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Evaluating Hill Tribe Forest Management: A Case Study of Amphoe Galyani Vadhana

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Evaluating Hill Tribe Forest Management:
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A Project Sponsored by Raks Thai Foundation

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Evaluating Hill Tribe Forest Management:  
A Case Study of Amphoe Galyani Vadhana

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In cooperation with  
Chulalongkorn University

Submitted on March 5th, 2015

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This report represents the work of four Worcester Polytechnic Institute and four Chulalongkorn University undergraduate students submitted to the faculty as evidence of completion of a degree requirement. WPI routinely publishes these reports on its website without editorial or peer review. For more information about the project program at WPI, please visit http://www.wpi.edu/Academics/Project.
Abstract

This project studied hill tribe forest management in Amphoe Galyani Vadhana (AGV), a district in Northern Thailand, in support of hill tribes’ rights to reside on and use conserved forest land. In collaboration with Raks Thai Foundation, the project team of four WPI and four Chulalongkorn University students conducted interviews and observations in Tambons Baan Chan and Chaem Luang, two sub-districts in AGV. Mainly through coding, interviews and creation of an entitlement map, the team concluded that hill tribe villagers rely on the conserved forest land for their livelihoods and manage the forest effectively through traditional practices and GIS maps. The team recommends using GIS mapping to support hill tribes’ rights to reside on and use conserved forest areas throughout Thailand.
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**Authorship**

<table>
<thead>
<tr>
<th>Section</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>Brigitte, Caitlin, Obiora</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>Alexander, Brigitte, Caitlin, Obiora</td>
</tr>
<tr>
<td>1</td>
<td>Alexander, Caitlin</td>
</tr>
<tr>
<td>2</td>
<td>Caitlin</td>
</tr>
<tr>
<td>2.1</td>
<td>Caitlin, Chalita, Napat, Obiora, Siri</td>
</tr>
<tr>
<td>2.2</td>
<td>Caitlin</td>
</tr>
<tr>
<td>2.3</td>
<td>Brigitte, Caitlin, Chalita</td>
</tr>
<tr>
<td>2.4</td>
<td>Chalita, Obiora, Siri</td>
</tr>
<tr>
<td>2.5</td>
<td>All</td>
</tr>
<tr>
<td>2.6</td>
<td>Alexander, Caitlin</td>
</tr>
<tr>
<td>2.7</td>
<td>Alexander, Brigitte, Caitlin</td>
</tr>
<tr>
<td>2.8</td>
<td>Caitlin, Obiora</td>
</tr>
<tr>
<td>2.9</td>
<td>Caitlin</td>
</tr>
<tr>
<td>2.10</td>
<td>Caitlin</td>
</tr>
<tr>
<td>2.11</td>
<td>Caitlin</td>
</tr>
<tr>
<td>3</td>
<td>Brigitte</td>
</tr>
<tr>
<td>3.1</td>
<td>Alexander, Brigitte, Caitlin, Obiora</td>
</tr>
<tr>
<td>3.2</td>
<td>Brigitte, Caitlin</td>
</tr>
<tr>
<td>3.3</td>
<td>Brigitte</td>
</tr>
<tr>
<td>3.4</td>
<td>Brigitte, Caitlin</td>
</tr>
<tr>
<td>3.5</td>
<td>Brigitte</td>
</tr>
<tr>
<td>4</td>
<td>All</td>
</tr>
<tr>
<td>4.1</td>
<td>Alexander, Brigitte, Obiora, Siri</td>
</tr>
<tr>
<td>4.2</td>
<td>Alexander, Brigitte</td>
</tr>
<tr>
<td></td>
<td>Authors</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>4.3</td>
<td>Alexander, Brigitte, Obiora</td>
</tr>
<tr>
<td>4.4</td>
<td>Brigitte, Napat, Siri</td>
</tr>
<tr>
<td>4.5</td>
<td>Alexander, Brigitte, Caitlin</td>
</tr>
<tr>
<td>4.6</td>
<td>Caitlin</td>
</tr>
<tr>
<td>5</td>
<td>Alexander, Brigitte, Caitlin, Nattasaet, Obiora, Siri</td>
</tr>
<tr>
<td>6</td>
<td>All</td>
</tr>
<tr>
<td>Appendices</td>
<td>All</td>
</tr>
</tbody>
</table>
Executive Summary

This project evaluated hill tribe forest management in Amphoe Galyani Vadhana (AGV), a district in the Chiang Mai Province of Northern Thailand. In collaboration with Raks Thai Foundation (RTF), the team focused on Tambons Baan Chan and Chaem Luang, two sub-districts in AGV where mainly Karen hill tribe villagers live. The following report documents both traditional hill tribe conservation practices and Geographic Information Systems (GIS) as tools for forest management. This is the first case study to examine the use of GIS maps as a means for individuals to defend their rights to reside on and use conserved forest land.

From 1913 to 1998, Thailand lost a significant amount of forest cover, especially in the Northern region where many hill tribes reside (Grainger, 2004). To curb deforestation rates, the Thai government created regulations in 1964, which limit these hill tribe villagers’ ability to use the land and impacts their quality of life (Parliament of Thailand, 1964).

Currently, many hill tribe villagers face the possibility of arrest and removal from their homes. To address this issue, RTF, facilitates a GIS mapping process for many hill tribe villages in AGV. GIS is internationally accepted as a technology for displaying and analyzing geospatial data (Wise, 2013). Through this GIS mapping process, many hill tribe villagers have documented their land use practices and residency on conserved forest land to defend their claim to this land. Our purpose was to evaluate hill tribe forest management practices in support of the hill tribes’ residence on and their use of conserved forest land.

Goals, Objectives, and Methods

The team, which consisted of four students from Worcester Polytechnic Institute and four from Chulalongkorn University, addressed this goal through three main objectives:
1. To identify the benefits of allowing the hill tribe villagers to live in the conserved forest.
2. To determine how hill tribe villagers and Tambon (sub-district) officials use GIS mapping.
3. To evaluate the benefits and challenges of using GIS mapping for forest management.

To achieve these objectives, the team analyzed GIS maps provided by RTF and conducted interviews and observations in Tambons Baan Chan and Chaem Luang. The interviews included Tambon Administrative Organization (TAO) Presidents, TAO members, a Kamnan (sub-district headman), a Phuyai Baan (village headman), Mae La Oop River Basin Network members, and a villager who worked with GPS technology (See Figure 0-1 to Figure 0-3). The team coded each interview and then summarized the information into three main themes pertaining to each objective: Forest Management and Conservation Practices (Objective 1), GIS Mapping Process (Objective 2) and Benefits/Challenges of GIS for Forest Management (Objective 3). During site observation, the team gathered photographic evidence of forest management and demarcation in Tambons Baan Chan and Chaem Luang.

**Findings**

Through coding of qualitative data for Objective 1, the team found that the hill tribe villagers in AGV practice forest management and conservation techniques. For example, villagers zone the forest by physically demarcating different land use areas, based on GIS maps created by the village, so that all community members are familiar with the location of the zones. Figure 0-4 shows examples of other practices we witnessed during site observation.

Figure 0-4A is an example of controlled burn, or “Ching Phao” in Thai, in which dead leaves or pine needles are burned from the ground. The benefits of controlled burns, including lowered risk of fire by reducing the amount of fuel on the forest floor and recycled nutrients into the soil, are recognized internationally. Figure 0-4B is an example of the widely used agricultural method of terraced farming, which reduces both erosion and surface runoff when irrigating fields.

Figure 0-4: A) Controlled Burn in Agricultural Area B) Terraced Farming Area
Hill tribe villagers also implement spiritual conservation practices. For example, the Phuyai Baan of Baan Wat Chan Village stated that “hill tribe villagers believe in ‘Phe Ton Nham’ to conserve watershed areas in the forest because they believe that spirit guardians protect these areas.” Villagers give offerings to these spirits and refrain from cutting down trees in the watershed areas.

These observations led us to our next finding that the **hill tribe villagers in AGV sustainably manage the forest**. We confirmed this conclusion by comparing the hill tribe villagers’ land use to Dr. Elinor Ostrom’s Eight Principles for Managing a Common Resource (Ostrom, Gardner, & Walker, 1994). These principles served as guidelines for determining how effectively the hill tribe villagers manage the forest with the use of GIS maps. The villagers have used GIS mapping to define their existing boundaries and drafted Community Rules for managing the forest and its resources. Village leaders hold monthly meetings with the villagers to create and discuss Community Rules. Community Rules are displayed on village GIS maps and they are intended to assist villagers in determining how they are allowed to use the land to ensure responsible and sustainable use. Violation of these rules results in a fine, depending on the severity of the violation.

