SHORT REPORT

A preventive communicable disease model: a case study for remote tribal communities in Thailand

Worayuth Nak-ai[1*], Chaweewan Klai-nak[2], Adulsak Wijitr[3]

[1] Sirindhorn College of Public Health Chonburi, Praboromarajchanok Institute for Health Workforce
  Development, Chonburi, Thailand
[2] The Bureau of AIDs, TB and STIs, Department of Diseases Control, MoPH,, Nonthaburi, Thailand
[3] The Office of Disease Prevention and Control, 1Chiang-Mai, Department of Diseases Control, Chiangmai

Corresponding author. Worayuth Nak-ai ***Email***: Worayuth@scphc.ac.th

ABSTRACT

The study aimed to describe a model of communicable disease control and prevention in remote areas. The model stemmed from a concept developed from two case studies comprising different social and cultural contexts. A qualitative randomized snowball technique was conducted for 16 participants by including in depth semi-structured interviews and nonparticipation observation was used to collect data combined with field notes. The data were collected, analyzed and synthesized based on qualitative research techniques using content analysis and grounded theory technique for model construction. The research findings showed that the model of preventive communicable diseases consisted of 2 important external and internal elements of the development process. The external elements included policy, cultural context, social support, team strength, communication, learning processes, proprietorship, participation, social capital and community strength. Additionally, the internal elements included 3 project phases of initiation, implementation and evaluation where strategies and activities related to each stage were employed. As the research findings indicated, the model could be applied to improve community health especially in a community where communicable diseases included villager's health hazards. This entailed a concept for the development team to apply by increasing and decreasing the number of variables based on appropriate concepts matching the area and community being developed.

 Key words: remote area, communicable diseases, disease control, community health

INTRODUCTION

The United Nations[1] defines community development as *" a process where community members come together to take collective action and generate solutions to common problems."* This broad concept can be applied to the practices of civic leaders, activists, involved citizens and professionals aiming to build stronger and more resilient local communities. Community development requires empowering individuals and groups of people with the skills needed to effect change within their communities. [2,3] These skills are often created by forming social groups working within a common agenda. Community developers must understand both how to work with individuals and how to affect the communities' positions within the context of larger social institutions. [4] Therefore, community development aims to improve the quality of life. This develops the lives of people who can interact appropriately in society without creating burden or causing problems. It involves physical and mental aspects of health, empowering community members to be able to live rightfully related to environmental and social values.[5]

In remote areas, most residents are marginalized especially those in indigenous tribes. In Thailand, most indigenous tribal people are located in the north. The ethnic community is not only located far from urban development, but the residents lack sufficient facilities for daily life. [6] Further, poverty is a major problem affecting low literacy rates, poor hygiene and sanitation, health inequality in accessing health services etc[7] Some problems should be tackled by the government, but other problems can be solved by community members and all stakeholders to improve their skills and create sustainable development. The health status of community peoples in this study as reported by community health centers

include acute respiratory tract syndrome among children under five years old, diarrhea and food poisoning among adults, helminths infection among school children and people at risk of malaria. Moreover, the community environment exposes them to enabling factors and health risks from poor sanitation and other vectors.[8,9]

Public health concerns should be seriously addressed by all health agencies in the community[10] One implementation was based on integrating health plans in Border Patrol Police Schools (BPPS) under the Royal Initiative Project by public health organizations within the area and other network agencies. This project aimed to build healthy behaviors and cultivate appropriate attitudes to prevent communicable diseases among students and villagers where the schools are located. The project has been implemented since 2015 through participation and cooperation from all sectors related to development aiming to improve students' and villagers' health. The BPPS has undergone learning process designs and activities to systematically improve the potential of student and community health leaders and is able to drive the development process according to the specified action plan.

Various activities and strategies are considered the heart of driving and developing mechanisms to achieve their stated goals. Moreover, the activists' potential and capability involve using creative processes and activity designs. The activists in the processes comprise public health technicians and social workers who can creatively design and integrate activities and learning processes and develop matching learning activity plans. These activities drive development activities towards determined goals and reflect substantial changes occurring in networks, community development, and among community leaders. Leaning from successful case development is important for other ethnic communities. They can apply those concept and technique to

improve and solve their community problems in a short time.

