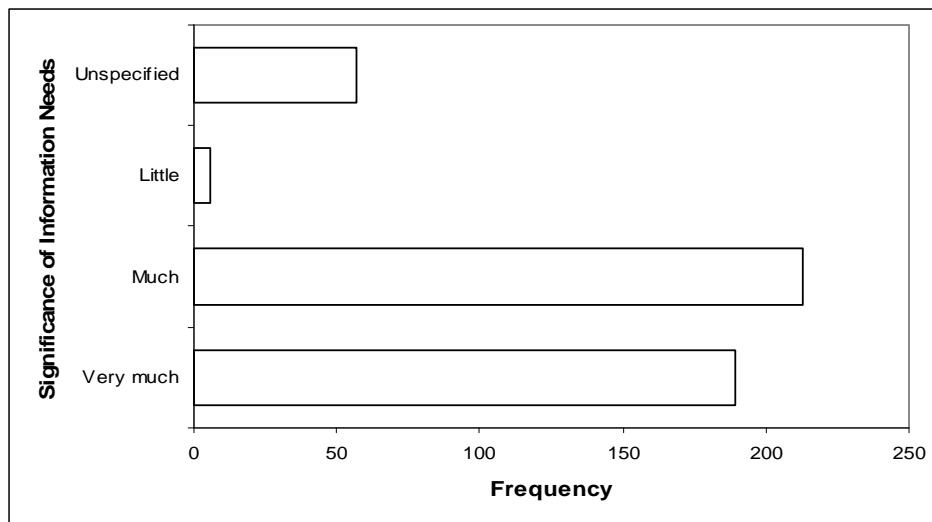


FIGURE 6.11 SIGNIFICANCE OF LOCAL KNOWLEDGE

6.3 Summary

The respondents to the Questionnaire were chosen by the ICN Committee as a reasonably representative sample from the ICN during the Annual Meeting of that

body. Explanation of purpose, offers of assistance, observation, and encouragement by the researcher were positively effective in obtaining a high percentage of usable responses. The majority of the respondents were mature males aged between 40 and 59 years. They came from a stable community network, many of them having moved to Inpeng because of the well developed CLCs. Respondents' responses revealed community members to be relatively sufficiently educated, nearly 50% of them having attended Junior Secondary School or better.

The data showed the main outcomes regarding the information needs and local knowledge of the community in an attempt to determine the answer to the research question: 'What are the information needs of the Inpeng Community Network?'

There was a high level of need for information by the majority of community members (76.6%) who saw their needs being met for career advancement, being well informed, improvement of one's knowledge and seeking a new occupation. The main types of knowledge for inclusion in the model CIDS was to support the agricultural nature of rural ICN, namely in: plant cultivation, animal husbandry and herb cultivation. A large percentage of respondents supported a pictorial, audio visual format for the information required. Finally the delivery mechanism of needed information should be through radio, TV, printed material, magazines and CIDS.

Some respondents indicated different, but more penetrating information needs from the majority, 2.3% indicating their needs in the following areas: weaving innovation, clothing, printing, traditional massage, agricultural transformation, marketing, animal fodder, business & commerce, technology & information, saving, economics, agricultural tools, and health.

CHAPTER 7 :

LOCAL KNOWLEDGE AND EXPERTISE IN THE INPENG COMMUNITY NETWORK SYSTEM

‘Local knowledge’ means the knowledge and local wisdom which people in the community have learned and used from generation to generation, and ‘local expertise’ means specific local knowledge gained from ancestors, informants and by persons themselves including everything each has learned and has been used to solve problems. It is each one’s intelligence interacting with one’s whole body of knowledge.

Therefore, local knowledge and expertise in the ICN system in this chapter refers to the knowledge found in the ICN which individual residents have learned for themselves or learned from their ancestors.

The outcome of Research Question Number Two, ‘What is the local knowledge of the Inpeng Community Network and how can it be collected?’ is also discussed in detail. In order to determine the information needs and local knowledge of the ICN, the disparate forms of existing local knowledge are investigated, collected and classified into the retrieval form knowledge form. Examples of the expertise and the products which exemplify local knowledge available throughout in the ICN are provided in the section which precedes the summary.

7.1 Methods Used to Support Questionnaire Implementation

To gain the best responses possible to the questionnaire (Appendix B) and expert knowledge form (Appendix C) to support the triangulation of data analysed, several

simultaneous approaches were used. These included face-to-face interviews supported by the taking of field notes, voice taping, video taping and photographing. In this way words spoken, voice inflexions and revealing gestures gave the research team data which enabled the prime data analysed from the questionnaire to be fully triangulated.

The ultimate goal was to have well organised, factual data concerning both information needs and local knowledge that could be readily classified into database format.

7.1.1 Interview Support for Triangulation

Four types of interview support for triangulation were used to validate the data provided by respondents during the Questionnaire and In-depth Interview processes. These were the taking of field notes, photography, tape recording and use of the video machine.

7.1.1.1 Field Notes

Field notes were diligently recorded so that accurate local knowledge could be included in the database of the model CIDS. This was a very significant process in this study. The researcher had to ensure that all respondents' information was accurate. All information was double checked by the researcher, who also triangulated the prime data from the questionnaire with data from electronic media recordings. Important community members were also involved in verification before the data were included in the CIDS.

Some typical example of remarks made taken from the field notes when respondents were interviewed follows: *'I learned from my father and my father learned from grand father'*; *'There are two ways of doing bio-fertilizer, can you follow'*; *'Can you*

explain again what does it mean?'; 'The picture is better placed in here than in there!' and 'Can we go back to the beginning and explain again while I double check my note step by step again?'

The texts, refined as above, contain the main body of local knowledge to be included in the model CIDS. To reach this final phase of questionnaire analysis the researcher at first visited, with the appropriate permissions, the community and the expert's family several times. Sometimes he stayed in the community for two or three days during the in-depth interview process so as to obtain information that was as complete as possible.

On site, the researcher questioned the experts while the two assistants took notes and tape recorded the conversations. Such questions as: *'How do you learn about your knowledge?'; 'For how long have you been considered an expert?'* and *'How does your expertise benefit you and the community?'* Another research assistant had photographed and videoed every step of the experts telling their stories. Those Experts who were difficult to interview said things like: *'Why do you want to interview this time?'; 'There are many people who want to learn about my expertise, can you come back later';* and *'Do you want to steal expertise from our community?'*

Remarks like the latter alerted the researcher to their reluctance to be interviewed. The video tape also captured their negative attitude and gestures. When the interviewing finished, the research team had to spend time summarising the body of local knowledge into a retrievable form. Then it was sent to the technician who was competent in designing the CIDS homepage and Webpage. While this was happening, the researcher, accompanied by several assistants, again took the refined CIDS material back to the various communities for double checking. These Experts were content with the transcripts, commenting as follows: *'The content is very well organized, I can let my friend learn from CIDS' now'; 'It's look more interesting than I think'* and *'It is not complete, can you add more about...'* or *'Can you read me*

step by step and I will check it myself?’ or ‘It’s the wrong picture, this is the right one’.

7.1.1.2 Digital Photographs

Photographs of experts (Figure 7.1) discussing their knowledge were very important for the development of the CIDS. It was quickly obvious which Experts were secretive about their expertise, and which were not. Those that were not, were seen to be animated as they detailed their expertise and showed examples of their product.



FIGURE 7.1 EXPERTS DISCUSSING THEIR KNOWLEDGE/EXPERTISE

They helped to explain particulars of their expertise, enabling the researcher to understand their particular knowledge clearly. Having used the photographs for this purpose the researchers had to choose a few exemplar photographs for publication so that readers might interpret the various experts’ knowledge more readily. To choose

a right photograph depicting an important phase of the expertise was not easy. There was much cross checking between technicians and the researcher. The quality of the photograph chosen had to be correct for inclusion in this thesis and the CIDS.

7.1.1.3 Tape Recording

In this investigation the researcher did not have access to the up-to-date recording equipment. Consequently some recordings were of poor quality and unclear. However, tape voice records were used more for triangulation than for transcribing text quotations for the written documents.

7.1.1.4 Video Recording

Accessing video recorder met with the same difficulty as that of tape recorders. The poor quality of the equipment did not yield the standard of results needed for the computers which were networked. During the testing of CIDS, the researcher found about five (out of seven) usable videos. These provided another dimension to the field notes as they were easier to listen to and improved understanding of the In-depth Interviews. Such an example was when one Expert was explaining:

‘Sorry, I had forgotten the story what I learned from my father, may I start telling you again’;

‘Yes, this one is correct but that one is wrong, sorry I was telling wrong steps doing things’;

‘Yes, it’s correct, that is right what I learned and I am doing this at present’ and

‘This video recording sound and picture was not clear, may I review the recording again, and

'Sorry too many video recordings. I must go back to my work. Please make another appointment'.

7.1.2 The Classification of Information Needs and Local Knowledge

To classify the information needs and local knowledge, international standards were observed because it was hoped that the refined CIDS resulting from this study would set a benchmark of quality that would enable it to be disseminated, or form the basis for dissemination, first in the ICN, and then Thailand. The internationally recognized database systems used in processing the data from the study also required the input to be of reputable standard. The most popular system, used around the world in libraries, information centres and online database systems is that used by the Library of Congress (LC) in the United State of America. (Hunter, 1989).

7.1.2.1 The Principles for Local Knowledge Classification

An American Library Association (ALA) and the Library of Congress (LC) classify local knowledge by using the AACR2 and MARC format (Studwell, 1990).

AACR2, an Anglo-American Cataloguing Rules (AACR) designed for use in the construction of catalogues and other lists in general libraries of all sizes. The rules cover the description of, and the provision of access points for, all library materials commonly collected at the present time (Maxwell, 1980).

MARC is an acronym for **MAchine-Readable Cataloging**. The five MARC 21 communication formats, *Bibliographic Data*, *Authority Data*, *Holdings Data*, *Classification Data*, and *Community Information*, are widely used standards for the representation and exchange of bibliographic, authority, holdings, classification, and community information data in machine-readable form (Maxwell, 1980).

7.1.2.2 Subject Headings

The Library of Congress Subject Heading (LCSH) is a four-volume set of books, arranged alphabetically (Library of Congress. Cataloging Policy and Support Office. Collections Services., 1995). LCSH contains cross-references that refer the users from one heading to another. The following abbreviation/codes used in CIDS are:

USE Cross-reference to and from an unauthorized term to an authorized and valid subject heading.

UF<Used For> This code precedes the heading not used. The valid subject heading is the one in bold type.

BT<Broader Terms > Links the subject to broader terms. Broader terms are also valid subject headings, but with a wider focus.

NT<Narrower Terms> Link the subject heading to narrower terms. Narrower terms are also valid subject headings, just with a more specific focus.

RT<Related Terms> Link the subject heading to non-hierarchical headings. All related terms are valid subject headings.

7.2 Local Knowledge and Expertise of ICN

Finding out about local knowledge and local expertise helps in answering the research question, ‘What is the local of knowledge in the Inpeng Community Network’.

Table 7.1 shows that most respondents 62.2 %, consider there is much local knowledge and expertise in their community. Only 24.3 % respondents were ‘not sure’, while 10.8 % of those responding were unsure of the question’s meaning, not

understanding the use of the words ‘local knowledge’. Their response was “not specified”. Clearly, more than 60% of respondents considered that local knowledge was available and local experts were plentiful. Data for Table 7.1 also summarises answers to the question, ‘Is there local knowledge and expertise in the community?’ The table shows that 62% of respondents were positive about the availability of local knowledge and expertise in the community, only 35% being not sure, and 2.8% not specifying.

TABLE 7.1 LOCAL KNOWLEDGE AND EXPERTISE IN COMMUNITY

Level of local Knowledge and Expertise	Number	Percentage
Many	289	62.2
Not sure	163	35.0
Unspecified	13	2.8
Total	465	100

Respondents were asked to name actual experts in their community and 621 experts were identified by name and area of expertise.

They were also asked what level of importance each attached to local knowledge and expertise. Most respondents answered ‘high’ 52.1%, while 29.2% indicated ‘medium’. Thus nearly 85% of respondents believed local knowledge and expertise to be a very important consideration when a model CIDS is developed. This information is recorded in Table 7.2

TABLE 7.2 LEVEL OF IMPORTANCE OF LOCAL KNOWLEDGE AND EXPERTISE

Level of importance	Number	Percentage
High	242	52.1
Medium	136	29.2
Little	46	9.9
Unspecified	41	8.8
Total	465	465

Figure 7.2 results from respondents being asked about the importance of local knowledge and expertise to them and the community. Most responses, 38.7 %,

favoured better income for the community; 33.0 % thought a better community overall would result; and 26.1 % opted for better health. Most of the remaining responses were negative toward greater local knowledge having a significant effect.

Other interesting and perhaps more penetrating answers came from closer interpretation of 2.1% unspecified responses in Figure 7.2. This reveals that better identification of local knowledge and expertise would result in the many community and personal benefits, but local knowledge and expertise were obviously important for individuals and the community. Incorporation of the ideas behind these responses with the model CIDS would certainly lead to community betterment, and improvement in the health and income of individuals.

