

# Capacity building process in Environmental and Health Impact assessment for Thai Community

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## Abstract

The circumstances of EIA and HIA operational process regarding legislation and regulation in the Thai context revealed lacks of both knowledge and participation in environmental and health impact assessment for Thai community. The purpose of this action research were to develop of capacity building process in environmental and health impact assessment, and were to evaluate capacity building level in EIA and HIA. The participants were included consisted of community's leaders, local authority, stakeholders, volunteers and local people. Data were gathered through questionnaires, participatory observation, in-depth interview, and capacity building checklist form and were analyzed using descriptive statistics and Paired-t-test. The study showed that the components of capacity building process which were synthesized from their processes consisted of 10 steps. The evaluation of capacity building level for the community participation showed that they had increased significant ( $P < 0.05$ ) which compared among before, during, and after attendance of process. The final draft of capacity building process that could be try out in similar areas so that they increased of capacity building sustainable in environmental and health impact assessment for other community

**Keywords:** Capacity building, EIA, HIA , Thai community

## Introduction

Currently, the growth development of economy and society in Thailand under both of governmental and private sectors affect to various kinds of beneficial profit. However, the negative impacts of environmental problems are apparently occurred simultaneously especially the forth degeneration of natural resources and environmental toxics as directly results of these development. Moreover, the potential environmental problems may affect health care problems including physical, mental, social and spiritual illnesses. Those impacts are mostly caused by the development of policy, program and projects. Thailand now, has enforced the specific laws and regulations for the protection of environments and health via EIA and HIA, that hosted by The Office of Natural Resources and Environmental Policy and Planning (ONREPP). Unfortunately, the circumstances of EIA and HIA operational process regarding legislations and regulations in the Thai contexts revealed lacks of both knowledge and participation between EIA and HIA from Thai community. These problems affect to the violent conflicts in its society among the project owners, government organizations, the stakeholders, and the community memberships which caused by the agreement and disagreement to conduct and develop the projects. Additionally, the community members and also stakeholders may not enough knowledge for their understanding and perceiving about EIA and HIA. Furthermore, previous literatures review also revealed that the numbers of EIA-and-HIA knowledgeable communities were limited<sup>[1-8]</sup>The objectives of our study were to develop of capacity building process in EIA and HIA, and also to evaluate capacity building level in EIA and HIA for Thai community.

## Materials and Methods

This study was conducted in two phases. The first phase was to develop a capacity building process in EIA and HIA for community in order to synthesize the first draft of such processes. Moreover, this first draft had been approved by research advisory committee. The second phase was to try out the process of the first draft in other similar areas . In this article, we focus only on the first phase.

### Study design

This study was a community-based action research that conducted during August, 2013 to March, 2014 by using mixed methods for collecting data in both qualitative and quantitative research.

### Study area

There were nine communities governed by local government organizations consisted of Prick municipality/Prick subdistrict Administrative Organization(SAO), Sumnaktao subdistrict Administrative Organization (SAO) and Sumnakkham municipality, Sadao district, Songkhla province. These nine communities

had similar settlement pattern and socio-economical status. Additionally, these communities will face several developing projects required EIA reports upon regulation of ONREPP

### Target and Study population

Target populations for the key informants consisted of community leaders, village leaders, religious leaders, retired government official, local government authorities, health authorities, stakeholders, conservation groups and health volunteers. The sample of targeted population required 30 persons who lived in their communities for at least six months, would be the so-called “the community heads” and were enrolled by purposive sampling method. Moreover, the other community’s representatives were enrolled by purposive sampling method, chosen by of a village committee, public health volunteer and local community members to participate in any activities of process

### Tools and Data collection

The study data was collected by using questionnaires, in–depth interview, and self-evaluation capacity building checklist form. The components of this questionnaires included the evaluation of knowledge, awareness and practical scores (KAP) at before, during, and after attending about capacity building process. Additionally, the participants were done by self-questionnaires and counted total point of three parts. In-depth interview were done for assessing capacity building in EIA/HIA for community heads. Additionally, the capacity building in EIA/HIA for community was also assessed by using capacity building checklist form. Questionnaires and In-depth interview were approved for their consistency by three experts in the fields and research advisory committee .Moreover, these specific tools were explored in other similar areas to determine test’s reliability by using Cronbach’s alpha coefficient.

