

# CHAPTER 1

## Introduction



### Background and significance of the problem

Nowadays, information and communication technology are important tools in developing economy, society, environment and etc. Many countries realize the importance of ICT in helping to develop their countries. United Nation (UN) is also working to reduce the inequality in access to information and communication technology in many countries by establishing International Telecommunication Union (ITU) to act as a central agency to gather statistic information and to determine the ICT Development Index (IDI) for 193 UN member countries. UN also organized “World Summit of the Information Society: WSIS” which the declaration of principles and action plan in moving to information society was announced. Furthermore, there was a study which indicated the importance of ICT by Kooshki and Ismail (2011). The study indicated that the economic growth is proportionate to ICT development. Thailand also realize the importance of developing ICT which appears in the constitution of the kingdom of Thailand 2007, section 78 (3) which stated that “state is responsible for spreading ICT infrastructures to local areas throughout the country and equally”. So the government came up with an ICT policy for the year 2001-2010 called “ICT 2010” with a vision of “Smart Thailand by ICT”

and ICT policy for the year 2011-2020 or “ICT 2020” with the vision of “Smart Thailand 2020”. From ICT 2010, came Thailand Information and Communication Technology Scheme which continued to the second scheme with a time frame of 2009-2013. Ministry of Information and Communication Technology was a main driving unit of operations according to the master plans, as well as implementing related activities on ICT. One of the targeted activities was establishing “community ICT learning centers”. From 2007 – 2014, over 2,157 centers have been set up with the idea of one-stop-service. These community centers offer information covering both private and government sectors in economic and social data. Major objectives, according to Kittivaraporn (2011) of the centers were:

- 1) To set up suitable ICT public centers for community members to ease government e-service as well as top up life-long learning and broader knowledge.
- 2) To guide skilled ICT members within the community to look after their own centers in sustainable ways.
- 3) To collect local wisdom and information technology which are useful for their own career, decision making and sufficiency economy support.
- 4) To act as central unit for community exchanges in terms of ideas, knowledge and possible new professions.
- 5) To reduce the digital divide. Community members are able to gain access to information and introducing ethical pieces among juvenile in the community.

In 2016, Thai government aimed to introduce information technology or digital technology as part of the daily life, as well as changing economic and social activities to digital economic and social activities which were a part of the reforming



policy that lead to stability, prosperity and sustainability of Thailand. Ministry of Information and Communication Technology together with Ministry of Science and Technology prepared a digital plan for economy and society which was approved by the cabinet on April 5th, 2016 to further the development of the country using digital technology. Elevation from ICT Community Learning Center to Digital Community Center as well as increasing the numbers the mentioned center to every sub-district are one of the activities that use to propel the digital plan objectives. Not only has the same role as ICT Community Learning Center, the Digital Community Center also provide digital services, economic and social information, organize economic activities as well as acting as information and knowledge resources.

For present lifestyle, information is very important, starting from basis activities through business actions and development of a country. Quality of glass root communities is very important part in developing countries. Information and communication process between government and communities are keys to improve and solve problems. Acknowledging the community information will result in the same understanding and leads to fixing and improving community in the same direction. Budagosa (2011) mentioned that, in community development, “the Bottom Up strategy” should be applied by enable members of community to solve problems using information. From this strategy, the information that used should be information within community that members of community participating in managing the information. This information could be used to analyze and evaluate the quality of its own community. Member of the community will be able to follow the change as mentioned before. Therefore, members of the community should involve community’s data management.

On the issue of using fundamental information to tackle the problems and to develop their community, it was found that conflicts among public, government, and private sectors stemmed from either non-corresponding pieces of information, or insufficient information for decision making, or giving their opinions to the state. These frequent misunderstandings impacts on their well-beings, especially environmental issues and information need since 2004 (Kumsopa, 2010). The remarkable issue originated from the leak of contaminated rice sample, and other consumption grains in the areas of Mae Tao-Mae Ku Creeks, which was higher than the acceptable CODEX standard. Cadmium (Cd) and other heavy minerals polluted grains led to consumers' risks in this floodplain (Pollution Control Department of Thailand, 2011). Government tried to convince rice farmers turn to alternative produce. However, burning the paddy field hurt the moral and cultural belief of local residents. They have brought disputed cases for court decision up to now. Relationship among villagers deteriorated because of different pieces of information that scattered in various agencies, though there were lots of initiatives sponsored by both government and private sectors. No systemic communication, confusion, and unreliable problem solving arose among villagers and delayed their compensation requests. Proposal for community development and participatory data management process, by Budagosa (2011) were also beyond their expectation.

Previously, digital community center provided only internet access and training. There was no community database system that established by the participation of digital community center and community citizen. This is the main reason to design "A Model of Community Data System Management Process by Digital Community Center and Citizen Involvement". This research focused on



results that meet community citizens' needs such as resources, decision making, responsibilities and operations. The study also applied service management framework and software development to create data management process with details and explanation, roles and responsibilities of involved parties.