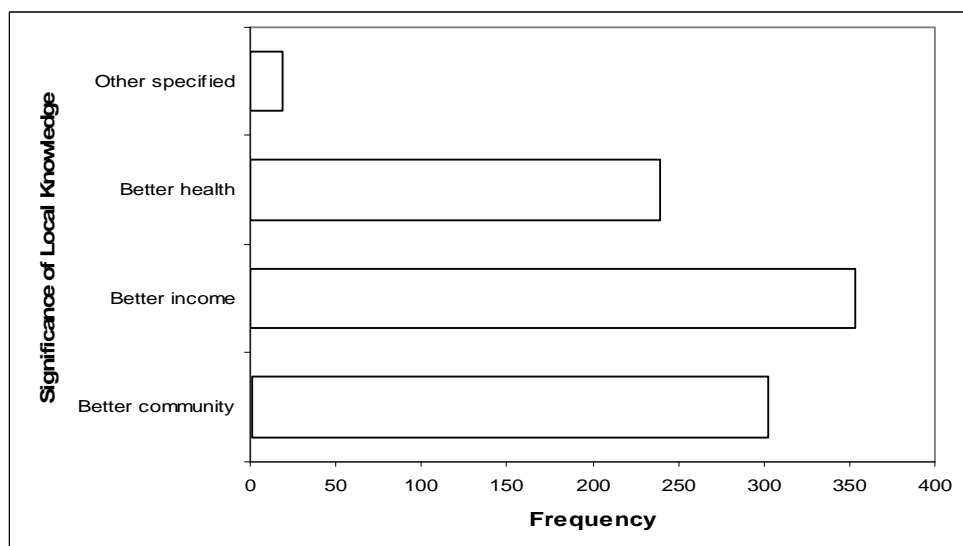


FIGURE 7.2 SIGNIFICANCE OF LOCAL KNOWLEDGE AND EXPERTISE TO THE COMMUNITY

Figure 7.3 shows community agreement that they must adopt better ways of managing local knowledge within the community in order to improve and thus benefit individual levels of local knowledge.

Most respondents, 55.0 %, gave their needs for new management a high priority at 'much'; 25.6 % thought that new management was desirable thus answering that a 'medium' level to meet their needs; 11.0% respondents believed the current level of

management didn't need much change, giving 'little' as their response; and 8.4% respondents were content with the situation as it exists, answering 'unspecified' as the level of their need for new management of local knowledge. It is apparent that almost 80 % of respondents thought the need for new management methods of local knowledge in the community to be important.

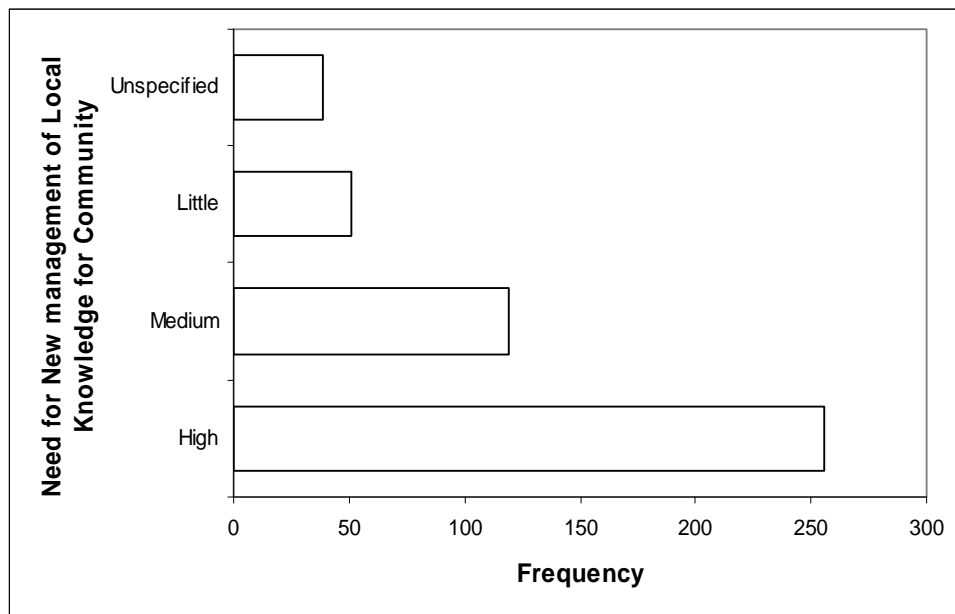


FIGURE 7.3 LEVEL OF COMMUNITY NEED FOR NEW MANAGEMENT OF LOCAL KNOWLEDGE

Figure 7.4 shows respondents' need for new management of local knowledge for both individual and family. Most respondents answered that the level of need for new management of individual and family knowledge was very important, the 'high' level of need being 52.1% and 'medium' at 29.2%. Relatively few responses registered disinterest, 9.9 % answering at the 'little' level, and 8.8% showed a level of 'unspecified' need.

Therefore more than 90% of respondents indicate the importance they attach to the need for new management of local knowledge for each individual and the community.

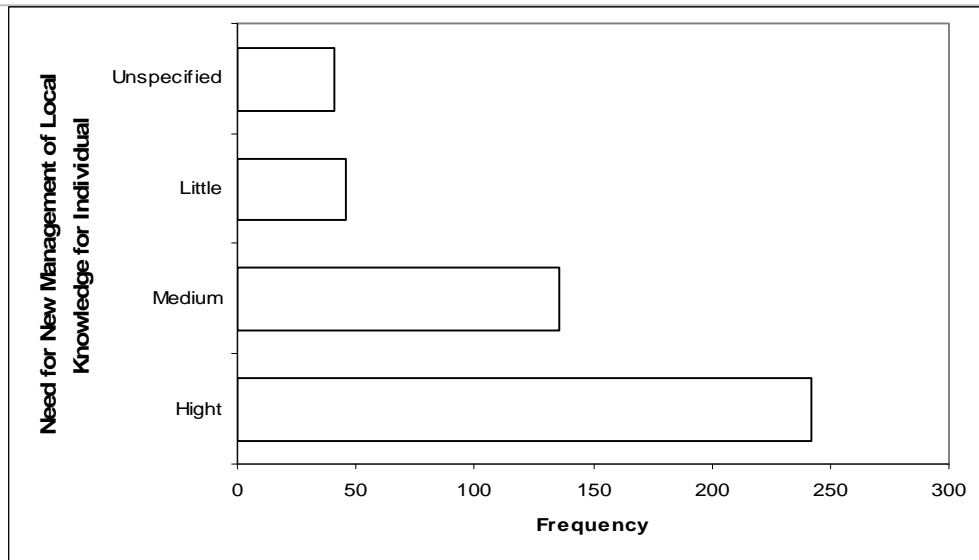


FIGURE 7.4 LEVEL OF INDIVIDUAL NEED FOR NEW MANAGEMENT OF LOCAL KNOWLEDGE

In the matter of self development in Figure 7.5, 50.5% respondents think a CIDS is important, giving it the ‘high’ level of need; 32% think that there’s a ‘medium’ level of applicability; while 8.0% indicated ‘little’ need as their requirement. Clearly more than 80% of respondents consider a model CIDS very applicable to self development.

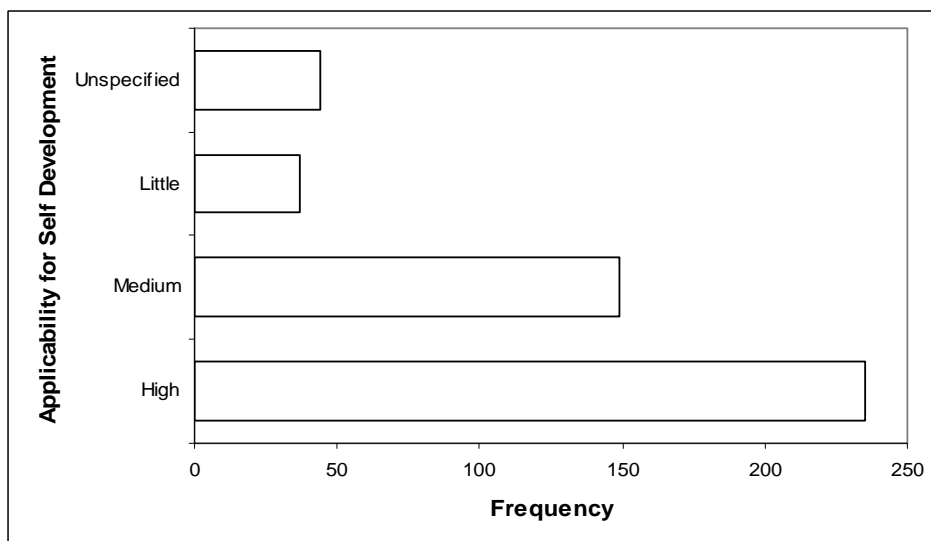


FIGURE 7.5 APPLICABILITY FOR SELF DEVELOPMENT

7.3 Local Knowledge and Expertise of ICN Residents

The questionnaire data identified 64 areas of local expertise with experts being identified by name. Table 7.3 below shows number of experts and areas of local knowledge found in the ICN. The reason for there being more responses from Sakon Nakhon is that the community network started from this province.

TABLE 7.3 LISTING OF EXPERTS AND AREA OF LOCAL KNOWLEDGE

Number	Local knowledge	Location				Total
		Sakon Nakhon	Muk dhahan	Kalasin	Udon Thani	
1	Cloth, silk and mat weaving	45	6	9	4	64
2	Lather turner	3	-	2	-	5
3	Mixed farming	11	-	1	1	13
4	Carpenter/masonry	7	1	2		10
5	Herb	40	8	14	8	70
6	Cattle raising	6	1	8	1	16
7	Collecting forest product	2	1	4		7
8	Plant and fruit growing	8	1	1	6	16
9	Shop-keeping	2	-	-	-	2
10	Animal raising	10	2	6	6	24
11	Re-forestation	4	1	6	-	11
12	Bio-fertilizer	14	6	2	10	32
13	Housing builder	2	1	1		4
14	Agriculture	14	7	2	2	25
15	Domestic fowl raising	1	-	-	-	1
16	Fishing net making	7	1	2	1	11
Number	Local knowledge	Location				Total
		Sakon Nakhon	Muk dhahan	Kalasin	Udon Thani	
17	Sweet vegetable growing	7	1	2	1	11
18	Medicine man/ herbal medicine	9	5	1	1	16
19	Fishing and hunting	5	2	2	1	10
20	Natural cloth dyeing	4	2	1	-	7
21	Forest conservation	4	2	2	-	8
22	Mushroom farm	2	6	2	1	11
23	Chicken raising	3	1	-	2	6
24	Fish sauce making	6	2	2	2	12
25	Naked hand fishing	2	-	1	-	3
26	Peanut growing	2	2	3	-	7
27	Art and crafts	3	1	1	2	7
28	Fighting cock	3	1	1	2	8
29	Mat weaving	5	2	1	1	9
30	Mixed farming	8	3	2	4	17
31	Thai noodle making	2	-	-	1	3
32	Fortune teller	2	1	-	-	3
33	Folk medicine	3	-	-	1	4
34	Fishing	6	2	1	-	9
35	Can player / music instrument	1	1	3	-	5
36	Local customs	2	-	-	-	2

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37	Blacksmithing	6	-	-	1	7
38	Longan and vegetable growing	4	-	1	-	5
39	Rambutan growing	3	-	-	-	3
40	Silk weaving	6	6	1	3	16
41	Fruit growing	6	1	1	1	9
42	Folk music	2	-	2	-	4
43	Rice farming	5	1	2	2	10
44	Fish feeding	6	-	1	2	3
45	Trading massaging	6	-	-	2	8
46	Saving	4	-	-	1	5
47	Thai buffalo conservation	2	1	1	1	5
48	Healing animal sickness	2	-	1	-	3
49	Seedling propagation	3	-	1	-	4
50	Fish preservation	2	1	1	2	6
51	Housing appliance making	1	1	1	1	4
52	Folk medicine	1	2	1	1	5
53	Chant writer	1-	-	-	-	1
54	Barbed wire	1			2	3
55	Snake and insect bite needer	-	2	1	-	4
56	Thai Community traditions dance	3	-	-	1	4
57	Rice container weaving	6	1	1	2	10
58	Broom making	-	2	-	1	3
59	Law	2	1	-	1	4
60	Herbal medicine for women	1	2	1	1	5
61	Flower and decorating plant	-	2	-	-	2
62	Orange farm management	-	2	1	-	3
63	Local whisky making	4	1	1	2	8
64	Mango production	1	1	1	1	4
Total		324	95	103	85	607

7.3.1 ICN Knowledge Experts

Armed with a list of experts and their areas of expertise from an analysis of the questionnaire, the researcher returned to ask for the ICN Committee's suggestions on how to proceed with a good sample of respondents. Committee members selected the acknowledged experts from ten areas for In-depth Interviews (Table 7.4). The researcher spent between one and two and half days interviewing just a few of these experts as an example of what would appear in the CIDS database. While a researcher interviewed the expert, assistants took field notes, voice taped, video taped and took pictures.

From ten experts selected, the researcher found that most of them had absorbed local knowledge which they generally kept to themselves. The researcher found these experts difficult to interview about their areas of knowledge and how they came to

obtain. Three experts, having distinct local knowledge, were finally identified as suitable subjects to be interviewed from list of ten chosen by the ICN Committee. The researcher made appointments to visit again these three in their local communities.