Following the success of preventing communicable disease as mentioned above, the researcher has not found that knowledge in reducing communicable disease to be substantial for ethnic communities. Therefore, to develop such knowledge in this study the researcher aimed to develop concepts or patterns in preventing communicable disease in ethnic groups using the learning processes of people, local authorities, health personnel in the private health sector, developers, and researchers in the study. The process of community health development especially in communicable disease prevention and control in ethnic groups, involve unique cultures. The benefits from developing the quality of life include health and happiness for ethnic people. Guidelines should be developed for communities with unique cultural identities to prevent communicable diseases. In addition, they should be able to learn from successful examples of others regarding the basis of dynamic learning processes in making their ethnic community strong and sustainable. Therefore, this study focused on creating a community-based model of communicable diseases control and prevention in a remote area with an understanding of key core concepts.

METHODS

Research Design

This study constituted a qualitative research design attempting to describe a community's health problems using a communicable disease solving process to promote health.

Research Setting

The settings of this study were tribal communities where development of BPPS disease prevention and control projects were located: (1) Village I, Mae Fah Luang District, Chiang Rai Province is a multicultural community comprising Tai Yai, Lahoo, and Akha ethnics, showing evidence of reported communicable diseases such as helminthes and malaria and (2) Village II, Mae Ay, Chiang Mai is a Lisu ethnic community experiencing similar problems. The community leaders and their stakeholders were committed to participating in the development process. It constituted a significant inclusion criterion for selecting the setting in this study.

Research Participants

A total of 16 participants were selected and included in the study using the snowball technique to elicit the phenomenon, problems, experiences and opinions related to the development process by starting with the technicians or learning process workers who comprised the first key informants. Then the informants were followed up under the conditions of (1) having participated in the development process for a period of 3 years and (2) volunteering to participate in the study. The participants were divided in five groups: four movement leaders comprised the principal and the director of the Tambon health promoting hospital, four technicians or learning process workers came from health region one, two private organization developers came from the World Vision and family planning organizations, four people were residing in the communities and two stakeholders comprised the development workers. The informant's characteristics are summarized in the table below

Table1 Characteristics of key informants

Characteristic		Number
Sex	Male	8
	Female	8
Age groups	<40	7
	41-50	6
	>50	3
Education Degree	High School	4
	Bachelor	8
	Master and Higher	6

Research Instruments and Data Collection

Data collection involved qualitative approaches using multiple techniques. The researcher employed semi- structural interviews as the main method while nonparticipation observations were applied to witness participant behaviors and body language. In a group meeting, the researcher served as a participant at that time. Moreover, nonparticipation observations were used to study the community context and all activities of the community were conducted where the researcher was the only observer in the field study to take field notes and collect data. The researcher participated in all the development stages in both communities. In this study, the researcher determined "Kummuang" or the north native language to be the main language for participant interviews with outsiders to create more familiarity than using the official Thai language. In the case a participant expressed unclear communication in "Kummuang", native translators assisted in the data collection process.[11]

Data analysis

Data analysis was performed following the principles of the method of thematic analysis.[12] The transcripts and notes were read and reread to identify initial semantic categories and registrars were coded via word occurrences. Categories were then proposed and revised as further data were collected and analyzed.[13] Content analysis was the core method used to ascertain meaning. To further increase the credibility and validity of the results, the researcher employed triangulation using evidence from different types of data sources, such as documents including public records, photographs, interviewing data, observation data from field study and notes. The triangulation process combined multiple methods to gather data when conducting the primary research, at different times and places.[11] Lastly, triangulation theory used more than one theoretical approach or more than one construct model based on grounded theory techniques to interpret and support data.[14]

Research ethics

The researcher affirmed research ethics clearance from the Sirindhorn College of Public Health Chonburi Ethics Committee No T31/ 61. The researcher used ethics consideration following human ethics research by linking all participants voluntarily to this research, without any indirect and direct forces, pressure, persuasion, language use, and verbal cues to show respect to participants.