During analysis for the second objective, the team coded for the theme “GIS Mapping Process,” and as a result we determined that **both villagers and local (TAO) officials use GIS maps as a tool to visualize how the villagers use the land**. Through our methods, the team gained first hand perspectives on the process of collecting GPS data. During the GIS mapping process, volunteer land surveyors and villagers walked around plots of land with GPS devices. Both the resident and his neighbor had to be present during the process to ensure that the surveyor mapped the boundaries correctly. The team also attended a TAO Chaem Luang meeting in which TAO officials worked on drafting local legislation known as Management of Natural Resources and Environment, which outlines how villagers can use their land (See Figure 0-5). During this meeting, the TAO encouraged participation from community members.

The team discovered that GIS maps are useful tools to both TAO officials and hill tribe villagers. TAO officials use the GIS maps to identify the pre-established boundaries of the Tambon, different villages, and individual land plots, as well as the boundaries of different zones...
of land use within a village. The GIS maps allow the TAO to confirm that the villagers have only been living inside of their boundaries.

The team analyzed three GIS maps provided by RTF and determined that the maps contain pertinent information, such as land use divisions, Community Rules, and declarations of responsible land stewardship. By analyzing these maps we came to the conclusion that **hill tribe villagers in AGV do not expand their farming outside the boundaries that they established via the GIS mapping.** The villagers strictly follow the boundaries demarcated on the maps and they agree to not use the conserved forest area that lies outside of their boundaries. By signing this map, the villager and other contributors agree that the land cannot be bought, sold or rented.

During analysis for the third objective, the team coded interviews for the theme “Benefits/Challenges of GIS for Forest Management.” We determined that the **GIS mapping process encourages community participation and self-sufficiency in natural resource management.** Before the mapping began, villagers attended a three-day training program to learn how to use GPS devices. Afterwards villagers used GPS to demarcate the boundaries of their land. The process empowered the villagers in their ability to manage the forest. One challenge is to persuade the villagers and TAO officials to recognize the benefits of GIS and to participate in the mapping process.

The team used a method of analysis called environmental entitlement mapping, which was developed by Dr. Amartya Sen, the 1998 Nobel Prize economics winner (Ghosal, 2000; Leach, Mearns, & Scoones, 1999). The purpose of an environmental entitlement map is to break down the relationship between different stakeholders and an environmental resource. In our case study, the stakeholders are the hill tribe villagers and the environmental resource is the conserved forest land in AGV. The components of an environmental entitlement map include endowments, entitlements, and institutions. Endowments refer to the stakeholders’ rights to a resource, which, in this case, matches villagers’ rights to use the conserved forest land. Entitlements refer to the stakeholders’ command over the resource. Institutions are structures of social order that affect how people behave.

The entitlement map shown in Figure 0-6 is a simplified version of our complete analysis. The entitlements identified by the team with coding include the villagers’ use of the forest land for living, agriculture, and collecting materials for building and firewood. The team also identified institutions that influence the relationship between the villagers and the conserved forest land. Some of the institutions are formal such as the TAO, which is a part of the government, but others are informal such as the fact that the hill tribe villagers have lived on the land for almost 200 years, making it a social norm that they have had access to this land.

As shown in Figure 0-6, GIS maps are just one piece of the dynamic relationship between the hill tribe villagers and the conserved forest land. The hill tribe villagers in AGV have been using the land responsibly, even before the creation of the GIS maps. The entitlement map shows that **the villagers need the right to use the forest land in order to gain their entitlements, which allow them to maintain and/or improve their livelihoods.** These findings led to the generation of our recommendation and suggestions.
Conclusion

From this information, the team recommends that further evidence must be collected to inspire any policy changes regarding hill tribes’ legal residency on conserved forest land. This project provides a case study specific to two Tambons in AGV. More evidence of effective hill tribe forest management practices is needed before convincing the government and the public that national level policy changes on land use are warranted.

Researchers interested in promoting this social issue should conduct a broader investigation by creating more independent case studies on other hill tribes as well as the government’s and the public’s perception of hill tribes. This research will strengthen the claim that hill tribe villagers should be allowed to reside on and use conserved forest land. The team created a list of suggestions for further research:

- Future researchers should conduct case studies on other Amphoes that have used GIS technology for forest management. Different case studies may provide similar perspectives from local officials and villagers.
- Future researchers should study the cultural, spiritual and agricultural practices of other hill tribes to see if they can easily be mapped. If these practices prove to be similar to those of the Karen hill tribe in AGV, there is a high possibility that GIS can be a successful tool for forest management.
- Future researchers should interview higher level government officials on their perspectives of GIS and community based forest management. Higher level government
officials are a critical institution of this social issue, and their national agendas regarding hill tribes and conserved forest lands need to be investigated further. Researchers should also consider looking for evidence that could influence policy changes.

- Future researchers should consider interviewing or surveying Thai people about their perception of hill tribes. The team suspects that understanding the public perception of hill tribes could illuminate public misconceptions. NGOs or researchers can conduct these interviews or surveys, and if necessary, they can address misconceptions through an awareness campaign about the hill tribes and their lifestyles.

This project provides evidence to RTF in support of hill tribes’ rights to reside on and use conserved forest land. In the case of AGV, GIS was a successful tool for forest management. The project team hopes that this project will set the precedent for other GIS-based community forest management projects throughout Thailand, inspire researchers to study similar cases, and interview hill tribes and higher level government officials related to this social issue. The team is confident that additional research will strengthen the case of the hill tribes, and that they will eventually be allowed to maintain their livelihoods, with complete government support, on conserved forest land.
### Table of Contents

Abstract ........................................................................................................................................ i
Acknowledgements .................................................................................................................. ii
Authorship ................................................................................................................................... iii
Executive Summary .................................................................................................................. v
Table of Figures ...................................................................................................................... xv
Table of Tables ....................................................................................................................... xvii
1 Introduction ........................................................................................................................ 1
2 Background .......................................................................................................................... 4
   2.1 Geography of Amphoe Galyani Vadhana ................................................................. 4
   2.2 Deforestation ............................................................................................................. 5
   2.3 Hill tribes ................................................................................................................... 7
      2.3.1 Agriculture and the Royal Project................................................................. 8
      2.3.2 Misconceptions about Hill Tribes ................................................................. 8
   2.4 Forest Management and the Thai Government ......................................................... 10
   2.5 National Reserved Forest Act ............................................................................... 12
   2.6 Forest Management and the Rise of Community Forestry in Thailand .................. 13
   2.7 Community Forestry .............................................................................................. 14
      2.7.1 Community Forest Requirements in Thailand ............................................. 14
      2.7.2 Community Forestry Case Studies ............................................................... 15
   2.8 Geographic Information System ............................................................................. 18
      2.8.1 Geographic Data Types: Geodatabase and Documentation ......................... 20
      2.8.2 Ground Surveying: Collection of GIS Data .............................................. 20
      2.8.3 Participatory GIS ....................................................................................... 21
      2.8.4 GIS Data Analysis ..................................................................................... 21
      2.8.5 GIS Mapping Process in Amphoe Galyani Vadhana .................................... 22
   2.9 Entitlement Mapping .............................................................................................. 23
   2.10 Ostrom’s Principles for Managing a Common Resource ....................................... 26
   2.11 Summary ............................................................................................................... 27
3 Methodology ..................................................................................................................... 29
   3.1 Planning .................................................................................................................... 30
3.1.1 Meetings............................................................................................................ 32
3.1.2 Interviews........................................................................................................... 32
3.1.3 Coding Interviews.............................................................................................. 34
3.1.4 Site Observation.................................................................................................. 37

3.2 Objective 1 .......................................................................................................... 38
3.2.1 Interviews........................................................................................................... 38
3.2.2 Coding Interviews.............................................................................................. 38
3.2.3 Entitlement Map.................................................................................................. 39

3.3 Objective 2 .......................................................................................................... 40
3.3.1 Interviews........................................................................................................... 40
3.3.2 Coding Interviews.............................................................................................. 41
3.3.3 Analysis of GIS Maps......................................................................................... 41

3.4 Objective 3 .......................................................................................................... 42
3.4.1 Meetings........................................................................................................... 42
3.4.2 Interviews........................................................................................................... 42
3.4.3 Coding Interviews.............................................................................................. 43