TABLE 7.4 LIST OF EXPERTS AND AREA OF EXPERTISE FROM ICN

Number	Name	Area subject	Location
1	Mr Kanya Jaknaria	Forest conservation	Sakon Nakhon province
2	Mr Bosri Sannarong	Herb and medicine man	Udon Thanee province
3	Mr Thong Chaipanya	Mixed farming	Sakon Nakhon province
4	Mr Thavee Phupatee	Bio-fertilizer	Sakon Nakhon province
5	Mrs Rasri Pholarchom	Weaving	Sakon Nakhon province
6	Mr Charee Thakrut	Agriculture	Kalasin province
7	Mr Chuo Srimukda	Natural cloth/ Indigo dyeing	Sakon Nakhon province
8	Mrs Kan Kheawmukda	Fish sauce making	Sakon Nakhon province
9	Mrs Buksada Yongphom	Cattle raising	Mukdahan province
10	Mr Nuphin Akapin	Fruit drink and wine making	Sakon Nakhon province

7.3.2 ICN Local Knowledge and Expertise

The researcher made two to five visits to each local expert, taking about two months to gather information from them. The three Case Studies that follow illustrate the situation for expert knowledge in the ICN.

7.3.2.1 Case Study One: Bio-Fertilizer

The expert's name is Mr. Thavee Phupatee, is a 59 year old from Nongsonghang village, Kudbak sub-district, Kudbak district, Sakon Nakhon province. He is an expert in *Bio-fertilizer* production, being a Consultant on this subject and an Instructor for the ICN.

He learned to be an expert bio-fertilizer from his father who in turn had learned from the older generation. After joining the ICN staff in 1990 Thavee learned more with fifteen colleagues who were also keenly interested in the same area. Additionally, some of his knowledge and methods were developed by studying at the Rajamongkhon Institute of Education after he joined ICN.

In 1998, the ‘bio-fertilizer group’ and the ICN Committee borrowed 50,000 Baht from the “Small Business Economic Fund” sponsored by the Thai Government so that successful applicants could buy the materials and tools to build a small house/factory to sell bio-fertilizer produce from this Bio-fertilizer Business conducted in the name of ICN.

Method One: The community calls Method One the ‘Cherry Shell Method’. Many materials are needed in this method which depends on decomposition of cherry shells. They are: a quantity of cherry shells, a large pot-plant, sugar refuse, one big tank and two of small tanks, two small lengths of rubber tube, a bamboo stick or any kind of wood for stirring, and an empty bottle.

In this method, the first step is to mix about three kilos of cherry shells in the pot plant which is inside the big tank, with one kilo of sugar refuse. The bamboo stick is then used to mix all the material together before closing the lid. Next, the mixture must be left for four months to a year. Then the bio-fertilizer water is taken from the large tank to the two small tanks, by making a small hole and connecting the tanks by the small rubber tubes. Finally, the empty bottle is placed below the small tanks and the bio-fertilizer liquid fills the bottle before it is stopped.

Method Two: The community calls Method Two the ‘Waste Food Method’. Many materials can be used in this method, such as unwanted food/refuse/rubbish, weeds, and sugar refuse. Also required are: one big tank, two small tanks, two small lengths of rubber tube, a bamboo stick or any kind of wood for stirring, and an empty bottle.

In method two, the first step is to take any old food and mix it with about three kilos of weeds in the big tank. Then mix in one kilo of sugar garbage and use the bamboo stick to mix all the materials together before closing the tank. Next, leave the decaying mixture for four to twelve months. The fourth step is to drain the bio-fertilizer water, which remains from the large tank, into the two small tanks by making a small hole in each of the small tanks and connecting the small rubber tubes connected to each. Finally, the empty bottle is placed below a small tank so the Bio-fertilizer liquid can fill the bottle before it is stopped.

The Bio-Fertilizer product has become of significance for the farmer. It is good for the soil, improving its quality, enabling good plants be grown. It's also natural, being direct from nature, and in no way poisonous. At present, the ICN produces the Bio-fertilizer for use by their members with the excess being sold in many provinces. Using the ICN name, the product is popular and the business is growing every year.

7.3.2.2 Case Study Two: Natural Indigo Silk

Mrs. Chu Srimukda is a 52 year old expert in natural indigo silk from Kudhad village, Kudhad sub-district, Kudbak district, Sakon Nakhon province, an expert in natural indigo silk. She was taught her skills by an ancestor and now improves her knowledge by herself. She is the only expert in ICN natural cloth drying/indigo dyeing, being a Consultant and Instructor for ICN. Also she was the first person to introduce this style of fabric production. To make natural indigo silk there are three steps, followed by three processes if coloring is required.

Step One: Growing Indigo Plants: The first step towards making natural indigo silk is to grow indigo plants. To do this several farming activities are necessary: *Soil is prepared by pouncing and then scattering the indigo tree seed into the soil.* A good time to plant indigo is in May. When the indigo seed germinates and the young plant reaches to around one finger in height, the farmer removes weeds and unwanted plants. Normally, the indigo plants need 6 to 7 months to grow so about October is a good time to begin harvesting.

Step Two: Making Alkaline water: Alkaline water is useful for making cotton cloth of good quality. The materials to make alkaline water are red cotton trees, red cotton bark and paka trees. A mixture of the three materials is burnt to ashes which are then filtered into distilled water. The contaminated distilled water is then called 'alkaline water'.

Step Three: Making the natural indigo cloth: To make natural indigo cloth the following requirement has to be met: First, material necessary for the process must be obtained-an earthen jar, indigo tree/wood, 6 to 10 big bins, coconut cubes, scales, a bamboo basket for transporting water to the bowl, some cloth to filter the indigo water, a tank to filter water and *white* cotton. Second, the followings are needed: a mixer such as lime, an alkali like lye, alkali, basic chemicals, water, the indigo, silt, sediment, and precipitate.

The following Three processes must be completed.

Clothing Process: Put the indigo tree into a big earthen jar and mix with water for two nights before taking the indigo water from the jar by spinning the indigo tree. Next, put in one kilo of lime together with pulverized indigo wood, leaving the mixture until the dregs sink to the bottom. Then drain the clear water from the jar. The dregs are left at the bottom of the jar. Now, put the dregs into the basket using the cloth filter for 1 or 2 nights. When the dregs harden remove the cloth filter and put the filtered material back into the jar. Lastly, take the hardened dregs and mix with lime and correctly measured water until it becomes indigo water. The color is now green or yellow, depending on the quantity of dregs used.

Stain Process: Firstly, six to ten bins containing white cotton cloth must be prepared. Each bin has indigo water in it, thus staining the white cloth. Allow enough time for the cloth to be thoroughly soaked and stained. When the cotton becomes a sharp indigo colour, it is removed and dried in the sunshine. To obtain a deeper indigo colour more lime and alkaline water must be added not more than once a day.

Drying Process: When the cotton from the bins has been dried by the sun it will be a natural indigo colour, ready for members of the community to use the cloth for their garments or to sell at the regular market.

At present, natural indigo cloth is of great benefit to ICN. Most people make their material from natural indigo cloth. They believe that it can protect the body from hot weather and is helpful to the learning of skills. Indigo cloth is popular in the community, especially for farmers and older people. Some people believe that it is a useful balm if the body has been beaten black and blue, or sore and suffering from exhaustion. Indigo cloth is used with hot water for massage with a hot compress containing medicinal herbs.

7.3.2.3 Case Study Three: Mixed Agriculture for Forestry

The ‘Mixed Agriculture for Forestry’ expert is Mr Sompong Srimukda, 62 years old. He learned his skill from an ancestor, and then developed more techniques himself. He has also received additional training from the Department of Forests. Now he is an Expert and Consultant in forest agriculture; he also an instructor for ICN.

Mr Sompong Srimukda joined ICN in 1994. He and fifteen of his friends had learned about forest agriculture from the Queen SiriKit Phu Pan Study Project Centre in Sakon Nakhon province. Queen Sirikit, the Queen of Thailand allots money for good community development projects. Mr Srimukda began forest agriculture on his 5 rais of land growing plants. He took most of the plants from Phu Pan Mountain. He also received training from the Department of Agriculture, Rachmongkon Institute.

At present, mixed forest agriculture is one of the most popular subjects with ICN members. They can grow plants on their household farm while some members conduct a small nursery forest farm along with their daily work to supplement the income of the family. During the short time of studying this component of local expertise the researcher found also that community products had resulted, in increasing community knowledge and wisdom.

7.4 Products of Local Knowledge

As the study progressed, the researcher found that there were community products as well as community knowledge and wisdom.

7.4.1 Inpeng Bio-Fertilizer

Inpeng Bio-Fertilizer is one of the most popular products in the ICN and with other network. The photographs show the main stages in the process of manufacturing *Bio-fertilizer*. Starting with the top left hand picture and moving to the right, the process is illustrated below (Figure 7.6).



FIGURE 7.6 THE MANUFACTURING OF BIO-FERTILIZER

7.4.2 Inpeng Mao Wine

Mao is a local fruit from a big tree found in the mountainous area of the Northeast of Thailand. In days gone by today's ancestors used Mao fruit for making a sweet drink and local whisky. Following government advice, people from the ICN have developed a wine from Mao fruit. Now Inpeng Mao Wine is a product of ICN, becoming widely accepted as a popular drink in the general community. The process used for manufacturing Mao Wine is illustrated in Figure 7.7 commencing at the top left hand conner progressing to the right.



FIGURE 7.7 THE MANUFACTURING OF MAO WINE

7.4.3 Inpeng Fruit Preservation

ICN grows many local fruit trees found naturally in the mountainous area of the Northeast of Thailand. Some fruits are seasonal, and ripen quickly before falling to the ground and quickly decaying. The experts and other community members try to preserve and modify all fruits.

Now ICN fruit preserving results in one of their many products which is becoming widely accepted and popular in the general community.

The method of fruit preservation (Figure 7.8) is illustrated below. Reading from the top left hand corner the pictures show the process, step by step.



FIGURE 7.8 THE MANUFACTURING OF FRUIT PRESERVATION

7.4.4 Inpeng Silk

Inpeng silk is one of ICN product and becoming widely accepted as a popular cloth for clothing in the general community.



FIGURE 7.9 THE MANUFACTURING OF INPENG SILK

The silk making process is shown pictorially (Figure 7.9), starting at the top left hand photograph and proceeding to the right.

7.5 Summary

The chapter began by exploring the meaning of ‘local knowledge’ as it applies in this study. A detailed discussion of the expected outcomes for Research Question Number Two follows. Data collection of local knowledge and about the expertise in the community, its organisation and its conversion to retrievable knowledge is summarised.

Another area of this research sought an answer to the research question: ‘What is the level of local knowledge of the Inpeng Community Network?’ The data shows that most respondents considered there was much local knowledge and considerable expertise in their community. Concerning this matter, most respondents agreed that these factors were important to ensure: better income for the community, general community improvement and better community health. Other interesting answers saw improvement in environment and conservation, individual and child knowledge, housing protection, community pride, family living expenses, transfer of knowledge and community protection.

The majority of respondents saw that there was very high need for new methods of management to improve local knowledge. Similarly, most respondents thought that improved management practices would be positively applicable to self development at the highest level.

Samples of expert knowledge are described along with the expertise in the community which has led to widely marketable products which carry the ICN label.

CHAPTER 8 :

COMMUNITY INFORMATION DATABASE SYSTEM AND COMMUNITY

This chapter discusses in detail the outcomes of questions asked in a Semi-structured Interview (Appendix C) in order to answer Research Question 3. In essence this question seeks to ascertain, ‘What is the potential role of CIDS in the empowerment of the community, and what is an appropriate model for an information system that is applicable to rural communities in the ICN in terms of their information needs?’

Initially, a draft model of a CIDS was field tested and made familiar to a sample of Inpeng community respondents for a period of three months. These respondents were then better equipped to respond to the queries posed in the Semi-structured Interview about their attitude towards, information needs met by, and suggestions for the better use of this draft model. The refined CIDS would then become the IT tool for the residents in the ICN to use in dealing with their own problems while achieving sustainable development. The ultimate intention of this question was to show how rapid community development could follow the implementation of CIDS. Acceptance of a CIDS, compatible with their information needs, by the ICN would be shown to be the progressive way to expand each CLC in the network by incorporating a CIDS. This is in keeping with the requirements of the current *Information Age*. Importantly it would show that the incorporation of CIDS into CLCs is a community development that further enhances the empowerment of local individuals and the community at large.

8.1 CIDS/CLCs Coordinators and CIDS Implementation

CLCs and community volunteers cooperated to ensure that, within three months of the analysis of questionnaire and in-depth interview data, the draft CIDS model was

ready for trialling. The respondents, numbering 165 from variously prepared community members, came from six of the eighty five CLCs in four provinces comprising the ICN. The associated Semi-structured Interview was implemented at the same time to a respondent cohort which was comprised of 45 males and 120 females.

One of the answers to the second protocol question analysed below records the number of persons from each location. It was specially noted that approximately three times as many females as males answered this Semi-structured interview which seemed to show positively the emergent interest of females. Numbers of reasons for this respondent imbalance can be speculated upon: the probable reason is that most males had to work on sites outside the community such as on their farms, in the forest, or their own small factory, and suchlike occupations. At the same time most females and the young had time for many activities together among community members in the nearby CLC. Alternatively, for some interested females, once the male imprimatur had been given, they sought expression in the challenge of defining what they most valued as subjects installed in CIDS, indicating what additional subjects they wanted included in CIDS, and grasping the chance given for their greater empowerment. This alone is one sociological possibility worthy of separate investigation.

8.1.1 Location of CIDS Coordinators

In Thailand, the government policy is for most communities to have their own CLC and activities available at the Centre are for all community members (UNESCO Asia-Pacific Programme of Education for All (APPEAL), 2004). The ICN CLCs are not only activity centres but also training centres, libraries, children's centres, health-care centres and centres for cooperation with between other communities.