### Statistical methods

Data analysis of this study was performed by using statistical software of the Statistical Package for Social Science version 16 (SPSS for Windows). The summary of data were expressed as mean (SD, standard deviation) for continuous variables and as frequency and percentages for discrete variables.

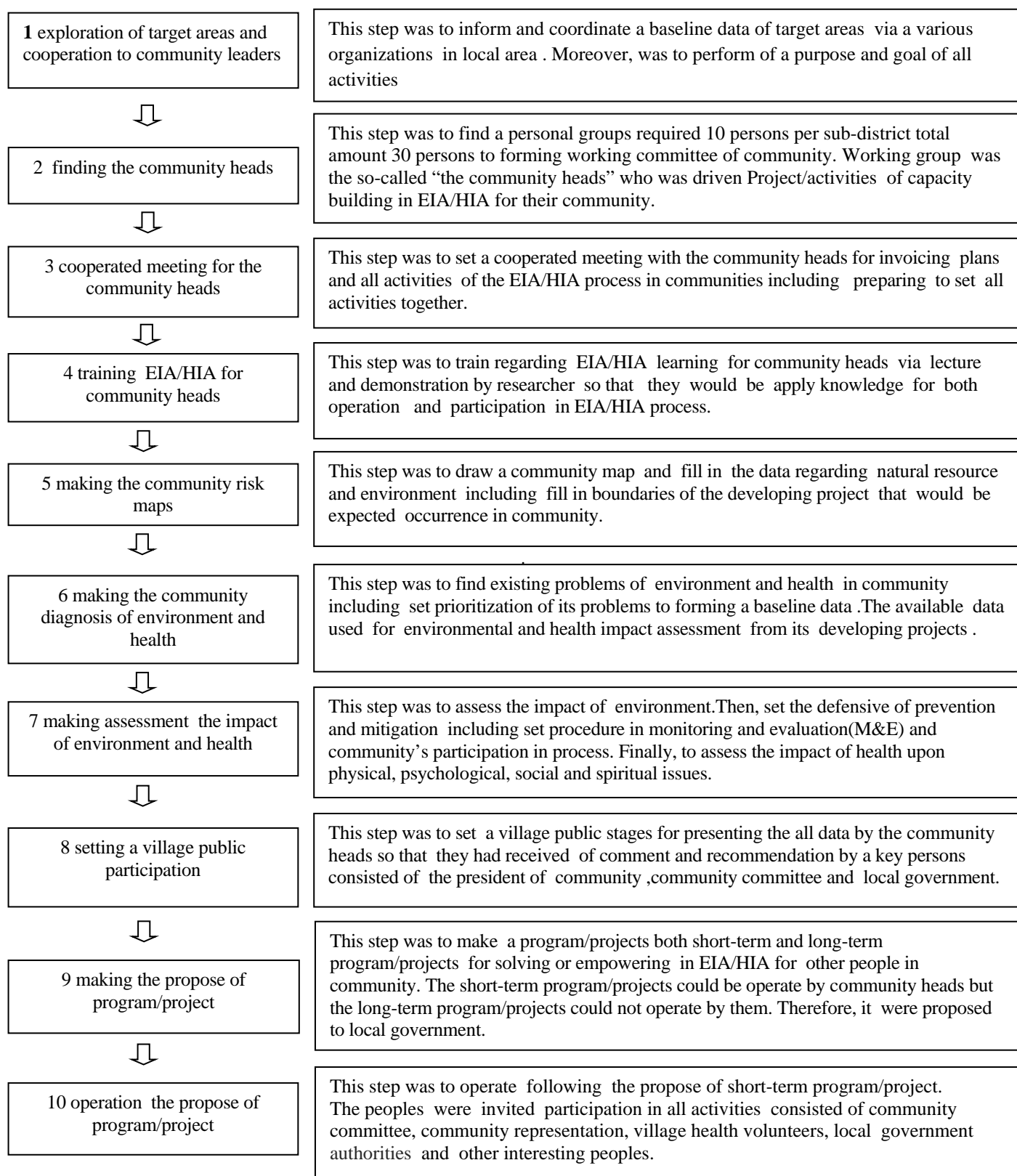
### Results and Discussion

The demographic data of the community heads are given in Table 1. Out of 30, 80.0% were male, mean age was 48 years, 28(95.3 %) were married, 15 (50.0%) were lower than bachelor degree, 13 (43.3%) were farmer, 17(56.7%) who were fairly for Socio-economically status and 22(73.30%) who lived in community longer than 20 years.

**Table 1 General characteristics of the community heads (n = 30)**

| Variable                    | Number(percent)      |
|-----------------------------|----------------------|
| Gender                      |                      |
| Male : Female               | 24 (80.0) : 6 (20.0) |
| Age                         |                      |
| average(SD)                 | 48 (10.69)           |
| median(min, max)            | 49.5(27,65)          |
| Marital status              |                      |
| Married                     | 28(95.3)             |
| Education                   |                      |
| Lower than bachelor degree  | 15 (50.0)            |
| Higher than bachelor degree | 15 (50.0)            |
| Occupation                  |                      |
| Farmer                      | 13 (43.3)            |
| Government officer          | 10 (33.3)            |
| Retired government official | 2 (6.7)              |
| Trading                     | 4 (13.3)             |
| Self employed               | 1 (3.3)              |
| Socio-economically status   |                      |
| Fairly                      | 17(56.7)             |
| Good                        | 13 (43.3)            |
| Time dwelled in community   |                      |
| Longer than 20 years        | 22(73.30)            |

The component of capacity building processes in EIA and HIA which were synthesized from their process consisted of 10 steps. The diagram for each step was shown in Fig.1 and the details of each step were described below.