3.5 Methodology Overview......................................................................................... 43

4 Results and Analysis................................................................................................. 46
4.1 Meetings............................................................................................................. 46
4.1.1 Raks Thai Foundation....................................................................................... 46
4.1.2 Church of Christ in Thailand ............................................................................ 48

4.2 GIS Map Analysis.................................................................................................. 51
4.2.1 Tambon Chaem Luang..................................................................................... 51
4.2.2 Village of Baan Mae La Oop .......................................................................... 53
4.2.3 Individual Land Plot Document...................................................................... 55

4.3 Interviews with Local Officials and Villagers ..................................................... 57
4.3.1 Tambon Administrative Organization Presidents........................................... 58
4.3.2 TAO Baan Chan Members............................................................................... 60
4.3.3 Mr. Chaluemchai - Phuyai Baan of Wat Chan Village................................... 62
4.3.4 TAO Baan Chan Kamnan............................................................................... 64
4.3.5 Mae La Oop River Basin Network Members.................................................. 65
4.3.6 Villager Working with GPS Technology......................................................... 68
4.4 Observation ................................................................................................. 69
  4.4.1 TAO Chaem Luang Meeting ................................................................. 69
  4.4.2 Site Observation....................................................................................... 71
4.5 Analysis Summary ......................................................................................... 78
4.6 Entitlement Map ........................................................................................... 84
5 Conclusion ........................................................................................................ 89
6 References ....................................................................................................... 92

Appendices .......................................................................................................... 95

Appendix A: Interview Questions for Tambon Administrative Organization (TAO) Presidents
............................................................................................................................. 95

Appendix B: Interview Questions for Tambon Administrative Organization Members,
Kamnan, and Phuyai Baan .................................................................................. 97

Appendix C: Interview Questions Mae La Oop River Basin Network Members .................. 99

Appendix D: Interview Questions for Villager working with GPS Technology ............... 101

Appendix E: Transcript of Interview with Mr. Veera Yingrakpetchan, TAO Baan Chan
President .............................................................................................................. 102

Appendix F: Transcript of Interview with Mr. Suchai Sonvised, TAO Chaem Luang President
............................................................................................................................... 114

Appendix G: Summary of Interview with Mr. Sutipong, TAO Baan Chan Vice President .... 123

Appendix H: Transcript of Interview with Mr. Kasan, TAO Baan Chan Secretary .......... 125

Appendix I: Transcript of Interview with Mr. Vinai Sirichaipruksa, TAO Baan Chan Member
.............................................................................................................................. 135

Appendix J: Transcript of Interview with Mr. Samart Dejitja, TAO Baan Chan Member..... 141

Appendix K: Transcript of Interview with Mr. Chaluemchai Piriyalakhun, Phuyai Baan Baan
Wat Chan Village .................................................................................................. 156

Appendix L: Transcript of Interview with the Kamnan of Baan Wat Chan village .......... 172

Appendix M: Transcript of Interview with Mr. Lom Tanrin, Mae La Oop River Basin Network
Member .................................................................................................................. 180

Appendix N: Summary of Interview with Mr. Vijid, Mae La Oop River Basin Network
Member .................................................................................................................. 194

Appendix P: Summary of Interview with Mr. Leme Sinmitrapab, Mae La Oop River Basin
Network Member .................................................................................................... 197
Appendix Q: Transcript of Interview with Mr. Thayakorn Gaechue, a Village GPS User ..... 199
Appendix R: English Translation of Tambon Chaem Luang GIS Map .................................. 206
Appendix S: English Translation of Baan Mae La Oop Village GIS Map .......................... 209
Appendix T: Translation of Community Regulations from Figure 4-3 ................................. 212
Appendix U: Individual Land Plot Document ....................................................................... 214
Glossary .................................................................................................................................. 216
# Table of Figures

<table>
<thead>
<tr>
<th>Figure No.</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>A Villager and Her Strawberry Farm</td>
<td>v</td>
</tr>
<tr>
<td>0-2</td>
<td>Residential Area in Baan Hui Hom Village</td>
<td>v</td>
</tr>
<tr>
<td>0-3</td>
<td>Interviews with Mae La Oop River Basin Network Members</td>
<td>v</td>
</tr>
<tr>
<td>0-4</td>
<td>A) Controlled Burn in Agricultural Area B) Terraced Farming Area</td>
<td>vi</td>
</tr>
<tr>
<td>0-5</td>
<td>Tambon Chaem Luang Meeting on Drafting Local Legislation on Natural Resource and Environment Management</td>
<td>vii</td>
</tr>
<tr>
<td>0-6</td>
<td>Entitlement Map for Hill Tribe Villagers Living on Conserved Forest Land in Amphoe Galyani Vadhana</td>
<td>ix</td>
</tr>
<tr>
<td>1-1</td>
<td>Amphoe Galyani Vadhana of Chiang Mai Province (Google, 2015)</td>
<td>5</td>
</tr>
<tr>
<td>1-2</td>
<td>Deforestation in Thailand (Bruneau, 1995)</td>
<td>6</td>
</tr>
<tr>
<td>1-3</td>
<td>Migration of Hill Tribes to Northern Thailand (Young, 1974)</td>
<td>7</td>
</tr>
<tr>
<td>1-4</td>
<td>Levels of the Thai Government</td>
<td>10</td>
</tr>
<tr>
<td>1-5</td>
<td>GIS Map of Dam Locations and Watershed Areas in Baan Sam Sob Village</td>
<td>19</td>
</tr>
<tr>
<td>1-6</td>
<td>Environmental Entitlement Map (Leach, 1999)</td>
<td>24</td>
</tr>
<tr>
<td>1-7</td>
<td>Marantaceae Leaf Collection in Southern Ghana (Leach, 1999)</td>
<td>25</td>
</tr>
<tr>
<td>1-8</td>
<td>Project Methodology</td>
<td>30</td>
</tr>
<tr>
<td>1-9</td>
<td>Transcript from Coder 1 during Highlighting Process</td>
<td>36</td>
</tr>
<tr>
<td>1-10</td>
<td>Transcript from Coder 2 during Highlighting Process</td>
<td>36</td>
</tr>
<tr>
<td>1-11</td>
<td>GIS Map of Tambon Chaem Luang</td>
<td>52</td>
</tr>
<tr>
<td>1-12</td>
<td>Enlargement of Land Use Types from Tambon Chaem Luang</td>
<td>53</td>
</tr>
<tr>
<td>1-13</td>
<td>GIS Map of Baan Mae La Oop Village</td>
<td>53</td>
</tr>
<tr>
<td>1-14</td>
<td>Enlargement of Community Rules for Baan Mae La Oop</td>
<td>55</td>
</tr>
<tr>
<td>1-15</td>
<td>Individual Land Plot Document 0001-01</td>
<td>56</td>
</tr>
<tr>
<td>1-16</td>
<td>Interview with TAO Baan Chan President</td>
<td>58</td>
</tr>
<tr>
<td>1-17</td>
<td>Interviews with TAO Baan Chan Members</td>
<td>60</td>
</tr>
<tr>
<td>1-18</td>
<td>Interview with Phuyai Baan</td>
<td>62</td>
</tr>
<tr>
<td>1-19</td>
<td>Interview with the Kamnan</td>
<td>64</td>
</tr>
<tr>
<td>1-20</td>
<td>Interviews with Mae La Oop River Basin Network Members</td>
<td>66</td>
</tr>
<tr>
<td>1-21</td>
<td>Baan Huai Khiat Haeng Village Residence</td>
<td>68</td>
</tr>
<tr>
<td>1-22</td>
<td>Tambon Chaem Luang Meeting on Drafting Local Legislation Called Management of Natural Resource and the Environment</td>
<td>70</td>
</tr>
<tr>
<td>1-23</td>
<td>Different Zones in Tambon Chaem Luang</td>
<td>71</td>
</tr>
<tr>
<td>1-24</td>
<td>Examples of Conserved Forest Boundaries next to a) Agricultural Area and b) Residential Area</td>
<td>72</td>
</tr>
<tr>
<td>1-25</td>
<td>Residential Areas in Baan Hui Hom Village</td>
<td>72</td>
</tr>
<tr>
<td>1-26</td>
<td>Agricultural Practices: A Villager and her Strawberry Farm and a Terraced Farming Area</td>
<td>73</td>
</tr>
<tr>
<td>1-27</td>
<td>Harvested Logs Underneath Village Houses</td>
<td>74</td>
</tr>
</tbody>
</table>
Figure 4-18: Villager Rice Storage Containers................................................................. 74
Figure 4-19: Controlled Burn in Agricultural Field............................................................ 75
Figure 4-20: Pine Trees Stripped for Rubber....................................................................... 75
Figure 4-21: Signs Demarcating Zones of a) Economic Forest and b) Conserved Forest .... 76
Figure 4-22: A & B) Conserved Watershed Area C) Conservation Sign................................ 77
Figure 4-23: Entitlement Map for Hill Tribe Villagers Living on Conserved Forest Land in
Amphoe Galyani Vadhana........................................................................................................ 85
**Table of Tables**