The respondent cohort from the six CLCs selected was representative of all levels. The coordinators from the selected CLCs who were responsible for the distribution of the research instrument, reported their location and names as follows:

TABLE 8.1 LOCATION OF CIDS COORDINATORS

Unit	Address and Location	Province	Coordinator
1	Kudbak Village, Kudbak sub-district, Kudbak district	Sakon Nakhon	Mrs. Sathreai Ohbchaei
2	Sakonratvithayanukul school, Thachongchum sub-district, Mung district.	Sakon Nakhon	Mr Supat Pailoei
3	Loaphonklor Village, Loaphonklor sub-district, Phupan district.	Sakon Nakhon	Mrs Jaroonsak Thanakamdee
4	Koktom Village, Koktom sub-district, Donglhoa district.	Mukdahan	Mrs Samneang Waiyarat
5	Bayoa Village, Bayoa sub-district, Wangsammho district.	Udon Thani	Mr Boonjan Phunapet
6	Phon Pang Village, Dinjee sub-district, Kammuoi district.	Kalasin	Mr Chalee Thakud

During the period of investigation, some community volunteers and community members, who had received training in SNRU, were available as respondents and to assist other new respondents.

8.1.2 Respondents' Source of Information

When the community member respondents first visited their CLC with facilities to access CIDS installed in several computers, they were given orientation help so that they knew the manner in which the CIDS could be utilised, and then appraised. After the respondents had then used CIDS they undertook the Semi-structured Interview, each one being interviewed by the researcher, assisted by some research assistants and volunteers.

Observations made as the researcher administered the Semi-structured Interviews were many and varied. In general there was enthusiasm for being part of a research process which could result in the ultimate widespread availability of CIDS as a technological tool for the future. Often such an enthusiastic remark as: *'Wow, it's excellent database, I can search many things I want from CIDS and the Internet'* was heard, while those who found the new procedures difficult or irrelevant for the

present often muttered such expression as: *‘It’s difficult to access. I am afraid of the computer and do need to learn more’*. All showed particulars in their body language which enabled the research or technical experts to help and to judge the likely positive or negative attitude of each respondent.

Each of the respondents was first asked *‘How had your knowledge of CIDS been obtained?’* The responses (Figure 8.1) showed that 92 respondents were told about CIDS by their coordinator, 25 by their teachers, 24 by commercial radio, and 20 by a friend. A few respondents heard from the community leader or a parent. Some of the respondents heard about CLC/CIDS from more than one source.

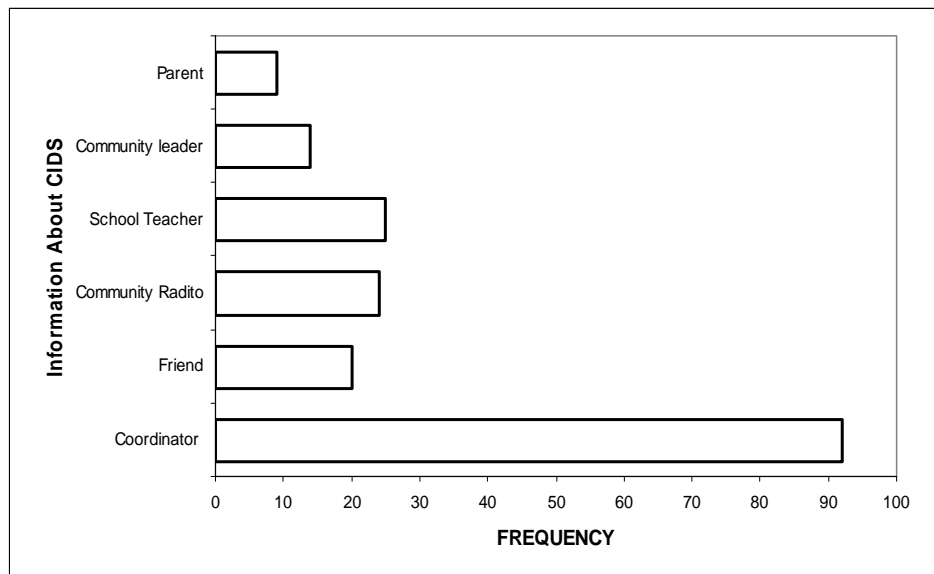


FIGURE 8.1 INFORMATION ABOUT CIDS

Therefore approximately 66% of respondents heard from professional sources. A sizeable proportion heard from “non-professional” sources indicating that knowledge of the impending implementation of CIDs was abroad in communities.

The interviewers’ daily reports mentioned that most respondents who used the CIDS were excited and that it was noticeable that more people visited the CLCs while the model CIDS was temporarily installed.

8.1.3 Reason for Using the Model CIDSs

After CIDS has been installed in selected CLCs, the researcher further investigated the researcher wanted to understand the reasons for its use. This open-ended question was asked and followed up, ‘*Why do you use the CLC and CIDS?*’ Respondents were interviewed carefully to ascertain their real thoughts thereby obtaining a more reliable answer. The data showed that not only university students, business men, and educators responded positively about CIDS, but many of the cohorts comprised people from among the poor in the community who were seeking ways to improve their standard of living.

Field notes written at the time reveal a certain of satisfaction of respondents as these quotes show: ‘*The CIDS is very interesting to learning and make CLC more useful than before*’ ‘*I enjoyed using CIDS, especially when I saw more people were coming to the CLC and CIDS.*’ ‘*I want to thank SNRU and the researcher and staff for bringing the good thing to our community network*’.

Figure 8.2 below lists some of the reasons given by respondents for visiting their CLC to use CIDS. To improve their knowledge was the reason given by 88 respondents. Although Internet is a new technology to them, 44 respondents wanted to learn and know about the Internet. The answer from 27 respondents is most interesting in that they want to improve their work situation. This means that CIDS is expected by many respondents to help them find some information of benefit to their present jobs, or to assist in finding another jobs. Gaining more information about the ICN was the reason for 24 respondents who visited their CLC regularly. Therefore they wanted to know the ICN better. Fourteen people visited their CLC in order to finish their school assignments and in the process they certainly learn more about the CIDS.

The significance of these results is that the urge for self-improvement is widespread in the various communities. Further, it’s not only the young and new generation of

people who want to improve their knowledge, but also the results from the interviews show clearly that most community members want the opportunity to improve their knowledge, their work and their standard of living.

Revealing quotations from field notes follow: *'I want to learn some thing more to improve my knowledge and my present work'* *'Now the world is changing and I expect to learn new things form CLC and CIDS'* *'Inpeng members should not stop learning, the learning must go on'*.

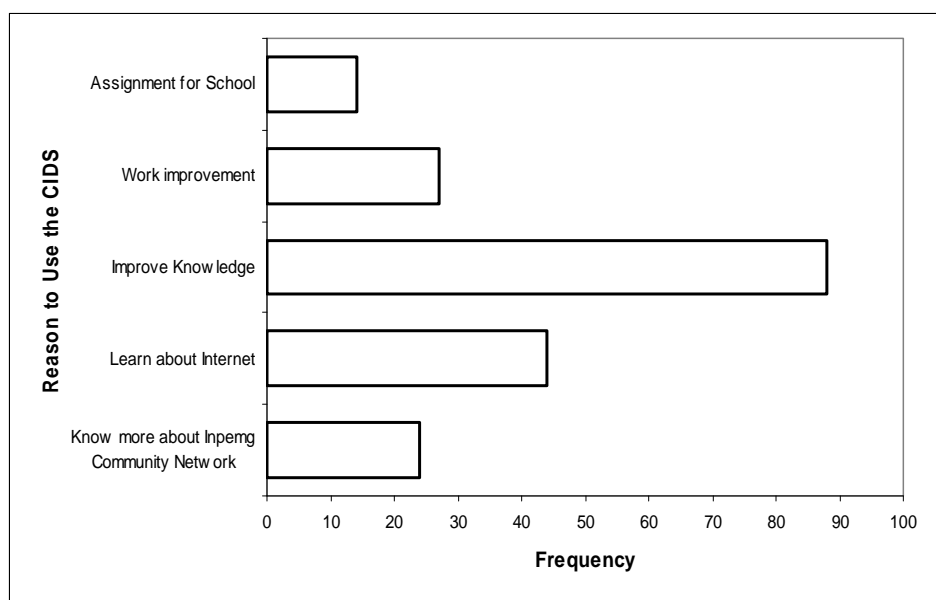


FIGURE 8.2 REASONS FOR USING THE CIDS

The outcome above also harmonizes with the daily reports of interviewers who found that most respondents and community members who have tried using the CIDS were found to be excited about its possibilities, actively wanting to learn and use CIDS and the Internet to find something new. One respondent interviewed summed up the opinion of many: *'I have found many new information from CIDS and the Internet'*.

8.1.4 Information about the CIDS Service Centre

The outcome depicted in Figure 8.3 shows that most respondents knew about the CIDS Service Centre and the CLC to be the host from the community coordinator or the community leader. Some people learned about CIDS Service centre from community radio and local school teachers. Parents and friends had almost the same level of information about CIDS Service Centre as the respondents. Community-wide information sources were very prominent. This result shows the importance of a good relationship between community members, coordinators and leaders.

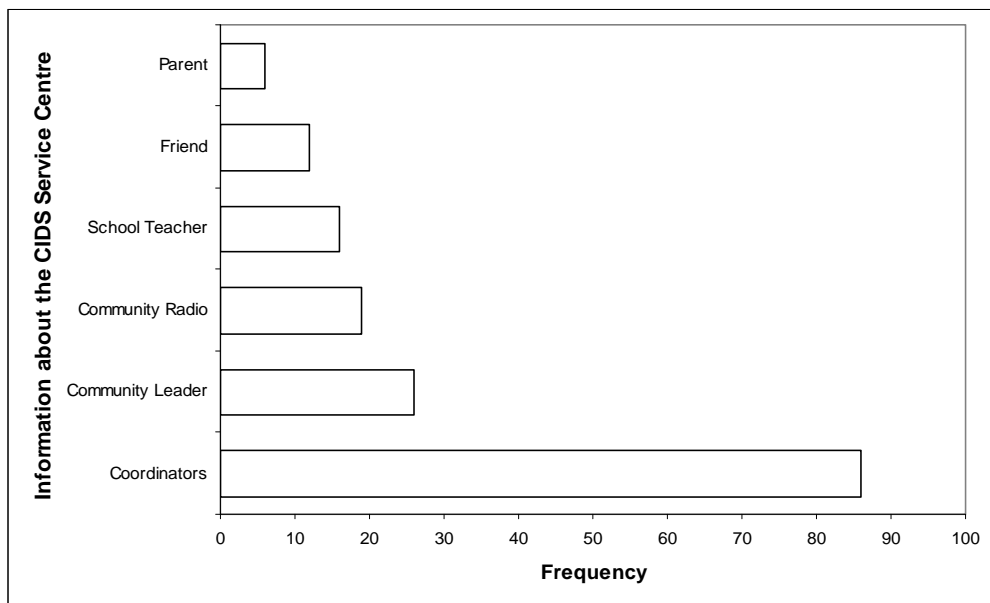


FIGURE 8 3 INFORMATION ABOUT THE CIDS CENTRE

8.2 The CIDS and Community Needs

In this section which concerns itself with the CIDS and community needs, there are three main sections: the frequency of community use of the CIDS; the level satisfaction when using the CIDS; and the use of CIDS to make the most popular subjects available to all.

8.2.1 Frequency of Community Use of CIDS

The answers the respondents gave to this question ‘How often do you search for information from the CIDS?’ are recorded on Figure 8.4 which follows.

More than half the respondents could only visit their CLC to use CIDS twice per month, and approximately one third of them visited once per month. Clearly many factors exist preventing greater use of the nearest facility – maybe distance, work commitments, unsuitable timing for availability of the service etc. Many factors currently exist which must be taken into account of as the CLC/CIDS project is developed.

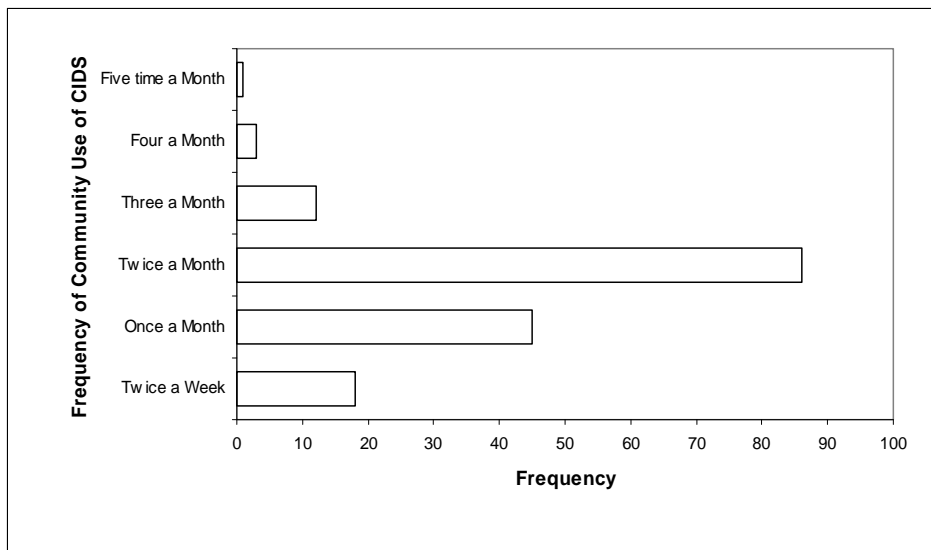


FIGURE 8.4 FREQUENCY OF COMMUNITY USE OF THE CIDS

8.2.2 Satisfaction from Using CIDS for Information Needs

Answers for the question ‘Did you find information you need from CIDS?’ showed that most respondents were satisfied when using the CIDS, easily finding the information they needed. Tabulation of responses shows that 144 of the 165 respondents were satisfied with the current information they obtained from CIDS.