**Figure 1 shown the diagram of capacity building processes in EIA/HIA**

The evaluation of capacity building level for the community heads were shown the mean scores of knowledge, awareness and practical that compared among before attendance (0 month), during attendance (3 month), and after attendance (6 month) of process. We found that the mean scores of knowledge were 4.97, 6.67, 7.70 points respectively, the mean scores of awareness were 6.13, 7.13, 8.07 points respectively and the mean scores of practice were 1.74, 4.32, 5.65 points respectively. It was possible that the practical part were rather difficulty than others. Additionally, the mean total scores of three parts were 12.84, 18.12, 21.42 points respectively. Moreover, we found that the scores of all parts had increased significantly ( $P < 0.05$ ) which compared among before, during, and after attendance of processes and the details were shown in table 2.

**Table 2 show a mean scores of knowledge ,awareness and practical skill in EIA/HIA for the community heads (n = 30)**

| Part of evaluation          | Before (baseline) |      | During( month 3) |      | After ( month 6) |      | Before vs. During |         | After vs. During |         |
|-----------------------------|-------------------|------|------------------|------|------------------|------|-------------------|---------|------------------|---------|
|                             | Mean (Min,Max)    | S.D  | Mean (Min,Max)   | S.D  | Mean (Min,Max)   | S.D  | t                 | p-value | t                | p-value |
| Knowledge score (10 points) | 4.97 (0,10)       | 2.43 | 6.67 (4,10)      | 1.47 | 7.70 (6,10)      | 0.99 | 4.28              | 0.000*  | 5.15             | 0.000*  |
| Awareness score (10 points) | 6.13 (3,9)        | 2.16 | 7.13 (5,10)      | 1.41 | 8.07 (6,10)      | 0.98 | 4.35              | 0.000*  | 5.4              | 0.000*  |
| Practical score (10 points) | 1.74 (0,4)        | 1.34 | 4.32 (2,8.5)     | 1.55 | 5.65 (4,7.5)     | 1.2  | 13.98             | 0.000*  | 4.08             | 0.000*  |
| Total scores (30 points)    | 12.84 (6,22)      | 4.83 | 18.12 (12,27.5)  | 3.73 | 21.42 (16,26)    | 2.56 | 5.27              | 0.000*  | 5.15             | 0.000*  |