Table 3-1: Data Collection Schedule for Site Visit ................................................................. 31  
Table 3-2: List of Meetings and Interviews in Chiang Mai ......................................................... 33  
Table 3-3: Conceptual Categories for Coding by Objectives ..................................................... 35  
Table 3-4: Conceptual Categories for Coding Objective 1 ....................................................... 39  
Table 3-5: Conceptual Categories for Coding Objective 2 ....................................................... 41  
Table 3-6: Conceptual Categories for Coding Objective 3 ....................................................... 43  
Table 3-7: Project Methodology Timeline .................................................................................. 45  
Table 4-1: Cultural, Agricultural and Forest Management Practices in Amphoe Galyani Vadhana ....................................................................................................................... 79  
Table 4-2: Participation of Actors in GIS Mapping and Executive Decision-Making Processes 80  
Table 4-3: Phases for GIS Mapping Process with Actors, Activities, Tools and Outcomes ....... 82  
Table 4-4: Comparison of Ostrom's Eight Principles for Managing a Common Resource to Case Study of Amphoe Galyani Vadhana ................................................................................................................................. 83
1 Introduction

Across the globe, approximately 1.6 billion people rely directly on nearly 160 million km$^2$ of forests for food, water, and shelter (World Wildlife Fund, 2014). They live, cultivate, and hunt on forest lands. Forests provide ecological functions such as watershed regulation and biodiversity preservation that enhance the quality of life of forestry communities (Kaiser et al., 2012). At the same time, humans destroy about 120,000 to 150,000 km$^2$ of forest each year, primarily through timber production (World Wildlife Fund, 2014).

From 1913 to 1998, Thailand lost approximately 50% of its total forest cover (Grainger, 2004). In response to Thailand’s deforestation problem, the Thai Parliament passed the National Forest Reserve Act of 1964 to prevent deforestation throughout Thailand (Parliament of Thailand, 1964). Through this Act, the Royal Forest Department (RFD) classified forests into economic, agricultural, and conserved forest areas (Ongprasert, 2011).

To assign these classifications, the RFD and the National Park, Wildlife, and Plant Conservation Department created maps of forested areas using aerial images taken from 1961-1964 (Jumsan & Somjit, personal communication, 2015). Since the technology of this time yielded low-quality images, many areas of residence and agriculture were indistinguishable from dense forest canopies (Kreuanjinli & Promit, personal communication, January 30, 2015). The RFD declared land, which appeared to be uninhabited, as conserved forest land (Areerat, 2014; Wichawutipong, 2006). Classification of the forests through the National Forest Reserve Act prohibits all use and residence within conserved forest zones (Parliament of Thailand, 1964).

This regulation impacts many Northern Thailand communities within Amphoe Galyani Vadhana (AGV) of Chiang Mai Province, such as the hill tribes, who are forest-dwelling, agricultural communities that rely on the resources within the conserved forest zones for their
livelihoods (Jumsan & Somjit, personal communication, January 30, 2015). The length of time that hill tribes have resided on this land is undocumented, but several sources estimate at least 200 years (Delang, 2002; Kijtewachakul, 2010; Lee, 2014; McQuistan, 2004). Although many hill tribes resided on conserved forest lands prior to their designation as conserved forests, the RFD classifies the residential status of many villages as illegal since they do not permit residency within conserved forest lands (Jumsan & Somjit, personal communication, January 30, 2015). As a result, hill tribe villages in AGV constantly face the possibility of arrest or removal from residences that they have occupied for many generations (Jumsan & Somjit, personal communication, January 30, 2015).

Raks Thai Foundation (RTF), a non-governmental organization committed to aiding disadvantaged communities, is addressing the challenge that the hill tribe villagers face. Approximately ten years ago RTF began collecting information with villagers who live on conserved forest land using Global Positioning Systems (GPS) technology to officially document hill tribe villages and their agricultural and forest management practices (Kreuanjinli & Promit, personal communication, January 30, 2015). To visualize these data, RTF uses Geographic Information System (GIS), an information technology that integrates hardware, software, and data in order to capture, manage, analyze and display all forms of geographically referenced data (Fazal, 2008). Local communities can use GIS to collect geospatial data that helps them visualize their own land while providing the government with a more comprehensive understanding of local land and resources (Kaiser et al., 2012). This GIS mapping process has widespread use throughout villages within the Tambons Baan Chan and Chaem Luang, sub-districts, of AGV, a district of Chiang Mai Province (Jumsan & Somjit, personal communication, January 30, 2015).
The main goal of this project was to evaluate hill tribe forest management practices in support of their residency and use of conserved forest land. Our team interviewed Tambon Administrative Organization (TAO) officials, hill tribe villagers, and members from a local resource management organization. We coded these interviews to identify the benefits of allowing hill tribe villagers to live in conserved forest land. Additionally, RTF provided the team with the GIS maps from AGV which villagers and Tambon officials use to manage the forest land. We analyzed the maps to determine what information is available by using the maps. Through interview coding and GIS map analysis, we determined how villagers and Tambon officials, otherwise known as TAO officials, use GIS maps for forest management and what benefits and challenges the villagers and Tambon officials face in using the maps. From these results, the team created an entitlement map which is a method for analyzing the relationship between a stakeholder, such as the villagers, and an environmental resource, like the conserved forest land. The entitlement map clarified the role of GIS maps, government offices, and other social institutions in the villagers’ relationship with the forest. The entitlement map also displayed the ways in which the villagers rely on the forest land to maintain their livelihoods.


2 Background

Our project focuses on hill tribe villagers and their use of Geographic Information System (GIS) technology combined with traditional practices to manage the forest land in Amphoe Galyani Vadhana (AGV) in the Chiang Mai Province of Northern Thailand. This chapter provides background information on the geography, people, government, and policies affecting hill tribes in this region. Although this report strives to be beneficial to other hill tribes or communities wishing to replicate AGV’s use of GIS for forest management, we recognize that each group has a unique social context, cultural history, and geographic location which must be researched and explored on a case-by-case basis. Therefore, the following sections focus on AGV and the hill tribe villagers living there. In addition to providing background information on these villagers, this chapter describes the Thai policies and branches of government relating to forest management, principles for resource management, GIS technology (as it pertains to resource management), and entitlement mapping, which is a method used for analyzing the social context of a geographically based issue.

2.1 Geography of Amphoe Galyani Vadhana

Thailand consists of four geographic regions, each one exhibiting its own unique terrain. The northern region, which includes Chiang Mai Province, is mostly mountainous, making the region the origin of most streams and rivers in Thailand. Just within the Mae Kok river basin, which spans the Chiang Mai and Chiang Rai Provinces, the total forested area covers approximately 4,934,000 rai or about 7,895 km$^2$ ("Mae Kok River Basin," 2012).
Amphoe Galyani Vadhana (see Figure 2-1), named after Her Royal Highness Princess Galyani Vadhana, is a district in Chiang Mai Province. The total area of the district is 404,740 rai or about 648 km² and has a population of approximately 10,593 people (Barnaud, Trebuil, Dumrongrojwatthanakul, & Marie, 2008). AGV consists of three sub-districts (Tambons), Baan Chan, Chaem Luang, and Mae Daet. These sub-districts divide further into 22 villages (Mhoobaan).

2.2 Deforestation

The area of forest land in Thailand has been declining for decades. Figure 2-2 shows the forest cover lost between 1970 and 1990. As shown in the figure, deforestation has occurred throughout most of Thailand, and the Northern region in particular shows signs of dramatic forest cover loss.