Later thinking revealed by the interview protocol showed that CIDS had increased respondents' thirst for knowledge, encouraging them to want the data base of CIDS to be increased by subjects giving broader and deeper information about matters essentially geared to their style and standard of living. A glance at field notes recorded at the time indicates enthusiasm on the part of respondents. Some examples are:

'I learn more about farming and the different method of farming from what I am doing'

'I got some techniques about sweet potato plant growing'

'I found that there were many kinds of fruit wine other than Inpeng Mao wine'

'Yes, I found much to interest me. I should know about such things as mushroom farming, herbs growing, and bio-fertilizer'

'I want more topics about healthy life-style and a short documentary about how to improve work in community.'

'I feel I am back to school again, it's exciting to be a learner again since 40 years after my elementary school.'

Only 21 of the 165 respondents couldn't find the information they needed, mainly because of technical difficulties with the Internet, or problems associated with Internet literacy. It is fair to conclude from the responses that the community as represented by the respondents wants to improve its knowledge about life style and standard of living.

8.2.3 Most Popular Subjects Used in the Community

Of the 65 subjects listed in CIDS, 25 were found to be the most popular and they were available already from local knowledge and experts (Table 8.2).

TABLE 8.2 LIST OF INFORMATION NEEDS CIDS FOUND TO BE MOST POPULAR

Number	List of Information Needs	Number	List of Information Needs
1	Herb education	14	Fishing Preservation
2	Weaving	15	Local Whisky Making
3	Bio-Fertilizer	16	OTOP Product
4	Mixed Agriculture	17	Tradition Medicine-female
5	Raising livestock	18	House Building
6	Mix Farming	19	Short-term Law Courses
7	Fruit Planting	20	History of ICN
8	Traditional Medicine-male	21	Art and Crafts
9	Fish Sauce Making	22	Folk Music
10	Mushroom growing	23	Healthy and Sickness
11	Cattle Raising	24	Veterinarian Advice
12	Fishing and Hunting	25	Fortune Telling
13	Rice Farming		

Agriculture was the most popular, followed by mixed agriculture, forest agriculture, farming, gardening, growing herbs, weaving, cloth dying, and plant growing. Some respondents preferred news about the community, government, politics and the law. In one district food canning, bio-fertilizer, and fermenting local whisky were the most popular, showing how important it is that the CIDS database contain district-specific subjects both for the local inhabitants and the education of the community at large.

8.3 Other CIDS Issues

8.3.1 Use of the CIDS in the Future

When the interviewers asked respondents' opinions on whether they would use CIDS again in the future, and how, 159 said, 'Yes' indicating they will return and search CIDS to increase their knowledge. One respondent said,

'I have found something in new technology I've never seen; I have learned more worldwide things. It's very interesting.'

The respondents greatly enjoyed using computers to search many topics from CIDS, improving their knowledge, and their work, some saying,

'I am excited to know about the Internet. It has improved my knowledge and it helps my work.'

Some of them liked to read online newspapers. Only 6 respondents were not sure about when they might try CLC/CIDS again, citing time off from work being hard to get, and their need to receive training in the use of the computer and the Internet. One respondent seemed to sum overall opinions when she stated,

'I was excited to read online newspaper but some time CIDS is difficult to use. I must learn more about computer, the Internet and CIDS.'

The responses received by the interviewers when discussing their future needs and intentions regarding the use of CIDS with respondents indicated that approximately 95% of them thought a technological tool like CIDS would play an important part for themselves and their future. The answers reinforce the need for the additional resources necessary in order that the computer literate have the opportunity to use CLC/CIDS more, and for those not confident in computer use to receive encouragement and training.

8.3.2 Managing of CIDS

For the question *'Who do you think should manage CIDS'* the respondents provide a surprising result in their analysed answers (Figure 8.5). The analysis showed that eighty six and 54 respondents respectively want local government and community leaders to be responsible. Forty respondents, approximately 25%, wanted control to remain with Rajabhat University. The remaining respondents wanted teachers or the Government to be responsible.

Thus 140 respondents see local responsibility as best for CLC/CIDS. This of course raises an interesting funding dilemma: Should the central or provincial governments make substantial grants of money to be expended locally for the conduct,

improvement and expansion of CLC/CIDS?; or should a ‘user pays’ principle be adopted such that the local government charges for the use and money obtained directed to fund this additional responsibility of managing the CIDS.

The expressed positive attitude towards local control, however lacking feasibility, could be explained by respondents’ concerns about the past unresponsive bureaucracy. The closest hub for the organisation and control of a more vibrant ICN was expected to be the SNRU, already well-resourced and capable of extending the capabilities of the ICN, and in particular disseminating and maintaining a CIDS. Figure 8.5 below shows the result diagrammatically.

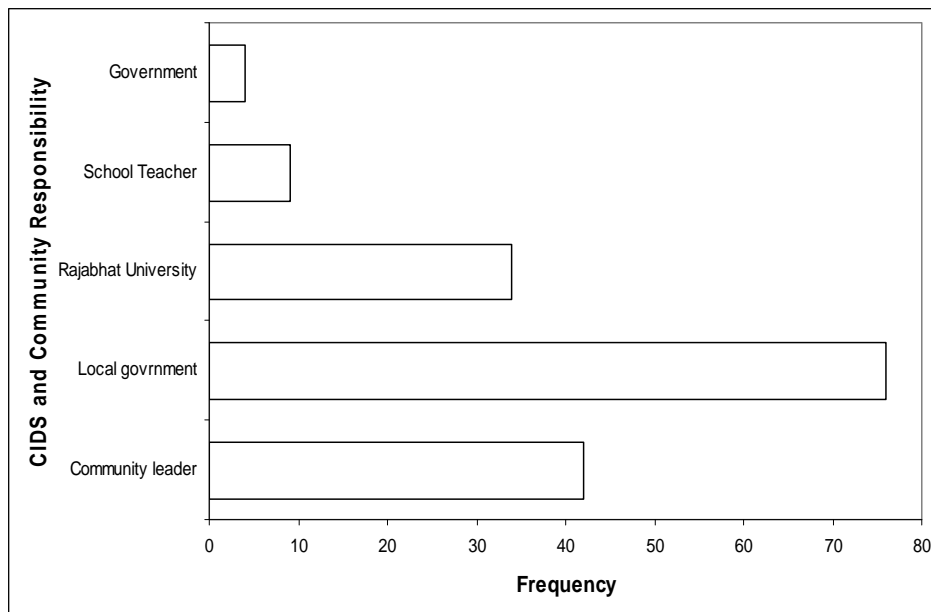


FIGURE 8.5 THE CIDS AND COMMUNITY RESPONSIBILITY

8.3.3 Community Problems and Expectations

After using the CIDS the question ‘*Did you find any problems when using CIDS?*’ was part to the respondents who explained that there were some problems to be solved. Figure 8.6 below shows a list of problems found by respondents using the CIDS and CLCs services. It must be remembered that the computer and the Internet provide new information technology (IT) services to the respondents and to

individual CLCs which were not adequately resourced. The CIDS and Internet were services for temporary use during the study only. But even with this temporary service, there was a good response from respondents, community members and local government officers.

The problems listed by respondents in answer to the question about their use of CIDS were essentially practical. These were concerned with their own lack of skills and knowledge about using the computer and the Internet. They lacked experiences in using the Internet, and there were too few computers, with most being very old. The problems listed by the respondents are tabulated in Figure 8.6 below.

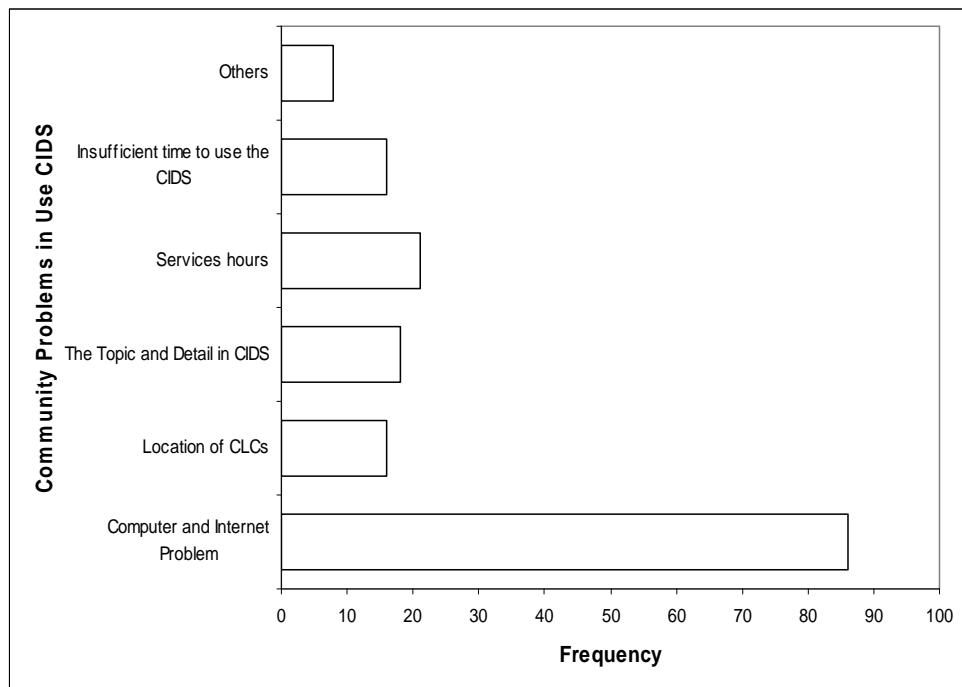


FIGURE 8.6 COMMUNITY PROBLEMS IN THE USE OF THE CIDS

It is clear that to implement CIDS in an increased number of CLCs will require a substantial capital expenditure. An unspoken requirement is that this Network, increased markedly by the requirements of modern technology, needs competent technological experts to be widely available to solve technical problems. Multiply these requirements identified in the ICN by the necessary slow spread throughout Thailand of CLC/CIDS, its establishment, modernization, and maintenance, and it

is apparent that enormous inflows of capital will be necessary. This capital requirement will have to compete with the modernizing needs of many other departments both inside and outside the educational enterprise.

8.4 Respondents' Suggestions for CIDS

Respondents told of how they valued CIDS as a useful tool to develop them in this information age and to help them to increase their feelings of empowerment. These opinions were sought together with their suggestions for the future of CIDS are tabulated and discussed below.

8.4.1 Continued Development of CIDS

Answering the interview question '*Do you want the CIDS to continue in service and be developed more?*' 161 of 165 respondents indicated that the CIDS project should continue and become a non-stop community service. The majority of respondents identified CIDS to be not only significant for the community, but necessary for developing individual information needs.

8.4.2 Improvement of CIDS and CLCs

The final interviews question '*What do you want to recommend for the future for the CIDS and CLC?*' The result found that most respondents have a high opinion of the CIDS and CLC. These suggestions for the future are combined with the answers given in Question # 14 in Appendix E, which sought suggestions for improvement of the service, and tabulated in Table 8.3

TABLE 8.3 COMBINED OPINIONS AND SOME SUGGESTIONS OF RESPONDENTS

About CIDS	<ul style="list-style-type: none">• Good database for community and families• Good project and not to be terminated• More topics in more detail and more complex• More computer and Internet access• Disseminate to other communities, not only Inpeng Community Network• Update every month• Training should be more widespread• More service hours
About CLCs	<ul style="list-style-type: none">• More branches and more networks to include every community.• Improve the environment and modernize facilities.• More computer and Internet access.• More titles available of hard copy newspapers.• Longer service hours.

8.4.3 Recommendations

After CIDS had been in service in the community for a short time, respondents knew better how to use it. They realized there were more subjects that CIDS could and should cover. The responses to this question showed that there were more than 27 topics the respondents considered necessary to add, such as: broader agricultural pursuits, forest agriculture, packaging of locally produced goods, folk medicine, silk weaving, rice farming, water management, specialised food canning, bio-fertilizer, animal husbandry, house equipment, community business, food and beverage occupations, and services provided by, and news about the ICN. From tentative beginnings the respondents could see the value of the progressive innovation, CIDS, and also its potential.

More than half the respondents suggested practical improvements – more CLCs, all CLCs to have an increased number of computers, all computers to have CIDS incorporated and better Internet access with increased hours of service.

About 25% of respondents suggested that CIDS incorporated a wider range of topics and that more details be provided. Twenty two of the respondents were perceptive enough to turn their thoughts to the environment of CLCs, suggesting each venue be more comfortable and modernized. Sixteen participants did not answer this question.

Answers to this question show that there is awareness that improved services must be provided and upgraded in accord with modern practices, and that the environment must be conducive to making participants want to visit their CLC more often and stay longer.