RESULT

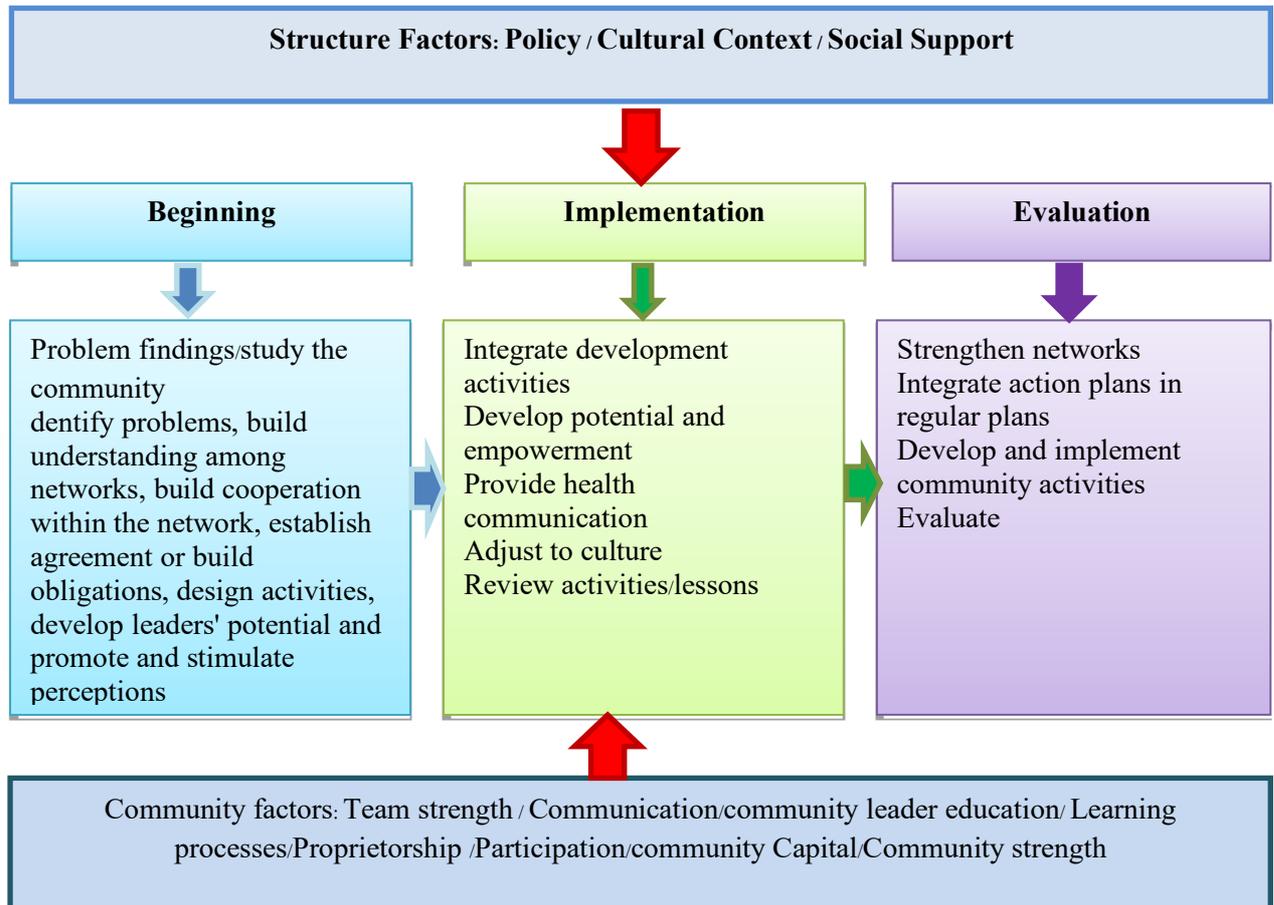**A model of preventive communicable diseases in the remote tribal communities**

Figure1 A model of preventive communicable diseases in the remote tribal communities

The model was created consisting of two main elements, namely, external and internal as the development process as described below.

1. External elements mean outside community factors that affected the process and success of the development divided in two groups.

1.1 Structure factors involving the conditions or social and cultural variables were external elements influencing and affecting the implementation in successes and failures of the project from the study of model community development. Important structure factor variables affecting the process are described below.

- Policy: The Royal Initiative Projects are driven by the government and the executive officers of the Ministry of Public Health (MoPH). The projects are prioritized as important plans as they constitute support factors and policy to drive forward health development of students at BPPS. Performers or local agencies are considered important and gain cooperation from organizations as missions and duties.