During the 1990’s, the nation’s annual deforestation rate, which nets deforestation with reforestation, exceeded the worldwide annual deforestation rate. From 1990 to 2000, Thailand experienced an average annual deforestation rate of 0.28%, well above the global annual average deforestation rate of 0.18%. However, from 2000 to 2011, the average annual deforestation rate in Thailand dropped to 0.02%, below the global rate of 0.11% (World Bank, 2014). This
decrease in deforestation rates occurred after the government allowed community forests on non-conserved forest land (Ongprasert, 2011).

The forests in the Chiang Mai Province are rich in tree species and provide a refuge for a diverse array of animals. These forests also offer numerous products such as honey beeswax, jam, herbs, vinegar, charcoal, and orchids (Hitchner & Cairns, 2009; McQuistan, 2004). Additionally, the forest ecosystem components interact with each other to purify air and water, control the climate, and recycle various nutrients and wastes (Kaiser et al., 2012). These forests do even more, playing a role in watershed regulation, biodiversity conservation and primary production (Kaiser et al., 2012; McQuistan, 2004). However, a majority of the previous forest areas in Chiang Mai Province are now weed-like grasslands due to deforestation. Thailand’s forest loss significantly impacts rural farming and forestry communities, like the hill tribes of Chiang Mai Province, which rely upon forest ecosystems for food, fuel, and shelter (Areerat, 2014).
2.3 Hill tribes

As shown in Figure 2-3 below, Thai hill tribes living in the forests of Northern Thailand are migrants from surrounding countries, mainly Burma, Laos, and China. Each tribe’s lifestyle, including their customs, language, dress, spiritual beliefs, and farming techniques, is unique. Hill tribe villages in Chiang Mai Province, which subsist on agricultural lifestyles, are among the most disadvantaged groups in Thai society due to delayed Thai citizenship and undocumented land settlement (Lee, 2014). The largest concentration of hill tribe members reside in Chiang Mai Province, totaling over 1,000 villages and over 200,000 members (Delang, 2002; FAO, 2014). The Karen hill tribe, whose members first migrated from Burma over 200 years ago (see Figure 2-3), is the largest and longest established tribal group in Northern Thailand (Lee, 2014). The following subsections explore the agricultural practices of the Karen hill tribe villagers in the Chiang Mai Province and public perceptions of the hill tribes in Northern Thailand.
2.3.1 Agriculture and the Royal Project

Hill tribe villagers practice two types of shifting cultivation agriculture on forest land: pioneer and rotational shifting. The Karen hill tribe favors rotational shifting cultivation. In rotational shifting, farmers cultivate the land then leave it fallow for a period of 6-10 years. The farmers reuse the land after the fallowing period (Delang, 2002; FAO, 2014). The Food and Agriculture Organization, which functions under jurisdiction of the United Nations, does not classify shifting cultivation as an act of deforestation (FAO, 2014). The Karen hill tribe lives a sedentary lifestyle, cultivating on rotating plots of land while leaving other plots of land to fallow.

In order to help the hill tribes increase their prosperity, His Majesty King Bhumibol Adulyadej started a Royal Project\(^1\) in 1977 to address hill tribe agriculture in Chiang Mai Province (Wechsler, 2014). Through this project, the King introduced techniques for water conservation and new crops like avocado and Japanese pumpkin to needy farmers living on conserved forest land in AGV (Sirichaiprueksa, 2015). Villages send their highest quality produce to the Royal Project which mediates sales to businessmen, increasing the hill tribes’ income (Wechsler, 2014). Although the government endorses the Royal Project, which supports hill tribe livelihoods, the public’s perception of the hill tribes is generally negative (Forsyth & Walker, 2008). Misinformation has led Thai society to believe that hill tribe agriculture causes deforestation (Forsyth & Walker, 2008).

2.3.2 Misconceptions about Hill Tribes

There has been a consistent lack of accurate literature on hill tribe agricultural practices in Northern Thailand (Forsyth & Walker, 2008). Generalized assumptions about agriculture in

\(^{1}\) Royal Projects are humanitarian programs initiated by His Majesty in order to assist hill tribe people (Wechsler, 2014).
the highlands of Thailand have resulted in public misconceptions on the nature of hill tribe agricultural and forest management practices. Information on hill tribe agriculture is often gathered without sufficient research or attention to the hill tribes’ dynamic social and environmental relationship with the land (Forsyth & Walker, 2008). Media has often portrayed hill tribes practicing swidden agriculture (shifting cultivation) in Northern Thailand as the destroyers of the forest. In the Bangkok Post, a popular Thai newspaper, hill tribes have been blamed for “increasing sedimentation, reducing the amount of rainfall…worsening flooding during the rainy season, and drought during the dry season” throughout Thailand as a result of their agriculture practices (Delang, 2002; Kanwanich, 1997a; Kasem, 1996). However, the media did not support these claims with credible scientific evidence. Furthermore, limited research on the hill tribes has made it difficult to determine the accuracy of these statements.

In 1997, the Bangkok Post published a series of influential news articles on the Hmong hill tribe about their “various tactics [used] to exploit watershed forests without being punished.” The journalist stated that “the highlanders continue to consider the mountain slopes their private fiefdom, shrugging off lowland rules and regulations, they only have stubbornness and inaccessibility on their side” (Kanwanich, 1997a, 1997b, 1997c; Lohmann, 1999). Although this journalist targeted the Hmong, hill tribes in Northern Thailand are often marginalized as one group of people with common positive or negative attributes (Forsyth & Walker, 2008). This shared identity means that the public’s negative perception of hill tribes like the Hmong, regardless of whether it is justified, has impacted views on other hill tribes as well. Similarly, national Thai policies on forest management treat all hill tribes in Northern Thailand without distinction.
2.4 Forest Management and the Thai Government

The Thai government consists of 20 national ministries which are divided into departments (Parliament of Thailand, 2002). The ministries which directly affect forest management practices in Thailand are the Ministry of Natural Resources and the Environment (MNRE) and the Ministry of Interior (MOI) as seen in Figure 2-4 below.

![Figure 2-4: Levels of the Thai Government](image)

The MNRE is responsible for the maintenance of natural resources and the restoration of the environment in Thailand. One of the three departments under this ministry is the Royal Forest Department (RFD). The duties of the RFD include controlling, monitoring and preventing the destruction of forests, as well as permitting use of wood and forest land. This department is

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2 Our team created this graphic using information from the Ministry Improvement Act B.E. 2545.
also responsible for suppressing encroachment and illegal activities within the forests (Ministry of Natural Resources and Environment, 2011).

The Ministry of Interior (MOI) is responsible for managing land and supervising local government agencies. They aim to improve the quality of life of the public population (Parliament of Thailand, 2002). The MOI consists of the Department of Local Administration (DLA) which provides support to Local Administrative Organizations (LAO). LAOs break down into the levels of Province, Amphoe, and Tambon. The MOI appoints DLA officers to make sure that LAO officers receive the necessary support to follow national policies (Department of Local Administration, 2011).

Officials at the provincial levels have authority that extends over the lower levels. The first subsequent level under the provincial level is the district level, known as the Amphoe in Thai. The Amphoe is then further divided into sub-districts, called Tambons, which are comprised of local administrative villages (Parliament of Thailand, 2002). Customarily, the village headman (Phuyai Baan) or sub-district headman (Kamnan) lead both the Tambon and village levels through a Tambon Administrative Organization (TAO). The TAO is comprised of elected members from the administrative villages in a Tambon. The TAO’s relevant responsibilities include considering and approving Tambon development plans called Management of Natural Resources and Environment (Parliament of Thailand, 1994). This project examines forest management within the Tambons of Chaem Luang and Baan Chan of AGV.

AGV, which contains the Tambons of Chaem Luang, Baan Chan, and Mae Daet, was established in 2009 by a Royal Decree. Prior to the establishment of AGV, residents of this region were under the jurisdiction of Amphoe Mae Chaem. The remote mountainous location of

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3 Some sources refer to the Tambon Administrative Organization (TAO) as the Sub-District Administrative Organization (SAO).
these Tambons made communication with government authorities difficult. To address this, AGV was established as a means to make communication with district governments more feasible for Tambons Baan Chan, Chaem Luang, and Mae Daet. Additionally, AGV was established to promote local development and legislation in remote forested areas (Parliament of Thailand, 2009). About 98% of AGV’s population consists of Karen hill tribe villagers (Kapook Travel, 2011). The following sections describe the national regulations which the Ministry of Natural Resources and Environment and the Ministry of Interior enforce.