8.5 Current/Potential Roles of CIDS for Community Empowerment

An answer was sought to a question ‘*How do you think the CIDS benefit you?*’ in order to gauge opinion about the current and potential role of CIDS in community empowerment. There were 159 respondents answered “yes”, believing that the CIDS was of benefit to their standard of living, empowering them as it assisted their community to develop. Respondents believed that community empowerment followed closely upon community development. One respondent said, ‘*I found many topics related to my work and helped improve my work.*’

Only six respondents were not sure about the possible impact of CIDS. CIDS was a new IT tool for them, and they needed to learn more about the Internet and CIDS itself. These respondents reported the possibility of a change of mind in the future because such a new development as CIDS was not really the first priority for them now. They believed that each can live according to his/her own experiences.

A vast majority of respondents, 161, favoured the implementation of CIDS as a means of developing and empowering their community. Their enthusiasm for the new IT had them realise the scope of CIDS in the subjects it could present. Some respondents said,

‘It (CIDS) is not too difficult to understand and using the Internet is fun’

'Every time that I use CIDS I am learning new things. I enjoyed learning from the Internet and finding new knowledge improves myself.'

They were aware too that a CIDS change some of their attitudes and their way of life for the better. CIDS holds out the promise to change their society from a semi-literate one to an educated one. In recent times if they had a problem and nobody locally could give them advice, they must wait until a government officer visited their community or they had to inform the community leader who would take the problem to a government official. Sometimes they waited a month or more for the solution, or they might not get an answer. Most CIDS respondents' answers implied that CIDS allowed them to 'go back to school again' because it opened the door to life-long learning. But the most important difference is they believe CIDS allows them to search for what they want to know. Sometimes in their search for new knowledge and solutions to their own problems they engage in self improvement and self development which will increase their incomes and their standard of living.

8.6 Refined CIDS Model

The refined CIDS Model was designed so as to obtain data which would answer research question number three 'what is an appropriate model for an information system that is applicable to rural communities in the ICN in terms of their information needs?' The result was a refined CIDS model that is applicable to rural communities in ICN in terms of their information needs, but with its managerial control to be vested in local government and community leaders, rather than in the SNRU or another government agency.

They expressed a positive attitude towards local control which lacked feasibility; the latee could be explained by respondents' concerns about the past unresponsive bureaucracy. The closest hub for the organisation and control of a more vibrant ICN

was expected to be the SNRU, already well-resourced and capable of extending the capabilities of the ICN, and in particular disseminating and maintaining a CIDS. Notwithstanding, the co-operation of SNRU should be obtained to assist with new IT knowledge, mechanics of dissemination, use and maintenance of CIDS when implemented. The cooperation of other agencies and organisations should be sought.

As a result of analysing the Semi-structured Interviews, the initial CIDS Model (see p.95, Figure 5.1) had been refined. The initial model shows the conceptual CIDS having a direct but tenuous relationship with host CLCs. These in turn were related directly, but less than firmly, to the ICN by Web browser, thence to un-coordinated individual learning experiences. Community development and community empowerment were marginal. The refined model, however, incorporated many of the recommendations from the respondents as explained in Section 8.4 of this chapter. In summary they were:

- There should be more topics and more details.
- The CIDS should be updated regularly.
- More computer and Internet access, etc.

Figure 8.7 shows the refined model with CIDS as its central feature. CIDS formally gives and receives information from the Internet and the Community. Simultaneously, it is also strongly bonded in a two-way relationship with its host ICNs. These ICNs in turn are related to the SNRU which in turn is shown to have informal connections to the Government, NGOs and the other Supporting Organisations. The figure finally shows that the above key entities have tenuous; and CIDS, which, if accepted for implementation, should be a community development which helps empower individuals within the community and the community itself

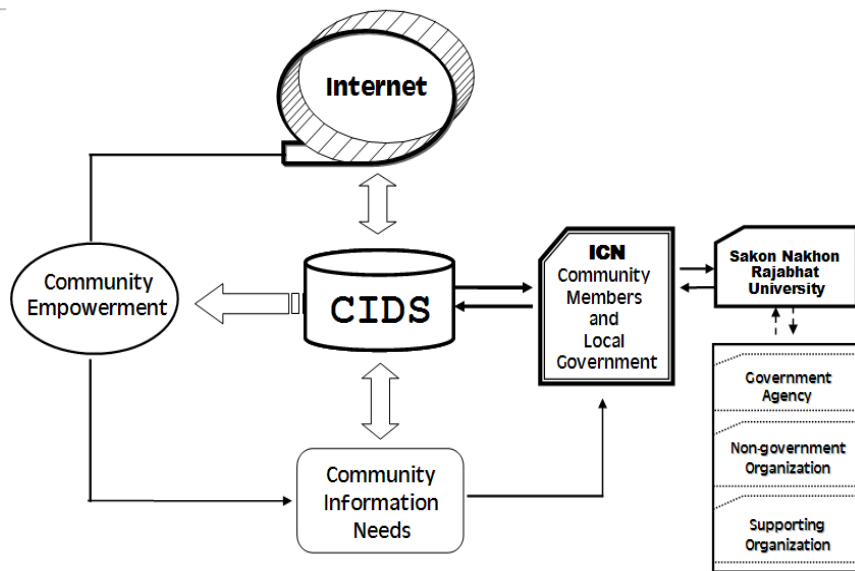


FIGURE 8.7 REFINED CIDS MODEL

8.7 Potential of CIDS and its Community Empowerment

CIDS once accepted as a technological tool for implementation in the CLCs such as those in ICN, should immediately expands the possible horizons of users of the system. Figure 8.8 depicts this fact pictorially.

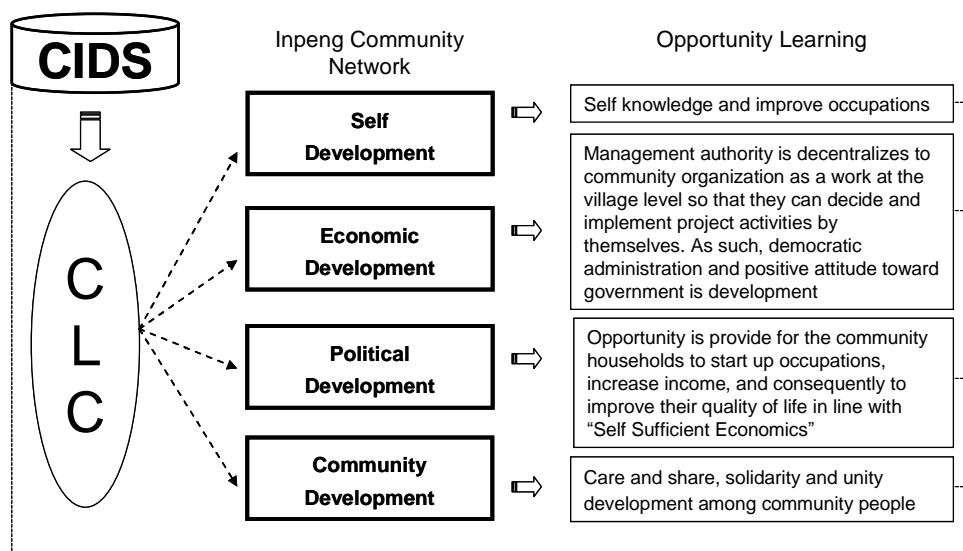


FIGURE 8.8 THE CURRENT & POTENTIAL ROLE OF THE CIDS AND ITS COMMUNITY EMPOWERMENT

Self development, economic development, political development and community development are all shown to be possible for respondents and ultimately all users. In addition, the opportunities for learning become almost endless. The ultimate end for community development is a caring and sharing populace, united in the all round development of its people. This is individuals and community empowerment at its best.

8.8 Summary

This chapter has provided information on how data were collected and collated using a Semi-structured Interview. This was implemented by the researcher helped when necessary by a number of assistants he trained for the purpose. The intention was to seek an answer to Research Question # 3, namely,

‘What is current and potential role of CIDS in the empowerment of the community and the appropriate model for an information system that is applicable to rural communities in ICN in terms of their information needs?’

The collated data were recorded, described and important inferences drawn which were relevant to the ICN and instructive to other communities wishing to network and establish their own version of CIDS. The potential role which CIDS has in community development was discussed and summed up in a powerful, indicative diagram.

In all, the development of CIDS in the Inpeng community, as an interpretation of Government policy by the researcher, was concluded to have widespread potential. This aspect of the study showed that, given encouragement, members of the ICN felt empowered enough to make suggestions for the implementation and use of CIDS. Furthermore this empowerment, which paralleled development in the community, led to the respondents, as representatives of the ICN, making further positive suggestions for the development of this new, information age, technological resource.

CHAPTER 9 :

CONCLUSIONS AND IMPLICATIONS

An overview of the study is presented in the first section, followed by the major findings and conclusions. Included in the third section of the chapter are some implications for practice and for further research. These implications are tempered by a discussion centred on whether all or part of ICN might benefit from the dissemination of conclusions from this study. The conclusions, if accepted, will ensure that a refined and fully developed CIDS, ready for dissemination throughout the ICN, becomes the basis upon which other rural communities in Thailand can develop a similar Community Information Database System. The CIDS subsequently constructed would then be more appropriate to their sociological conditions and levels of development, thereby providing a maximum of enhancement for individual and community empowerment.

One of the outcomes of this research is that the ICN will be even more aware of itself as an entity – its local knowledge and expertise, and its capacity to innovate. The intended outcome is a refined model CIDS with some pointers to its likely success as a technological tool for empowering the community.

But what is a CIDS, and what will its final development to the dissemination stage look like? The study answers these questions by detailing the significance and purpose of a CIDS, its architectural framework and the main elements of its infrastructure. Explanation of the phases and necessary steps needed to establish a CIDS is documented. A necessarily abridged structure of a CIDS ready for dissemination is given. The potential of a disseminated CIDS for enhancing community development and thereby achieving greater community empowerment is discussed.

9.1 Summary of the Study

The focus of this study was to investigate the utility of a prototypic technological tool, the CIDS, to project the chosen community into the Information Age. Therefore it proposed to investigate the existing local knowledge and information needs of a community and classifying them into a retrievable form of knowledge, designing a model CIDS and trialling it. In the process the potential of CIDS for community development and consequent community empowerment were assessed and a refined model CIDS developed.

The community selected for this study was the Inpeng Community Network (ICN), comprising the Provinces of Sakon Nakhon, Kalasin, Mukdahan and Udon Thani in the Northeast of Thailand.

The purpose behind the study is to link Information Technology (IT), as the new tool guarding the entrance to the Information Age, with the current level of community development and community empowerment in the CLCs. The central place of Information, and hence of CIDS, was therefore critical to the outcomes of this study.

In order to investigate the concept articulated above, three Research Questions were formulated. Details are given in subsequent sections.

Several concepts in the Research Questions needed defining in terms of how they were studied. Hence ‘community’, ‘community development’, ‘empowerment’, ‘community empowerment’ and ‘information’ were defined. Their relevance to the circumstances existing in Thailand were explained and then applied to the microcosm of the four provinces which comprise the ICN.

A qualitative research method, the ethnographic case study, was used in this study. The single case studied was a group of four provinces comprising the ICN. Specifically, the ICN was investigated for current and future information needs, the

level of expertise currently in that community, and the potential for a technological tool such as CIDS to so empower the community as to project it into the Information Age.

The samples of respondents used were a ‘snowball sample’ and a convenience sample; both methods drew respondents from the ICN.

During the research, all or part of the sample of respondents received guidance or specific training coincidental with the use of each research technique. Following analysis of the questionnaire data, the results were used for the phased construction of first, a model CIDS following the widespread implementation of a Questionnaire, then a refined CIDS after data from the Semi-structured Interviews were analysed. The research sequence is presented in chapter 3.

The findings of this study are made as responses to the three seminal research questions posed. Each research question will be answered in turn.

9.1.1 Research Question Number One

- *What are the information needs of the Inpeng Community Network?*

Responses indicated a current, high level of need for primary information by the majority of respondents who chose: career advancement, improved information, knowledge improvement, and an increased variety of occupations.

The respondents’ secondary information needs for the future covered an extremely wide variety of practical subjects, e.g., weaving innovation, marketing, animal fodder, business and commerce, technology and information, economics, agricultural transformation & tools, clothing, printing and traditional massage. The future needs they expressed were entirely compatible with the agrarian base of the community.

The respondents stated their preference for colourful, pictorial, diagrammatic and audio-visual presentations to help them meet their current and future information needs. They preferred television, radio and magazines over the relatively unknown technological newcomers (Internet, Website and Community Information Database Systems – CIDS). Notwithstanding, a clear majority of respondents could see the possibilities of a model CIDS for their own self development.

Respondents to the Questionnaire considered that a new management style was needed. Managing community and individual knowledge, expanded by the introduction of a new technological tool such as CIDS, required new skills to prepare the community better for accessing the Information Age.

CIDS leading to self development was an overall expectation shown to be important. The extent of the input to CIDS' knowledge retrieval capabilities may lead to self development, a component of individual and community empowerment.

A large percentage of respondents to the Questionnaire attached a high level of importance to local knowledge and expertise featuring prominently in any future model CIDS. The main types of expertise desired were plant cultivation, animal husbandry, and herb cultivation.

9.1.2 Research Question Number Two

- *What is the local knowledge of the ICN and how can it be collected?*

The investigation revealed that more than 600 people have extensive knowledge and expertise in almost 600 subjects pertinent to members of the ICN. Of those experts chosen by the ICN Committee to take the In-depth Interview, several guarded their specialty so well that the interviewing process in their cases was thwarted. This impediment to the process of tapping into the knowledge base of experts was expected to be widespread as all had relied upon their ancestors for providing the

kernel of their interest, knowledge and practice. They all had then supplemented their inherited knowledge with the experiences of daily use, plus intensive tertiary study. A sample of these experts were chosen for In-depth Interview. A suitable means of selecting these Experts was to give the task to the ICN Committee. They accepted this task enthusiastically and together decided on the names of ten Experts to give information about their main area of expertise. The collection of this knowledge was undertaken using an In-depth Interview process.