### **Research Objectives**

1. To study community data usage requirement
2. To develop a prototype of community data management system
3. To create a model of community data system management process by digital community center and citizen involvement

### **Research questions**

This research was a study of community participatory data management process, the researcher set up the following questions:

1. To study community data usage requirement, research questions were as follows:
  - 1.1 What is a general condition of the community?
  - 1.2 How is community data management look like?
  - 1.3 What kind of data requirement for their problem solving, development, where and how to find it?
2. To develop a prototype of community data management system, research questions were as follows:
  - 2.1 How should the data management system be on following agenda?
  - 2.2 What should be the components of system structure?

2.3 Will the system be responsive to community needs?

3. To create a model of community data system management process by digital community center and citizen involvement, research questions were as follows:

3.1 How are roles and responsibilities of community, digital center and relevant agencies?

3.2 What are the processes of community management?

3.3 What are the components of community data management process model?

### Research scopes

Following scopes have been determined for this study.

#### 1. Area

Two affected areas covering Phra That Pha Daeng and Mae Ku sub-districts in Mae Tao Creeks, Mae Sot, Tak Province were used in this exploration.

#### 2. Population and samples

Residents in the two sub-districts would be covered and classified into two groups, 18 key informants from Community Data Working Groups (CDWG) and 400 community citizens.

#### 3. Content

The content would covered investigation on general status of the communities, problems, and information needs which would lead to checklist framework. Moreover; model of community participatory data management process, digital community center, support agencies, data management system development and dissemination would also be explored. Major contents were divided into five

parts- 1) general information and population, 2) community cost such as personnel, resources, and environment, 3) politics and government, 4) supporting information concerning community specific problem.

#### 4. Community data management system

This development used computer system as a tool for community data management according to the following :

4.1 Permission management was used for user access control. Each user will have different roles and responsibilities, as well as different access.

4.2 This community data management system was used for adding, deleting, editing and revising all data created by community, including connecting to existing data from various government sectors.

4.3 Searching and reporting was used for required browsing and reporting.

#### 5. Technology

For the development of community data management system, web application was used by responsive web design and Model-View-Controller (MVC) with PHP language. Data manipulation will be done via relational database.

#### **Definition of terms**

1. Community data system management process means procedures, actions, process, person in charge, roles and responsibilities on community information service for continuous data management system.

2. Public participation means joint roles and responsibilities, activities specified.



3. Digital Community Center means service providers established in government, temple and community offices, under the project of Ministry of Information Technology and Communication.

4. Digital Community Center service means activities or products that yield value to customers. Most services are access to computer trainings, internet uses, printing, photocopying. From exploration, it was found that no other centers had established such participatory services.

5. Data means all factual occurrences without processing, analyzing, and synthesizing that interested and needed by the community.

6. Data management system means system comprised of co-operations among hardware, software, information and people for the purpose of collection and database management.

7. Community data system management process by digital community center and citizen involvement means procedures, actions, process, person in charge, roles and responsibilities on community information service for continuous data management system. Rules and regulation arise from community members in giving opinion, suggestion, decision making, and mutual responsibilities.

8. Community Data Working Group (CDWG) means a group of people who co-operate together to use community data to community development.

Social Welfare Division (SWD) means departments of Mae Ku subdistrict municipality and Phra That Pha Daeng subdistrict administrative organization.



## Methodology

This study was conducted using quantitative and qualitative approaches, and divided into three parts according to objectives. The first part were data and data management system requirement survey. Multiple approaches were conducted such as secondary sources investigation, group discussion for requirement factors, and questionnaire to determine data requirement pattern.

The second part was to achieve community data management system, the system was developed as web application. Rapid Application Development (RAD) with PHP framework was used for the system development. PHP language framework was used to develop the system using MVC coding architecture. Relational database management system (RDBMS) was used for data manipulation. Once the community data management system was fully developed, the system users' satisfaction was determined.

Quantitative and qualitative approaches were applied for the third part by using SIPOC principles (Supplier-Input-Output-Customer) in specifying data management by the selected committee. When the targeted model was obtained, trial and testing were conducted for data collection for assessment, and review of the system.

## Expected outcomes

From this research, following outcomes were:

1. Model of community data system management process that community and digital community center participates together from start to the end processes, and create mutual ownership.

2. Systematic data management that meets community needs.

3. Both community and government sectors can make the most uses of information, for example, learning center for juvenile. It can also be used for pro and con information for other relevant projects, or immunity for environmental and community changes.

4. Community can uses data for community-change monitoring based on data decision.

5. Community has a guideline to use knowledge-based for community problem solving and development.

6. Government or other agencies can top-up strategies for problem solution, planning and development at regional and national level.

7. People in community raise their awareness and realization on their digital center in practical uses.

8. Other ICT learning centers and digital community centers have guidelines for creating data center in their community.