2.5 National Reserved Forest Act

The National Forest Act of 1941 was one of the first pieces of legislation on the use of forest lands in Thailand. However, this act did not include any restrictions or rules addressing conserved forests. In order to prevent deforestation, the Parliament of Thailand passed the National Reserved Forest Act in 1964. This was the first act that established areas of conserved forests with demarcated boundaries. Although the 1964 Act did propose strict regulations on lodging in conserved land, it did allow for several exceptions. Section 12 of the act, for example, states that people who had originally lived on forest land before it was officially declared to be conserved could make a written request to the district chief to gain legal residence (Parliament of Thailand, 1964). Section 16 allowed people to live on reserved forest land as long as they gained approval from the Minister of Natural Resources and Environment. The permitted period of utilization was usually between five and thirty years. Once the permit expired, people could either apply for an extended permit or leave the land. Under Section 25, the government has the power to “seize, destroy, [or] demolish” any object or person which may “harm or decay a

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4 The Thai government amended the National Reserved Forest Act of 1964 in 1985. However, this amendment addressed issues pertaining to degraded forest only. So, it is not relevant to land use in Amphoe Galyani Vadhana (Parliament of Thailand, 1985).
condition of national reserved forest” (Parliament of Thailand, 1964). Therefore, even though there are laws prohibiting the use of nationally conserved forests, there have been precedents of the government permitting people to live there, as long as those people are knowledgeable of the law and file for a formal petition. The hill tribe villagers in AGV did not apply for these permits, because they had limited contact with government representatives at this time (Parliament of Thailand, 2009). AGV and subsequent government offices had not yet been established in this region. So, maintaining communication with government representatives was inconvenient (Parliament of Thailand, 2009).

2.6 Forest Management and the Rise of Community Forestry in Thailand

The RFD supported and drafted numerous laws (i.e. National Forest Act of 1941, National Reserved Forest Act of 1964) that put forest management decisions in the control of national ministries and departments (Ongprasert, 2011). However, the national logging ban of 1989 spurred responses from Thai farmers and forest dwellers to demand a redistribution of forest lands to Thai citizens (Forsyth, 2007). Community forestry, a method of resource and land management which integrates the knowledge of local communities with national government agendas, became a popular strategy among local activists and national authorities (Kaiser et al., 2012). National farmers’ organizations and forest dwellers created an unofficial community forest bill which allowed local communities to establish and manage community forests (Forsyth, 2007). In response to this bill, the RFD drafted their own community forest bill in 1990 to ensure that the RFD could meet their own standards of forest management while allowing local communities to maintain national forest land (Ongprasert, 2011). The Tambon Council and Tambon Administrative Act of 1994 redistributed administrative power to sub-district (Tambon) governments (Parliament of Thailand, 1994). The Tambon Administrative Act placed the power
to approve resource management and development plans within Tambons in the hands of the TAO rather than the national government (Parliament of Thailand, 1994). Thus, the Tambon Administrative Act simplified the process for approving a community forest.

2.7 Community Forestry

Community forestry is a model of forest management which includes collaborative ownership over a communal property. In community forestry, local communities and national government agencies collaborate to generate effective solutions for forest management plans (Kaiser et al., 2012). Local communities understand their lands and local ecosystems with a great familiarity and level of knowledge that is only achievable by living on that land. Thus, the knowledge and experience of local communities is invaluable to governments which do not have the same intimate experience with the land (Forrester & Cinderby, 2014). As previously discussed, the hill tribes in Northern Thailand have extensive knowledge of cultivation practices and methods for maintaining forest ecosystems. In cooperation with Tambons of the Chiang Mai Province, local officials in AGV have recognized hill tribe villagers as members of the community, and as such, they have established an arrangement closely resembling a community forest. For these hill tribe villagers to establish a community forest, they must meet official Thai community forestry requirements.

2.7.1 Community Forest Requirements in Thailand

Community forest organizations in Thailand must follow a series of steps to become legal community forests. The requirements to establish a legal community forest (CF) on non-conserved forest land are listed below:

1. Develop a detailed CF management plan
2. Demarcate forest land into specific zones
3. Identify and signify the CF members and committee members

4. Zone the community forest land for conservation, marking the location of non-timber product and timber utilization (not located in the conservation zone)

5. Use the timber products planted and harvested within the community, but do not sell the timber products (Kijtewachakul, 2010).

RFD registers and establishes community forest organizations which meet these requirements (Ongprasert, 2011). Once established, community foresters manage zones for protecting forests, for sustaining life, and for economic use (Saenpakdee & Thiengkamol, 2012). This breakdown of land enables the fulfillment of government policies and the maintenance of agricultural livelihoods. To incorporate community forestry in national laws, the Thai government and related parties have drafted and passed legislation to legalize the existence of community forests. However, to this date the RFD does not permit the establishment of community forests on forest land zoned as conserved forest. Hence, the hill tribe villagers of AGV are not currently eligible to create an official community forest arrangement.

2.7.2 Community Forestry Case Studies

Rural populations worldwide often depend on forest resources for survival. These communities often employ similar management practices to conserve and sustainably use forests. Globally, community forestry has been identified as a successful management practice among rural populations that depend on forests (Kaiser et al., 2012). This section reviews several case studies on this topic.

2.7.2.1 Latin America: Influence of National Level Governments in Community Forestry

In a study conducted over three decades, the United States Agency for International Development documented best practices and key lessons regarding community forestry in Latin
American countries. A common theme throughout these countries was the failure of community forestry due to purely technocratic solutions directed by larger government organizations. The study focused on policy reforms regarding forest communities’ rights to forest lands and community based forest management.

Some of the key lessons from this study were the importance of community planning at the local level, engagement between stakeholders and rights-holders, and cross-cultural communication when implementing community forest management. Additionally, the study recognized the influence of national governments during the planning process. Through institutions, laws, and policies, national governments can either dissuade or empower local communities to take on roles as protectors of forested lands. If national governments acknowledge community governance and fair representation rights, they can allow forest communities to become engaged stakeholders and resource guardians (Alcorn, 2014).

2.7.2.2 Vietnam: Impact of Limited Land Ownership on Rural Livelihoods

A study done by the World Bank includes suggestions for alleviating poverty in rural and mountain communities in Vietnam. As a country where 90% of impoverished people live in rural, typically mountainous, regions, Vietnam holds many lessons and models for rural development. Because of limited land ownership in rural regions and the small amount of space available to communities, rural farmers use farming practices which cause degradation to the land. In turn, this degradation has significantly decreased the ability of farming communities to sustain them. One main suggestion is to involve local communities in the process of creating policies surrounding farming, agriculture, and land management (World Bank, 2005).
2.7.2.3  Huai Lu Luang, Thailand: Dependence of Community Security on Legal Land Tenure

In her Master of Science paper for the study of Resource Conservation, International Conservation, and Development, Kimberly Roberts evaluated the potential for the village of Baan Huai Lu Luang in Chiang Rai Province, Thailand to operate effectively as a community forest. Akha and Yellow Lahu ethnic groups reside in this village. Through the Eight Principles of Common Pool Resource Management which Elinor Ostrom created (see Section 2.10), Roberts determined that this village complied strongly with 73% of the requirements established to sustainably manage forest lands as a common resource (Ostrom et al., 1994; Roberts, 2011).

Via community mapping efforts using GPS (Global Positioning Systems) technology, the villagers have clearly demarcated boundaries for their lands, and they have been more capable of solving intra-village and inter-village land disputes. However, there is a lack of technological resources to continue successful mapping efforts over time. Despite having developed a detailed plan for community forest management, the villagers do not have legal land rights for the forest area. The villagers are concerned that if they cannot achieve legal tenure of their lands their cultural traditions and practices will be lost (Roberts, 2011).

2.7.2.4  Case Studies Summary

From these case studies, it is shown that access to legal land rights impacts rural livelihood sustainability and community security. Additionally, national level governments have the ability to empower local communities and influence them to safeguard natural resources. Demarcating and mapping land boundaries through technologies like GIS/GPS also helps to solve local level disputes concerning natural resources without needing to involve higher levels of government.
2.8 Geographic Information System

Mapping Geographic Information System (GIS) data for land use purposes provides a visual model of how people use land. GIS is an information technology that integrates hardware, software, and data for capturing, managing, analyzing and displaying all forms of geographically referenced material (Wise, 2013). GIS improves communication and understanding between multiple parties by providing a consistent method for record keeping on geographic data (aka geographical data, spatial data). Thus, GIS is a promising tool for political decision-making when an issue involves geographic features (Kaiser et al., 2012). This project utilized GIS maps which a non-profit organization, Geo-Informatics and Space Technology Development Agency (GISTDA), created from GPS data that Raks Thai Foundation (RTF) helped hill tribe villagers and TAO officials collect.