- Cultural contexts: In this study, village I is a community with various

cultures. The community represents a monoculture society with diverse cultures, beliefs, languages involving four different ethnic groups. Being members of an ethnic group is important to development as it becomes part of the process of shaping meaning to differentiate other ethnic groups based on power relations.

- **Social support:** The people in the community help each other in different matters such as information, emotion, psychology, society, objects or services. This study showed that the activists used different social support techniques and activities, for example, empowerment, media promoting knowledge, and materials for organizers. As reported, *"We used old techniques to encourage their health concerns by open air movies and inserting health knowledge" (Technician1)*

1.2 Community factors are conditions or influences within the developers affecting development processes and the community's conditions that influences the directions and successes or obstructs development. These include factors influencing an individual and the network members' perceptions in deciding to support and participate in development processes. This study explained individual factors as described below.

- **Teamwork's strength:** These development processes involved integrating work from different sectors responsible for different main missions. The developer staff work as a team sharing the same direction for development. *"One key success was having a team that worked, shared and chatted together all the time by any channel" (NGO worker, public health officer, community leaders)* These teams establish goals and create activities that can be implemented in accordance and in connection with the development goals and plans of the sectors.

- **Communication**: It has been observed that the types of communication used in the development processes were formal and informal communication, for example, chat via line application. Such methods reduced the distance gaps leading to the right understanding in making plans. In addition, development workers communicate individually with locals using their ethnic languages to build the right understanding of content.

- **Community leader education:** Development encourages and promotes the community members to learn and study facts to gain knowledge and understand the problems and needs of the community. Moreover, when they have knowledge, they can create effective solutions for problems. Developers provide education for health leaders such as teachers, students, community leaders and community health volunteers in the target areas employing different techniques, for example, discussion, exchange of opinion, role-play and lecture. As reported, *"After training, we have more confidence to share and provide villagers healthy advice" (community leaders, health volunteers)*

- **Proprietorship**: An individual's point of view involves sharing ownership through mutual investment or goals of the network organizations. Nonadhesion to the organizations' main mission of integrated projects leads to a focus on goals and establishment of goals which is a crucial factor of successful development and work integration.

- **Participation:** At the beginning, every party was requested to think, work and gain benefit from the mission. Participation in this study was clearly concrete at the start as every network organization including community networks participate in decision making, planning and designing activities.

- **Community capitals**: Community is a social capital that strengthens itself in natural resources, culture, generosity, soul, thought and

energy as well as management skills. All components promote generosity and harmony resulting in volunteering to work together by brainstorming, sharing knowledge and expertise in handling problems as implied in the verbatim response, *"Kinship is the most important thing"*. In this study, the social capital comprised human resources especially young community leaders having vision in development, open- mindedness and community power as well as natural resources management.

- **Community strength:** The community leaders are considered the strength of the community possessing the potential to gather the network's power and cooperation as well as public health volunteers who are the strength of community development. *"One key success is the leader. He is smart and able to convince the villagers and other agencies to participate in the project" (technicians)*

2. Internal elements mean elements within the model and techniques that developers choose or establish tools to develop and drive the community. In this study, development processes were divided in three stages, namely, beginning, implementation, and evaluation stages. Developers established goals and work techniques matching the nature of problems and the development goals at every stage. The details are elaborated below.

2.1 The beginning stage was the first year of community development. During the study, developers were outsiders without any experience in working with the target community. The development processes included the components described below.

- **Community study:** In the first step, the developers conducted a survey of the context of the environment by observation and interview. The volunteers facilitated and translated ethnic languages to build understanding and decrease communication gaps. Problem identification based on participation in thinking and consideration processes among the developers, the community and the development network was used to identify directions, matters and problems. This was intended to solve problems in the right direction where the integration of missions and resources are integrated for community management.

- **Understanding making**: In community health development, the developers do not only focus on illness but also health. The network that works on health has to clarify the project plan, objectives, goals and methods to build understanding and establish goals as well as cooperate to develop and find partners for the community. *"To make clear concepts for those stakeholders required that we held frequent meetings."* (movement leaders)

- **Building cooperation and network obligations**: In this study each sector worked on their own missions without losing their identity and philosophy. This may have constituted a loose network working on a specific mission or it may have comprised an organization with a clear relation. Cooperative networks can exist at individual, organization or institution levels.