The researcher went in turn to the communities in which the Experts lived, and stayed there for several days to gain the people's trust and understanding of the purpose for interviewing one of their Experts. The In-depth Interview then proceeded, with the assistants attending to the various recording tasks. Some of the Experts were quite fluent in the explanation of their expertise; others preferred to demonstrate. As each interview progressed it became obvious that several Experts were content to share their knowledge, especially when they knew the Committee had selected them. They were encouraged to re-check the information they gave, even allowing what they had said to be checked by another Expert from a similar field. The interview results were collated in the researcher's office and the story about the expert written for CIDS. The story was again re-checked by the Committee and the individual Experts.

9.1.3 Research Question Number Three

- *What is the potential role of CIDS in the empowerment of the community; and what is the appropriate model for an information system that is applicable to rural communities in ICN in terms of their information needs?*

Given encouragement, members of ICN felt empowered enough to make suggestions for the full development, implementation and use of CIDS. Furthermore this empowerment, which paralleled development in the community, led to the

respondents, as representing the ICN community, making further positive suggestions for the development of this new technological resource.

The reasons for respondents using or wanting a permanent CIDS showed that an interest in improving standards of living pervaded the respondent cohorts at all levels of the community.

The majority of respondents normally visited their CLC twice per week with the temporarily installed CIDS being used successfully by most of them. Feeling empowered, the respondents suggested that the CLCs be better equipped with upgraded computers, have more hours of Internet access, and be situated in a more comfortable and modernised environment, all conducive to users wanting to visit their CLC more often and to stay longer.

Almost all the respondents saw a positive place for a technological tool such as CIDS in their CLC's future. The majority also saw the management of a future CIDS installation as a local responsibility rather than being linked to a system operated by the SNRU, or the Government.

Respondents recognised that for CIDS to be installed was not without its problems, mostly practical, such as insufficient computers, lack of IT knowledge, and capital cost. Despite this the vast majority of respondents favoured the implementation of CIDS in CLCs as the technological tool for changing attitudes towards a better way of life.

As a new and positive tool for community development, CIDS is believed to have potential in empowering both individuals and the community. The potential role has been explicated by respondents who believed that CIDS, if installed throughout the CLCs in ICN, would improve living standards, generally upgrade the standards of the CLCs' learning environment, and make wider, egalitarian based knowledge more freely available. Overall, the expectations of respondents for having CIDS installed

in CLCs are high. As can be seen, a CIDS/CLC would encourage a broad series of community developments, each providing ever expanding learning opportunities.

The refined model CIDS which has resulted from the deliberations in this, in particular when answering research question three was a slightly revised concept which included such of the respondents' suggestions as: enabling more frequent use of the tool; the satisfaction of respondents from their use of CIDS; and the wider availability of the most popular subjects to all users. A matter which was crystallised from the respondents' data was about managerial responsibility for the installation and management of CIDS when disseminated. The much preferred option was that CIDS be the responsibility of the local government and community.

9.2 Conclusions from the Study

Certain major conclusions can be drawn from the findings of this study. Regarding the information needs, current level of expertise and its collection, and the utility and potential for community empowerment of a Community Information Database System (CIDS) for the Inpeng Community Network (ICN), it was concluded that:

The perceived current information needs of the respondents were closely related to improvement in their everyday pursuits and were geared to the possibilities that these improved daily pursuits held for improving their standard of living. Their future information needs, while widening their knowledge base, were still practical in their orientation.

The majority of respondents from this conservative community were constrained by their learning and understanding of relevant information preferring diagrammatically, pictorially and colourfully presented information using known technological means. This perception was reinforced by the researcher, aided by volunteers, having to assist many respondents with their written responses. Nevertheless there was an

appreciation of the advantages that shared information held when classified into retrievable form in an advanced technological tool like a CIDS.

The respondents preferred local control rather than any form of centralised or partially decentralised knowledge control with its former connotations of delay, irrelevance and political interference.

Widespread inherited knowledge, supplemented by experience and further study already resides with individual experts throughout the community. Some experts guarded their talent jealously while others were open and willing to share their accumulated wisdom so that a CIDS could process their knowledge into a widely available, retrievable form.

9.3 Implications for Practice and Future Research

This section contains the implications of this investigation for practice which includes some evaluation of the whether these research conclusions be generalised or replicated. The implications for future research are also discussed.

9.3.1 Implications for Practice

The research reported in this thesis represents a bold attempt to encourage a selected community group to think seriously about the technological means whereby it can be projected into the Information Age. The diversity most evident in the community was ethnicity with a preference for various regional dialects rather than the national language. This was counterbalanced by the most binding of common factors: culture, religion and the agrarian base.

The representatives of this community, ICN, are looked upon broadly as expressing the needs of rural communities not only in the ICN, but of Thailand in general.

These respondents have indicated willingness for the educative processes in their CLCs to be upgraded and modernised with technological tools that provide comprehensive knowledge for community development, self-improvement and empowerment. The CIDS has shown itself to be such a technological tool.

None of the sampling processes used in this study was randomised. This in itself is an impediment to making generalisations. The community-wide sample which answered the Questionnaire Protocol was made up of volunteers having a special interest in Network affairs, being drawn from among participants at the Annual General Meeting of the ICN. Of the separate 'convenience' samples used for the In-depth and Semi-structured Interviews, some respondents had been members of the community-wide cohort chosen to answer the Questionnaire Protocols. Additionally, small problems with clarity were observed and recorded in terms of the reliability and validity of the instrumentation used. Academically speaking, it is difficult to justify generalisation of CIDS to the ICN which had a model CIDS installed briefly in several convenient CLCs. Yet there are strong community unifying factors of culture, religion and occupational commonality, especially in the four research provinces which demand consideration. An added mitigating factor is that within the ICN, a widespread community in a developing nation, communication is difficult and a true random sample is almost impossible to obtain. The experiences of the respondents with the model CIDS made them anxious to have CIDS installed. But the dissemination of CIDS as a technological component of CLC computers in the ICN would require a large capital inflow if up-to-date equipment were installed and the environments modernised. The ICN-wide dissemination of CIDS would not be economically feasible. However, initial dissemination of CIDS to one province might be economically feasible and could lead to alternative ways of financing and resourcing being sought. If local control of any future CIDS dissemination is favoured, then some component of the funding must be locally based. If the University takes a lead in managing a phased dissemination of CIDS, another funding model would need to be devised.

The phased dissemination of CIDS is assured of widespread acceptance by communities for many practical reasons. Easy access to new knowledge, shared knowledge, knowledge of ICN, knowledge which assists in problem solving, egalitarian educational processes, improved and diversified career and employment prospects, better living standards, and both individual and community empowerment are but a few of the advantages which would accrue to ICN, in part or in whole, as the result of CIDS dissemination. But, erring on the side of conservatism, the researcher, for both academic and economic reasons, accepts the necessity to generalise the conclusions initially to one province only with a detailed process of monitoring and investigation in place. The outcomes thereby produced would be closely evaluated as CIDS, or a version of it, was generalised in phases to the remainder of ICN. This further refined CIDS model could then be confidently recommended as the basis of a similar CIDS to be developed in other embryonic forward-thinking Networks.

It is expected that the CIDS would have the potential for community development and empowerment. This process would take place incrementally in the revamped Community Learning Centres (CLC), each with CIDS installed, situated throughout the community. Early respondent experience has shown CIDS to be a technological tool which is: better equipped, developed with a wide range of topics in greater detail, capable of broadening horizons, and able to bring comprehensive information to improve style and standard of living.

9.3.2 Implications for Future Research

Several implications for future research have emerged from this study, among which are the following:

1. In future replication of a CIDS, the sampling procedures used in this study could be randomised for the research implications listed.

- Implement CIDS in either one or all four provinces used in this study to ascertain its utility, and for further refinement. A tighter research design should be used such as a stratified random sample. Short, simple, yet probing ‘before and after’ questionnaire protocols should be administered. These protocols should be structured in a language format that the most basically literate respondents can understand, or if necessary, implemented using local dialects. The individual respondent’s involvement at each stage of the study should be timed so as to obviate concerns for such matters as time off from work, pressures of harvest. Respondents should be offered technical assistance and help, if needed, to respond to the instrumentation protocols. The study would yield richer data if the research design included a research team of several members to interview small sub-samples of the respondents.
- A study could be designed with a research method that uses field study. Two or three rural provinces could be chosen in Thailand in which the principles underlying any modifications necessary for an implemented CIDS would be investigated. Each province should yield a stratified sample of respondents so that conclusions drawn from the research might be more readily generalised. A trained cadre of research assistants would be used to collect data from a replicated but simplified Questionnaire Protocol, and In-depth and Semi-structured Interview schedules. The timing of respondents’ responses and the extent of the time needed should enable all but the most hard-pressed to participate.
- However, the cultural, spiritual and practical homogeneity of ICN’s community strongly suggests that the results of this study are largely supportive of CIDS’ further development and dissemination, if not throughout ICN, then initially in one of the four provinces selected for this study. The latter course would accord with the practical reality

that implementation costs of a full-blown dissemination of CIDS, however supported by thorough-going research, throughout ICN would be prohibitive. On the other hand a further, carefully monitored initial implementation of a continually evolving CIDS in the four research provinces would enable some of the weaknesses identified in this study's methodology to be rectified, and wider dissemination to be attempted gradually.

2. The study identified control of the dissemination and maintenance of CIDS as being controversial. Various funding/resource allocation models should be first delineated by a panel of experts. The advantages and disadvantages of various models could be presented to a small stratified sample of respondents by interview. An example of one such model appears below (Figure 9.1), being of the "input-output" type, with CIDS at the centre.

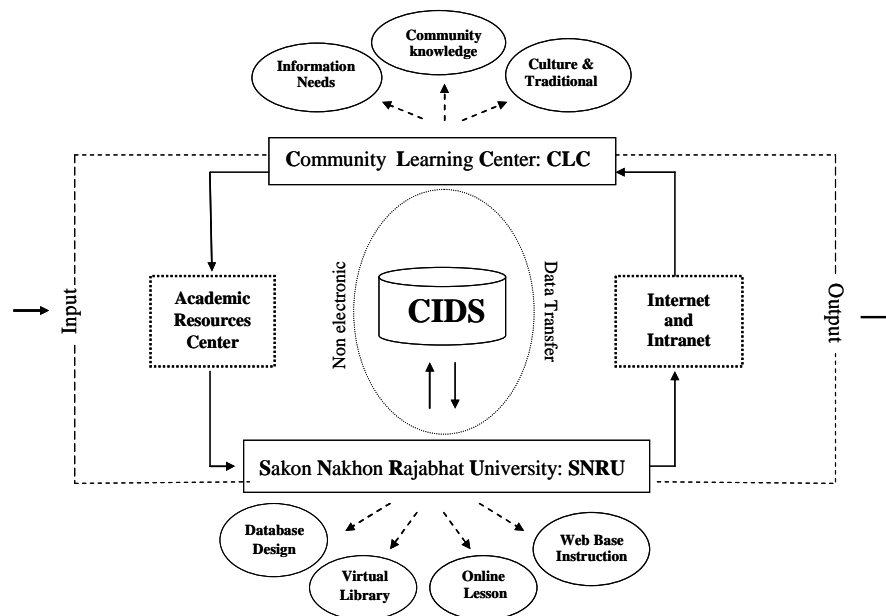


FIGURE 9.1 SNRU AS THE CIDS' LOCUS OF CONTROL

3. Thailand is still a developing country so there is intense competition for resources both internal and external. Resource allocation therefore becomes an inhibiting factor for the dissemination of a technological tool such as a CIDS. A small research team could identify resources available internally, eg, *National*

Government, Provincial Government, Universities and internationally, eg, *UNESCO and AUSAID* for a phased dissemination of a CIDS. Well researched models should be available from ongoing research with the Government supporting the importance of technological tools for Thailand's development. These advances would be paralleled by community and individual empowerment, and knowledge attainment for problem solving and individual self improvement.

9.4 Conclusions

The major conclusions reached were guided by the three seminal research questions posed. These conclusions were:

1. The information needs of the respondents were very practical, being closely related to improvement in their everyday pursuits and standard of living through the widening of their knowledge base which was geared toward career improvement.
2. Individuals' thought processes were constrained by their preferred methods of knowledge materials' presentation, a large majority requesting that presentations be in diagrammatic, pictorial, and audio-visual form rather than textual. Though responses were basically conservative, an appreciation was evinced that shared information held many advantages if classified into retrievable form in an advanced technological tool like CIDS.
3. The expressed preference was for CIDS, as the way forward to the globally oriented Information Age, to be locally controlled. This emphasis was coupled with anecdotal references to bureaucratic insensitivity of the past. This parochial attitude blinded the majority of respondents to the

financial and practical advantages of decentralised coordination such as that offered by the nearby university.

4. Known, widespread inherited knowledge, supplemented by experience and further contemporary study, resides with individual experts throughout the communities. Some are very guarded about sharing this expertise, while others are willing to share their accumulated wisdom by marketing the products of their expertise and sharing their knowledge through the CIDS.
5. The phased dissemination of CIDS, or variants thereof, would be a community development, which, among other advantages, would lead to a better way of life, encourage problem solving and self improvement, and ensure concurrent individual and community empowerment.