GIS provides users with the ability to visualize, question, analyze, and interpret complex geographic data by displaying it in the form of scaled maps (Burdett & Bowen, 2013). This visualization helps users to recognize patterns or trends in data (Pourabbas, 2014). For example, Figure 2-5 below shows a data visualization of the location of dams and watershed areas in Baan Sam Sob Village of Chiang Mai Province. Compared to a tabular data form, this GIS map displays various types of land use in a clear, visual format.
GIS provides an additional advantage in that it allows users to access geographic database management systems, which store GIS data collected by multiple users (Pourabbas,

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5 The team received this map from Raks Thai Foundation in November of 2014.
GIS users can manipulate these data sets by sorting, classifying, and displaying data based on topological and statistical criteria (Wise, 2013).

### 2.8.1 Geographic Data Types: Geodatabase and Documentation

Geographic data consist of two types, geodatabase and documentation. Geodatabase data contain the pieces of information which actually form a map. Geodatabase data can be represented in two sub-types: raster data, which take tabular form, or vector data, which take the form of x-y coordinates (Pourabbas, 2014). Documentation data, the second type of geographic data, are text files relating to the geodatabase data, which contain content quality, creation, and spatial information about a dataset. GIS depicts geographic and documentation data layers to provide visual and textual representation on maps (Wise, 2013).

### 2.8.2 Ground Surveying: Collection of GIS Data

Although several methods for collecting GIS data exist, ground surveying with Global Positioning Systems (GPS) technology is the most accurate method to date (Castree, Kitchin, & Rogers, 2013). Global Positioning Systems (GPS) is a technology which triangulates based on signals from three to four satellites to identify exact geographic locations of a handheld GPS remote (Lerner, 2014). The GPS remote records geographic positions with the formula:

\[
\text{Distance} = \text{Velocity} \times \text{Time}
\]

by measuring the length of time that a radio signal takes to reach and return from a satellite (Wise, 2013). Ground surveying requires a surveyor to carry the GPS remote over a geographic region in order to record data on this region (Castree et al., 2013). Since the surveyor must physically occupy all the points on the boundary mapped, he/she must be familiar with the land under examination in order to produce accurate maps. Despite this requirement, the benefit of ground surveying is that the GIS maps produced can accurately display boundaries for categories
such as land use, which depend on knowledge of human interaction with the land (Al-Wadaey & Ziadat, 2014). A simple mapping of geographic features does not provide this information. Through this process, the surveyor comes to understand the boundaries displayed not only as part of a two dimensional map, but as physical locations in space. Thus, in GIS mapping via ground surveying, the participation of parties which use the land, in addition to official surveyors (usually associated with the government, educational institution, or non-profit organization), can lead to a common understanding of the geographic area by both parties (Kaiser et al., 2012).

2.8.3 Participatory GIS

In Participatory GIS (also known as community mapping), community stakeholders (parties which use/depend on the land) provide input during the mapping process (Forrester & Cinderby, 2014). Community stakeholders assist in the surveying process, often by physically accompanying the surveyor, to ensure that the surveyor maps boundaries accurately (Kaiser et al., 2012). Additionally, community stakeholders may provide information during consultation meetings which surveyors can digitize as documentation data during the data analysis phase of GIS mapping (Al-Wadaey & Ziadat, 2014).

2.8.4 GIS Data Analysis

GIS software, such as ArcMap10, compiles GPS data on a map template. Users create a feature called an overlay by combining layers of data to yield a sophisticated representation of geographic data (Zhang et al., 2013). In GIS software, clipping and buffering datasets increase the accuracy and precision of the visual. Clipping is the selection of specific features from a data layer, e.g. land with a slope gradient greater than 15% or cities with populations less than 50,000 (Fazal, 2008). Users may create clip files from either unaltered layer files or overlaid layers. Buffering is the creation of a zone of specific dimensions. This command is useful when the
collected data represents the physical size of an attribute inaccurately (Fazal, 2008). Overlaying, clipping, and buffering are three tools used in GIS analyses that enable comprehensive data analysis on topics such as land use, culture, and even politics which involve geographically dependent issues.

GIS maps can organize data pertaining to land use as shown above in Figure 2-5. Hill tribe villagers and field staff collected and analyzed this GIS data through a participatory GIS process. The data in this map includes information on land use, such as conserved forest, economic forest, residential and agricultural areas. Mapping GIS data for land use purposes provides a clear, visual representation of a complex, geographically-dependent situation.

2.8.5 GIS Mapping Process in Amphoe Galyani Vadhana

In AGV, communities have been participating in community mapping with GIS for approximately ten years in order to document the residential and agricultural areas of hill tribe villagers. Amphoe Mae Chaem and Aom Goi are also working on community mapping. RTF, a non-profit organization which aims to aid underdeveloped communities, has helped to facilitate GIS training and data collection in hill tribe villages. GISTDA, an organization at Chiang Mai University, provides the training materials and expertise to villagers in a three-day GIS/GPS training course. The trained villagers are volunteers who conduct GPS surveying of land boundaries with the assistance of each landowner. GISTDA then analyzes the data collected by hill tribe villagers to create GIS maps by overlaying the GIS data on the government’s aerial maps (Jumsan & Somjit, personal communication, January 30, 2015). Although these GIS maps have been successful at helping hill tribe villages reach agreements with the government at the Tambon and local level RFD officers, they have yet to reach an agreement with the national Thai government. One way to increase the impact of GIS maps is to use them in conjunction with
other data analysis methods, such as entitlement mapping, to show the social context of the problem.

### 2.9 Entitlement Mapping

Dr. Amartya Sen, the 1998 Nobel Prize Winner in Economics, developed the analysis method of entitlement mapping to help examine the social and economic conditions of small populations within a small geographic region (Ghosal, 2000). An environmental entitlement map, as shown in Figure 2-6 below, breaks down the relationship between different social actors (aka stakeholders) and environmental goods and services into endowments and entitlements (Charles, 2012; Leach et al., 1999). Endowments refer to stakeholders’ rights to resources, while entitlements refer to stakeholders’ command over resources (Mitlin, 2013). As Figure 2-6 indicates, entitlements (control over resources) come from endowments (rights to resources).

---

6 In entitlement mapping, “rights” does not refer to “what people should have, but the range of possibilities that people can have” (Leach & Mearns, 1997). In our paper we use rights to refer to the hill tribes’ legal permission to use conserved forest land, not necessarily land deeds or ownership.
As shown in the example entitlement map in Figure 2-7, Leach classifies the relationship between leaf gatherers (stakeholders) and *Marantaceae* leaves (environmental good) into the endowment and entitlements. The endowment is the leaf gatherers’ legal rights over *Marantaceae* leaves, while the entitlements are the leaf gatherers’ ability to use the leaves to wrap their food or to sell them for income.
Figure 2-7: Marantaceae Leaf Collection in Southern Ghana (Leach, 1999)
Entitlement maps put the roles of institutions, including policies and/or branches of government, which affect the stakeholder, into perspective. Dr. Aurelie Charles, a lecturer in Global Political Economy, encourages the use of entitlement mapping to explain how national level decisions (such as national government policies) impact the wellbeing of individuals on local levels (Charles, 2012). According to Dr. Melissa Leach, the Director of the Institute of Development Studies, analysis by environmental entitlement mapping is a necessary component for resource management that involves minority groups (Leach & Mearns, 1997).

Entitlement mapping not only indicates the environmental needs of a minority group, but shows how feedback occurs as the stakeholders gain effective control over the environmental resource from which the endowments and entitlements stem (Leach et al., 1999). In this way, an environmental entitlement map outlines the dynamic social context of a geographically-based issue. Dr. Elinor Ostrom, a 2009 Nobel Laureate in Economic Sciences, recognized the importance of using analysis tools such as entitlement maps to contextualize an issue and consider all levels of impact from policy decisions (Ostrom, 2014). In conclusion, an entitlement map visually presents the reasons a group of people should have access to a resource and indicates which social actors and conventions impact that access.