- **Building commitment/ agreement:** An MOU comprised a "record of understanding" representing the volunteering will of a party to perform something under a condition stated in the record with the other party. However, an MOU is not an obligation that the two parties had to strictly follow but represents a determination to perform what is stated in the MOU.

- **Activity planning:** Activity planning had to be appropriately designed to bring out potential and enhance creative learning of the participants. Such activities

are creative, interesting, and increase the identity of the participants. This study showed the activities were appropriately designed for the participants based on their age.

- **Capacity building:** This involves a process that fulfills and promotes knowledge, capability and confidence to leaders. It also builds knowledge, confidence and capability for developing leader's decision making, and persuasive skills to solve problems in the community as well as to bring out the potential and social capitals of the community to their fullest capability and follow the project direction and plans.

- **Building campaigns or encouraging knowledge:** This is to promote knowledge, awareness and understanding toward the issues and to gain attention or support for the receivers to participate and cooperate in the activities. Moreover, this communication also aims to remind the audience to recall, become interested, and finally change their attitudes. Knowledge, understanding and beliefs must be integrated in the processes. The relations among knowledge, attitudes and behaviors for the campaign in this study, aimed to build awareness in health using two activities.

2.2 The project implementation phase occurred in the second year of a model which is the phase of the implementation designed in phase 1 (the first year). The implementation phase involves essential processes as described below.

- **Integrations of development activities:** In community activities, integration of plans involves cooperation among items or organizations in the same project with the same goals. Moreover, integration also helps decrease redundant activities, budget, resources and time in which each organization can achieve its goals and main missions.

- **Plan implementation:** The implementation plan or directions determined occurred in the first year. This implementation is based on participating, gathering related network organizations under the concept of participation and integrating activities, work plans, budget plans and resources considering traditions, environment, and the identity of the target community.

- **Promoting potential and empowerment:** This comprises a process that reflects personal capability within themselves to control and influence themselves and the surrounding society which empirically affects their life. On the other hand, work empowerment means support for network organizations to present their capability and their soul in different situations and help each other solve problems. Empowerment is building beliefs and confidence to network, to think and decide to perform an activity.

- **Health communication:** This is implemented using every type and level of communication such as personal, interpersonal, group, organizational, public and mass communication through small, personal, local, community, specialized media and mass media. Moreover, activities are organized such as a special campaign in the form of effective communication and participative communication. In this study, leaders, health volunteers, and student leaders provided knowledge in health as well as a campaign using ethnic languages to disseminate messages to the receivers more easily and effectively than using Thai by health personnel.

- **Cultural change:** More valuable and meaningful were local games or traditions held on holidays. Giving meaning to culture and tradition also reflects values, beliefs and practices of people in the community. When the concepts or foundation of thinking in health is used as a framework, it could be stated that many activities or traditions are a threat

to people's health. In this study, people shared the same goal to develop people's health. The project implementedthrough their traditions which was the center of people's belief. They promoted a practice of not eating raw meat during *"Hua Seel"* Festival which involves a change, a revolution and provides a new meaning to the tradition. *" In the past, Hua Seel Festival must be celebrated with Larb Mhoo (spicy mince raw pork salad) but after the project it changed to be more healthful food" (Health volunteers, residents)*

- **Activity/ Lesson reviews:** The study involved an analysis of activities or missions that had been implemented by considering strengths and weaknesses or obstacles from performing activities, lesson reviews or activity reviews that would enable development workers to recognize gaps, problems and obstacles.

2.3 Project evaluation phase: The developers lowered their roles as development leaders and acted as supporters and observers. This was to build confidence and strengthen the network and community organizations and for them to believe in their potential in creating activity plans and designs to develop their own community based on their social capitals and resources. The last phase of development led to sustainable development by the community and strengthened the community as described below.

- **Networking:** The power of the group eased suffering and reduced problems that could be solved by the working group. The important promoting of group strength in development aims at people centeredness especially, community development needs cooperation from different sectors. Similarly, the power of the group is considered a tool to negotiate with individuals having the power to

support, change and improve actions to achieve goals.

- **Sector and organization routine integrations:** The roles of the developers are to encourage related organizations to approve activities and plans to be included in regular plans of organizations. In this regard, including the community's plans or activities of related organizations indicates the continuity of plans designed by the community and also confirms that the activities will be implemented using the budget of the network. Moreover, the community project plans can be included in the health development plan using the District's Health Fund managed by Local Administration Organizations.