\*p-value 0.05

The evaluation of capacity building level for 9 communities was performed by using 10-items, evaluating criterions. We found that most of the communities accepted in its evaluating criterions. However, a few communities denied to accept for the topic of having sufficient of community's representative to participate following their program/projects and proposing of program/projects were addressed into developing plan of communities or local government organizations . It was possible that the lacking of participation from any community heads led to deny of their acceptance. The details were shown in table 3.

**Table 3 show the results of evaluating of capacity building level of communities( n = 9 )**

| Evaluating criterions   | Prick sub-district           | Sumnaktæo Sub-district       | Sumnakkham Sub-district      |
|---|------------------------------|------------------------------|------------------------------|
|   | The communities of Moo 3,4,7 | The communities of Moo 2,3,7 | The communities of Moo 2,6,7 |
| 1 Having a community heads  | ✓                            | ✓                            | ✓                            |
| 2 Having a community risk maps  | ✓                            | ✓                            | ✓                            |
| 3 Having a situation of environment and Health problems   | ✓                            | ✓                            | ✓                            |
| 4 Having a results of environment and Health impact assessment                                    | ✓                            | ✓                            | ✓                            |
| 5 Having a village public stages for achieving their recommendation                               | ✓                            | ✓                            | ✓                            |
| 6 Having a proposed program/projects for solving problems   | ✓                            | ✓                            | ✓                            |
| 7 Having an implementation of proposed program/projects   | ✓                            | ✓                            | ✓                            |
| 8 Having sufficient of community's representative to participate following their program/projects | ✓                            | x                            | x                            |

|  |   |   |   |
|--|---|---|---|
| 9 Having KAP mean scores of community's representative were increased significant                                | ✓ | ✓ | ✓ |
| 10 Proposing of program/projects were addressed to developing plan of communities/local government organizations | ✓ | x | ✓ |

✓ = accepted      x = not accepted

### Discussion

Despite several countries agree that the continued growth of EIA and HIA, There is a little research on HIA capacity building [9]. Additionally, the community should be build capacity by several approachs such as trainees need assistance with quantitative methods, project management, community engagement, framing recommendations, and evaluation[9,10].In this study , the authors found that the finding of a community heads is essential for capacity building in EIA and HIA in order to beginning establishment of practitioner in community. The authors realized that each step of capacity building process should be flexible operation. The strength of this research is that the capacity building processes in EIA/HIA we select, is a robust and play a significant role to support any other tools or other processes such as the development of community health impact assessment (CHIA). However, one of the weaknesses of this research is lacks of the participation from any key persons such as district leaders, village leaders, religious leaders and head of local government organization in capacity building processes and also had not enough activities to fully complete the goals of each activities in capacity building processes. Therefore, we may suggest that local government organization must coordinate and integrate with other organizations including key persons in order to more participate in their EIA/HIA process. Finally, the authors recommended that the community be enhanced regarding EIA and HIA by expanding capacity building process into all members of community and local government should be the leader to coordinate with a key persons and supporting the essential resources for community.

### Conclusion

We conducted this research in order to develop of capacity building processes in EIA/HIA so that we can find an appropriate and applicable process of EIA/HIA and then try adaptation and application in other similar areas. Therefore, the authors expected that the capacity building process in EIA and HIA may be solve existing problems of environmental toxic, the violent conflicts in community including health hazards else from its threats .

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