Based on the findings and subsequent conclusions presented above several implications for future research were delineated.

Ultimately the community should be able to deal effectively with its own problems thus achieving sustainable development.

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APPENDICES

- APPENDIX A : GLOSSARY
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APPENDIX A: GLOSSARY

This research concerns itself with the development and installation of a community information database system (CIDS) and the resulting community empowerment possible through chosen Community Learning Centres. There are quite a number of terms and acronyms that are used frequently during the investigation as follows:

Community: A group of people living and working in the same villages or sub-districts under the same Government. A body of people having common rights, privileges, or interests, and being subject to the same laws and regulations.

Community development: Community development can be defined so as to emphasise the aspect of community empowerment in the context of taking ownership and control over their own lives, thus bringing about a positive change. Some people of this developing community may feel empowerment that lifts them from their socially excluded or marginalised state, enabling them to bring about social change actively, so re-shaping the society of which they are a part. This collective process helps people to identify and articulate their needs, and influences the process and structures that impact on their everyday lives.

Community empowerment: A principle founded on the belief that communities have the capacity and right to manage their own affairs. Community empowerment is the process by which communities establish and sustain their identity.

Community empowerment follows closely in step with community development; it is the combined strength of two sources: power-from-within and power-with-others. Power-from-within is the self-realization of personal power and abilities, and power-with-others is the ability of individuals to work together for a common communal purpose (Thomas, 1998).

A Community Expert is a specialist in the community who has a high level of inherited knowledge or skill, supplemented by experience and further study.

Community Expertise is defined as high levels of specialists' knowledge or skills in the community

Community Information is that understanding which flows around a community from many sources, helping individuals cope with problems of daily living and facilitating their participation in the community. Thus community information is about human services (healthcare, financial assistance, housing, etc), as well as information on recreation programs, clubs, community events, and all levels of government, including understanding leading to participation in the political process.(Durrance & Pettigrew, 2000)

A Community Information Database System (CIDS) is a large structured set consisting of electronic databases which are usually associated with software to update and query the data in the database. When fully operational it is a technological tool that should help people cope with the problems of daily living and facilitate their greater participation in the community.

A Community Learning Centre (CLC) is a local education institute, operating outside the formal education system for villages or urban areas: it is usually established and managed by local people to provide various learning opportunities for community development and improvement of people's quality of life. (Jorn, 2002; United Nation Education Scientific and Culture Organization, 2003)

Community Knowledge is the sum total of the various individuals' knowledge, be it rather sophisticated or elementary.

Empowerment: Empowerment is a process whereby individuals struggle to reduce personal powerlessness and dependency by having increased control over their lives. Empowerment is an important outcome of community development. Empowerment has been defined in the literature in two ways: individual empowerment and community empowerment.

Inpeng Community Network (ICN): is located in the Northeast of Thailand (which covering 19 provinces and called “Isan” by Thai). “Inpeng” Community started in 1992 in Sakon Nakhon province and has expanded to become a network including more than 800 communities from 85 sub-districts, 21 districts in 4 provinces in the Northeast of Thailand. These provinces are Sakon Nakhon, Kalasin, Mukdahan and Udon Thane provinces (United Nations, 2001).

Local Experts are those people of a particular locality, e.g., village, who possess specific inherited knowledge.

Local Expertise is the sum total of the various local/village individuals who possess inherited knowledge and/or the knowledge of experience.

Local Knowledge is similar to “local expertise”.

APPENDIX B: LIST OF ACRONYMS

AACR2	Anglo-American Cataloguing Rules
APPEAL	Asia-Pacific Programme of Education for All
BT	Broader Term: Links the subject to broader terms. Broader terms are also valid subject headings, but with a wider focus.
CCN	Community Computer Networks
CERCAP	Community Empowerment for Response to Crisis Action Plan
CID	Community Information Database
CIDS:	Community Information Database System
CIN	Community Information Network
CIS	Community Information System
CLCs	Community Learning Centres
CTA	Camfield Tenants Association
CTC	Community Technology Centres
DBMS	Database Management System
EC	European Commission
HDI	Human Development Initiative
ICN	Inpeng Community Network
ICT	Information and Communication Technology
IT	Information Technology

LC	Library of Congress
LISWA	Library and Information Services of Western Australia
MIT	Massachusetts Institute of Technology
NT	Narrow Term> Link the subject heading to narrower terms. Narrower terms are also valid subject headings, just with a more specific focus.
NGOs	Non-Government Organization
NSN	NorthStarNet
OTOP	One Tambon and One Product
PC	Personal Computer
RT	Related Term> Link the subject heading to non-hierarchical headings. All related terms are valid subject headings.
SCN	Seattle Community Network
SNRU	Sakon Nakhon Rajabhat University
SQL	Structure Query Language: A Standard Computer Language for accessing and manipulating database
UF	Used For> This code precedes the heading not used. The valid subject heading is the one in bold type.
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific Cultural and Organization

APPENDIX C: QUESTIONNAIRE



This questionnaire is for a Ph.D. study on the topic “Investigation into the Community Information Database System in the Northeast of Thailand: Community Empowerment through Community Learning Centres.”

Explanation: Definition of terms

Local knowledge is knowledge gained by a local person who has expertise in local wisdom in such fields as agricultural pursuits, manufacturing processes, the social, cultural and artistic etc. life of the community, or processes some special wisdom that helps the people to survive in community life.

Questionnaire: This consists of two parts - **Part A** for Questionnaire Protocol and Interviewing Schedule; and **Part B** for recording data about local expertise.

Part A:

Section 1: Personal Information

Please put a check mark (/) in the box that you choose.

- | | | |
|------------|--|--------------------------------------|
| Sex | <input type="checkbox"/> Male | <input type="checkbox"/> Female |
| Age | <input type="checkbox"/> 20-29 years | <input type="checkbox"/> 30-39 years |
| | <input type="checkbox"/> 40-49 years | <input type="checkbox"/> 50-59 years |
| | <input type="checkbox"/> Others (Specify)years | |

1. How long have you been lived in this community?

- Less than 20 years 20-29 years
 30-39 years others (Specify) years

2. What is your level of education?

- Elementary School Non formal education school
 Secondary School Bachelor degree
 Master degree Higher than master degree
 Others (Specify)

3. What is your status in the community?

- Community member Community coordinator
 Community leader Local expert
 Others (Specify)

4. Are you a member of any group, organization or network in the community?

- Yes. No
(If yes, please specify)

5. How did you answer this questionnaire?

- By yourself By interviewed

Section 2: Finding Information Needs

6. How much information do you need for yourself?

- Much Medium Little None

7. For what reason do you need information?

(Multiple answers)

- To be well informed
- To find a new occupations
- To improve present jobs
- To improve my knowledge
- Others (Specify)

8. What kind of information do you need for yourself?

(Multiple answers)

- Plant cultivation
- Herbs
- Animal raising
- Herbal medicine
- Law
- Weaving
- First aids
- Reading improvement
- Others (Specify)

9. What kind of information services do you need for yourself and the community?

(Multiple answers)

- Text
- Pictures
- Video
- Sound
- Enough details
- Colour
- Others (Specify)

Part B:

Section 1: Finding Local Knowledge and Individual Expertise

10. Is there an expert or specialist in local knowledge in your community?

- Yes Not sure No

11. Please name of the person who has expertise in your community?

Name:

Address:

12. In what area does that person specialize?

- Silk production Traditional animal raising
 Herbs and herbal medicine Folk music and dances
 Others (Specify).....

13. Of what benefit is this expertise to you?

- Much Little None

14. What is the significance of local knowledge to your community?

- Better community Better income
 Better health Not significant
 Others (Specify)

APPENDIX D: LOCAL KNOWLEDGE FORM



Name of Local expert:

Address:

Village name:

Village number.....Sub-district.....

DistrictProvince

Nature / type of knowledge:

1. Level of expertise:

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> Informant | <input type="checkbox"/> Instructor |
| <input type="checkbox"/> Learner/practitioner | <input type="checkbox"/> Originator |

2. Source of knowledge:

- Learnt from ancestors
- Learn from neighbors
- Educational institute (Specify)
- Other agencies (Specify)

3. Significance to community:

- Brings income to community
- New/Improved occupations in community
- Better tourist centers
- Others (Specify)

4. Storage and dissemination of knowledge:

- Only the expert has the knowledge
- Pass the knowledge on to younger generation or persons closely related
- Record the knowledge in written form
- Publish in book form
- Others (Specify)

Interviewer's name:

Ways in which the interviews are recorded (multiple answers):

- Written record of the interview
- Photographs
- Recording of the interview
- Video
- Others (Specify)

Date of interview:

Details of the interview:

.....

.....

.....

.....

.....

.....

.....

.....



APPENDIX E: SEMI-STRUCTURED INTERVIEW



This Semi-Structured Interview was implemented for a Ph.D. study of the topic, “Investigation into the Community Information Database System in the Northeast of Thailand: Community Empowerment through Community Learning Centres.”

Section 1: Personal Information

Please provide the following:

Sex:

Age:Years

Section 2: The Community Learning Centre (CLC) and Community Information Database System (CIDS).

1. Please give details of the CLC in your community?

Answer:

Location:

Coordinator’s name:

2. How do you learn about the CLC and CIDS?

Answer:

3. Why do you use the CIDS?

Answer:

4. What kind of information in the CIDS is most useful?

Answer:

5. Did you find new information in the CIDS database system?

Answer:

6. What do you like most about the CIDS?

Answer:

7. What information do you do want most from the CIDS database system?

Answer:

8. How would you improve the CIDS?

Answer:

9. Do you think the CIDS database system benefits you and your community?

Answer:

10. Who should be responsible for the CIDS in your community?

Answer:

11. What problems do you find when using CIDS?

Answer:

12. How often do you search for information in the CIDS?

Answer:

13. Do you plan to use the CIDS again?

Answer:

14. What do you want to recommend for the future to:

a. improve the CIDS; and

Be specific:.....

b. improve the CLC?

Be specific:.....

APPENDIX F: ETHICS CLEARANCE FORMS



Form of Disclosure and Informed Consent for Research Interviews

An Investigation into a Community Information Database System (CIDS) in the Northeast of Thailand: Community Empowerment through Community Learning Centres.

Dear respondents,

As a PhD student at the Edith Cowan University, Western Australia, I would appreciate your support in this study. The purpose of the study is to investigate the information needs and local knowledge of the community, to classify and design a model as the basic for a community information database system (CIDS) for rural community development in Thailand, to develop a prototype CIDS to empower local communities to deal effectively with their own problems and their own sustainable development, to implement the CIDS experimentally, and to study its possible applicability in the community.

The data sought by the study will be derived from the four provinces comprising the Inpeng Community Network which consists of 800 communities from 84 sub-districts in 4 provinces in the Northeast of Thailand - Sakon Nakhon, Mukdahan, Udorn Thani and Kalasin.

This study is expected to discover the information needs and local knowledge of the Inpeng Community Network residents, then to establish a theory of community empowerment which results from the development of a CIDS particular to the Network. A CIDS aims to make known community knowledge available, and to create community involvement which leads to the demand for, and then the creation

of new knowledge, thereby furthering individual and community empowerment. The CIDS so developed could be a model on which a similar, appropriate technological tool could be constructed and made applicable to other rural communities in Thailand.

A good response will help to gain a comprehensive picture of the study, so I would appreciate your support in completing and returning the questionnaire to the person who distributes it. Please be assured that your answer will be kept strictly confidential and used only for this study. Data will not be made available to any third party or used in any published material.

In case you want to express concerns about the study or its ethical conduct, please contact

Assist Prof Dr Watana Suwanatrai
President of Sakon Nakhon Rajabhat University,
Ampher Mung, Sakon Nakhon Province 47000

Or

Dr. Chaiyaporn Chaithamjaree
School of Computer and Information Science
Edith Cowan University,
2 Bradford Street, Mount Lawley,
West Australia, 6050



Form of Disclosure and Informed Consent for Research Interviews

An investigation into a Community Information Database System (CIDS) in the Northeast of Thailand: Community Empowerment through Community Learning Centers.

I (the participant) have read the information above and I have understood the contents to my satisfaction. I agree to participate in this study, realizing that I may withdraw at any time.

I agree that the research data gathered for this study may be published provided that my name is not used.

.....

Participant or authorised representative

Date

.....

Investigator

Date

(The statement of discloser, the questionnaire and interview documentation will be translated into Thai and the translation will be approved by a teacher from Department of Foreign Languages, Rajabhat Institute Sakon Nakhon.)

APPENDIX G: PUBLISHED PAPERS

Chirathamjaree, C., & Wongchachom, C. (2003, 26-28 November). An Investigation into a community information databases system in the Northeast of Thailand: Community empowerment through community learning centre. Paper presented at the EDU-COM 2003: New Challenges for Sustainability and Growth in Higher Education, Khon Kaen, Thailand.

Chirathamjaree, C., & Wongchachom, C. (2004, 1-4 August). An Investigation into a Community Information Databases System (CIDS) in the Northeast of Thailand: Community empowerment through community learning centre. Paper presented at the 9th Asia-Pacific Decision Science Institute Conference (APDSI), Seoul, Korea.

Wongchachom, C., & Chirathamjaree, C. (2004, 24-26 November). Exploring Community Empowerment in the Northeast of Thailand: A Study of a Community Information Database System. Paper presented at the EDU-COM 2004: New Challenges for Sustainability and Growth in Higher Education, Khon Kaen, Thailand.