- **Activity implementation:** During the evaluation phase, the aim is to implement activities, plans or community projects and networks using locals and the community networks that designs and implements plans and activities in the second phase. The roles of the developers are implementing and serving as academic supporters and advisors in coaching processes.

- **Evaluation:** This activity holds different meanings in terms of processes and principles needed for project development and development activities. Various types and methods of evaluation are available. Development workers choose one or more methods based on their objectives appropriate for participative evaluation and empowerment.

DISCUSSION

Constructing the unique model involved using two significant elements. All variables depicted how community action drove their health and prevention activities. According to the concept, community health entails the fundamental beliefs of people that they could identify

and eliminate their threats.[15,16] A process of community health promotion supports community members to discover their power to change the community dynamics. This model was consistent with the community health action model: health promotion by the community, the community process of being, belonging and becoming or community engagement to act, merged with the community assessment, planning[17], implementation and evaluation processes of community development. [18] The model demonstrated the merging and simultaneous application of two pivotal elements. Therefore, the health of the community was involved with community ways, functions, and the healthiness of the whole. Community health is the ability to generate and effectively use assets and community resources to support the community members' well-being and quality of life.[19,20]

The internal element is the mechanisms within the model including all techniques and strategies for driving their project or community activities to succeed. The three stages, namely, the beginning, implementation and evaluation stages complied with many working techniques employed at each stage. It related to the community health action model[17] which merged the community development process, including participatory action research, with a framework for community assessment and action to achieve community health promotion. Core concepts of the model involved three steps: being or interacting as people coming together to form a collective unit, leading to belonging or expression by the group of a sense of community, leading to becoming or taking community action by the group. [21,22] The community action entails the community assessing process, goal setting and planning for change, implementing and evaluating. In addition, the structure and community factors include the social environment which is the

external key to success that supports the community health movement process. [23,24] Moreover, this is related to the model of ethnic community public policy[25] indicated by two components of environmental factors affecting the community public policy process. The external environment of the network including stated policy, political stability, community culture, capitalism, globalization, partner and network support and fortunately the internal network environment consisting of leaders, strength of the network and movement strategies.

This model highlights the strengthening of community action by their own way. This is related to the healthy community by Tyler Norris[26,27] who concluded that communities could encourage and strengthen community action in at least three ways. The first involves encouraging and fostering grass roots planning and action. [28] When issues are identified and addressed by the people affected by them, as well as by others concerned, two things happen: the issues are more likely to be resolved successfully, and the people involved learn how to use their own resources to take charge of their lives and their communities. [26] A second way of strengthening community action is through a commitment from government, community leaders, and other decision makers to encourage action by passing legislation conducive to it, lending public support to it through the media and other communication channels, and including members of all segments of the community in the conception, planning, and implementation of any community initiative. [26,29] The last is by decision makers and the media ensuring a free and accurate flow of necessary information about the community and community initiatives to all members, and providing all members in the community with learning opportunities about issues and about the quality of life in general.[26,27]

RECOMMENDATIONS

A model of preventive communicable diseases at the remote tribal communities consisted of two important elements: external and internal elements. The external elements comprised the macro factors; policy, local politics, culture etc and community factors comprising of community capitals, community development techniques etc affecting the movement process. Then the internal element comprises the development process that consists of three stages and various activities. Therefore, within social, environments, and cultural diversity, this model proved the concepts for development workers to apply, increase and decrease variables based on appropriate concepts matching the local area and suiting the community to develop. Community development processes in health dimension not only focus on the value and meaning of diseases. Networks are essential for community health development that drives the processes based on the participation of development workers, researchers and people. The goals are assigned based on participation and strengthening the network and community to be able to design and create sustainable plans.

ACKNOWLEDGEMENTS

REFERENCES

1. United Nation. Community development [Internet]. [cited 2020 May 5]. Available from:https://canadianglobal response.ca/portfolio/community-development/.
2. Fawcett BS., Paine-Andrews A., T. Francisco TV., Schultz AJ., Richter PK, Lewis KR, et al. Using empowerment theory in collaborative partnerships for community health and development. Am J Community Psychol. 1995;23(5): 677-697.
3. Perkins DD., Zimmerman AM. Empowerment theory, research, and application. Am J Community Psychol. 1995;23(5): 569-579.
4. Zimmerman AM., Israel AB., Amy Schulz, Checkoway B. Further explorations in empowerment theory: an empirical analysis of psychological empowerment. Am J Community Psychol. 1992;20(6): 707-727.
5. Zimmerman AM. Psychological empowerment: issues and illustrations. Am J Community Psychol. 1995;23(5): 581-599.
6. Teoh KG, Tan PM, Tan SJ, Chong CM. Conducting community-based participatory research in an urban Malaysian community: lessons learned and challenges in establishing partnerships. J Community Appl Soc Psychol. 2018;1–13.
7. Buadaeng K. The rise and fall of the Tribal Research Institute (TRI):"Hill Tribe" policy and studies in Thailand. Southeast Asian Stud. 2006;44(3): 359-384.
8. Tambon Health Promoting Hospital LaoLieo. Annual Report Year 2016; 2016.
9. Tambon Health Promoting Hospital Puu Muen. Annual Report Year 2016; 2016.

10. Klai-nak C. The guideline of strengthening sustainable community participation. a conference document ; 2015.

11. Nak-ai W., Jiawiwatkul U., Temsirikulchia L. and Nontapattamadul K. Community public policy process for solving cadmium contamination problems in the environment: a case study of Mae Sod District, Tak Province. Kasetsart J. Soc. Sci. 2017; 39: 59-66.

12. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006;3:77–101.

13. Reach G., Fompeyrine D., Mularski C. Understanding the patient multidimensional experience: a qualitative study on coping in hospitals of Assistance Publique-Hôpitaux de Paris, France. Patient Preference and Adherence. 2015;9: 555–560.

14. Nontapattamadul K. A qualitative study in social welfare: concept and methodology. Bangkok: Thammasart University Press; 2011.

15. Ministry of Culture. 2009. A master plan of national culture years 2007-2016 [Internet]. [cited 2019 December 13]. Available from: http://www.m-culture. go.th/ckfinder/userfiles/files/ toolsculture/AWFINAL%20BOOK%2 0WATTANATUM%20PLAN%20YE AR%2025-11- 52-1.pdf .

16. Kanjanaphan A.(editor). Identity of marginal people. Bangkok: Thai Health Promotion Foundation; 2004.

17. Racher EF. and Annis R. Community health action model: health promotion by the community. research and theory for nursing practice; 2008

18. Annis R., Racher EF. and Beattie M. Rural community health and well-being: a guide to action. Rural Development Institute Brandon University, Brandon, Manitoba, Canada; 2004.

19. Ryan Nicholls K., and Racher, EF. Investigating the health of rural communities:toward framework development. Rural Remote Health. 2004; 4:244. Available from: http://rrh. deakin.edu.au

20. Nontapattamadul K. The measurement of social support. Journal of social work 1992; 7(2):169-180.

21. Walaisatian P. The process and technique for developer working. Bangkok: The project of strengthening for happy community; 2000.

22. WHO/UNICEF. Report of the international conference on primary health care. NewYork: N.P. press; 1978.

23. Fukuyama F. Trust: Social Virtues and the Creation of Prosperity. NY: Free Press; 1995.

24. Romrattanaphan W. Social capital. Bangkok: The project of strengthening for happy community; 2005.

25. Nak-ai, W., Jiawiwatkul, U., Temsirikulchai, L., and Nonthapattamadul, K. The model of ethnic community public policy. Adv Sci Lett. 2017; 23: 1008-1011.

26. Norris, T. America's Best Kept Secret: The Healthy Communities Movement. (Reprint by Healthy Communities Massachusetts from the National Civic Review, introduction, Spring, 1997.) Pan American Health Organization. Healthy Municipalities and Communities: Mayors' Guide for Promoting Quality of Life. Washington, DC;2002.

27. Wilkinson, R., & Michael M. The Solid Facts: Social Determinants of Health. World Health Organization: Copenhagen;1998.

28. Wannaborworn U. Healthy public policy determination at the local level: acase study at Trang Municipality. Independent study for Master of Public Administration in Local Government. Khon Kaen University, Thailand; 2009.

29. Yotpanya K. The process of public policy building of Watboth Municipality, Watboth District, Phitsanulok Province.

Independent study, Master of Public Administration in Public Policy. Naresuan University, Thailand; 2009