2.10 Ostrom’s Principles for Managing a Common Resource

Dr. Elinor Ostrom, having researched community resource management in Nepal, Turkey, Guatemala, and Kenya, developed a set of eight principles to guide communities on how to manage a resource sustainably and equitably. The principles are as follows:

1) Define clear group boundaries
2) Match rules governing use of common goods to local needs and conditions
3) Ensure that those affected by the rules can participate in modifying the rules
4) Make sure the rule-making rights of community members are respected by outside authorities

5) Develop a system, carried out by community members, for monitoring members’ behavior

6) Use graduated sanctions for rule violators

7) Provide accessible, low-cost means for dispute resolution

8) Build responsibility for governing the common resource in nested tiers from the lowest level up to the entire interconnected system (Ostrom et al., 1994).

A group of researchers from Indiana University analyzed 91 case studies on community based resource management to determine the validity of Ostrom’s principles and whether they are outdated (Cox, Arnold, & Villamayor Tomás, 2010). The researchers evaluated how well a community met Ostrom’s principles and compared this with the success of the community’s resource management methods. Sustainability and equitability were the measures of success.

The researchers found that Ostrom’s principles have been empirically well supported since their introduction (Cox et al., 2010). However, scholars critique these principles primarily for incompleteness since they do not address the community’s relationship with global and national level institutions. Therefore, by combining an evaluation of how a community meets Ostrom’s principles with an analysis like entitlement mapping, this case study provides a more complete view of the hill tribe villagers’ management of forest land in AGV.

2.11 Summary

Hill tribe villagers of AGV rely on forest land for their agricultural livelihoods. Their living situation is complex because the forests are disappearing, but the Thai government’s attempts to curb deforestation have not provided the hill tribe villagers with an opportunity to
secure their livelihoods. As residents of conserved forest land, hill tribe villagers are not eligible to establish an official community forest, in which the national Thai government would permit villagers to live on and manage forest land, regardless of how the villagers manage the forest. However, the hill tribe villagers have been involved in local decision-making processes with the Amphoe (district) and Tambon (sub-district) level government offices through participatory GIS mapping. Despite the support of these lower levels of government, the hill tribe villagers need evidence to convince the national government to allow their residency and use of conserved forest land. The following chapter describes the methods that the team used to evaluate hill tribe forest management practices to aid RTF in providing an argument for why the government should permit hill tribe villagers to live on and use conserved forest land in AGV.
3 Methodology

To facilitate cooperative use of forest land in Northern Thailand, the Raks Thai Foundation (RTF) has been documenting land use data in several hill tribe villages in Chiang Mai Province using GIS mapping for approximately ten years. In Amphoe Galyani Vadhana (AGV), there has been considerable progress in terms of reaching an understanding between the hill tribe villages and Tambon (sub-district) and Amphoe (district) levels of government. Specifically, Tambons Baan Chan and Chaem Luang have made considerable progress in this GIS mapping effort. The team conducted interviews in Baan Chan because this Tambon has already drafted and passed local legislation known as Management of Natural Resource and Environment, which the Tambon developed using GIS maps. The team conducted interviews in Chaem Luang because this Tambon was in the drafting process for similar legislation. The main goal of this project was to evaluate hill tribe forest management practices in support of their residence on and use of conserved forest land. Our team addressed this goal through three objectives:

1. To identify the benefits of allowing the hill tribe villagers to live in conserved forest.
2. To determine how hill tribe villagers and Tambon officials use GIS mapping.
3. To evaluate the benefits and challenges of using GIS mapping for forest management.

The project team examined the case of AGV where hill tribe villages have been practicing forest management and using GIS to support their occupancy of conserved forest land. Figure 3-1 shows the progression of our project. The methods for collecting data lead to the methods for
analysis that informed our case study on AGV. The team compared the findings of this case study to other case studies to examine the effectiveness of GIS as a tool for forest management. The following sub-sections in Chapter 3 describe our methods of gathering information and qualitative data analysis.

**Figure 3-1: Project Methodology**

### 3.1 Planning

Our team collected data in AGV with the aid of RTF. RTF chose to study Tambons Baan Chan and Chaem Luang in AGV because of their progress in drafting Tambon development plans, a form of local legislation known as Management of Natural Resources and Environment. Given the amount of available time to spend in AGV, travelling to Tambon Mae Daet, the district’s third Tambon, was unfeasible for this investigation. The team learned that Tambon Mae Daet has completed the GIS mapping process. The team decided that limiting the scope to two Tambons would not impact our results. The team finalized our schedule for gathering
information based on advice from RTF and CCT. The team collected qualitative data as the primary source of evidence through meetings, interviews, and observation, which RTF set up. Each objective’s respective section discusses supplementary methods specific to that objective.

With only one site visit, the team had four work days to collect data. Table 3-1 shows the team’s on site work schedule in Chiang Mai Province.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>CCT Chiang Mai Office, City of Chiang Mai</td>
<td>CCT and RTF Meetings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAO Baan Chan</td>
<td>TAO President Baan Chan Interview</td>
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<td></td>
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<td></td>
<td>TAO Baan Chan Member Interviews</td>
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<td></td>
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<tr>
<td></td>
<td>Phuyai Baan of Baan Wat Chan Village Interview</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Tambon Baan Chan Kamnan Interview</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>TAO Chaem Luang</td>
<td>TAO President Chaem Luang Interview</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mae La Oop River Basin Network Interviews</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Council Meeting Observation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baan Huai Khiat Haeng Village, Tambon Chaem Luang</td>
<td>Villager Interview</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forests and Villages, Tambon Chaem Luang and Tambon Baan Chan</td>
<td>Site Observation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.1.1 Meetings

The team met with RTF and CCT to learn more about the GIS mapping process and the challenges that the villagers face relating to their residency of conserved forest land. Prior to meetings, the team prepared a set of formal questions. However, RTF and CCT had prepared their own informal agenda for the meeting. Thai members of our team conducted the meeting in Thai while translating to English on site. The team posed questions in response to the information which RTF and CCT provided. With permission from RTF and CCT, the team recorded these meetings for later reference and to check the accuracy of notes which team members took during the meeting. Under the section titled “Meetings,” Table 3-2 includes a list of the individuals from RTF and CCT that the team met with, as well as their position in their organization and the objective of each meeting.

3.1.2 Interviews

The team collected qualitative data mainly through interviews with Tambon officials and villagers to obtain information from varying perspectives of people in the community. Under the section titled “Interviews,” Table 3-2 provides a list of interviewees as well as their organization, position, and the objective of each interview. The team arranged these interviews with the assistance of an RTF representative. Thai members of our team conducted the interviews in Thai. Due to the language barrier, a Thai speaking team member always paired with an English speaking team member. The Thai team members translated questions and responses from Thai to English on site to give the English speakers a chance to ask follow-up questions. Interviews occurred simultaneously with two, four, or eight members of the team, depending on time constraints, conducting each interview. Appendices A-D contain interview questions for TAO Presidents (Appendix A: Interview Questions for Tambon Administrative Organization (TAO)
Presidents), TAO Members, Kamnan, and Phuyai Ban (Appendix B: Interview Questions for Tambon Administrative Organization Members, Kamnan, and Phuyai Ban), Mae La Oop River Basin Network Members (Appendix C: Interview Questions Mae La Oop River Basin Network Members), and Villager Working with GPS Technology (Appendix D: Interview Questions for Villager working with GPS Technology).

At the beginning of each interview the team asked for consent from the interviewees to record the interviews. After receiving permission, the team recorded these interviews using an audio recording device. Thai speaking team members listened to recordings of these interviews, transcribed them into Thai, and translated them from Thai to English. Appendices E-P contain copies of transcripts from each interview listed in Table 3-2. Subsections 3.2-3.4 describe the interviews, intentions behind the questions asked and the importance of the questions to their respective objectives.

Table 3-2: List of Meetings and Interviews in Chiang Mai

<table>
<thead>
<tr>
<th>Name(s)</th>
<th>Position</th>
<th>Organization</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meetings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mr. Direk Kreuanjinli, Ms. Sarinthip Promrit</td>
<td>Director of Hill Tribe GIS Project, Representative from Chiang Mai Office</td>
<td>RTF</td>
<td>3</td>
</tr>
<tr>
<td>Mr. Tawin Somjit, Ms. Kwanjit Jumsan</td>
<td>Executive Director of Social Development and Service, Vice Director of Social Development and Service</td>
<td>CCT</td>
<td>3</td>
</tr>
<tr>
<td><strong>Interviews</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mr. Veera Yingrakpetchan</td>
<td>President</td>
<td>TAO Baan Chan</td>
<td>1,3</td>
</tr>
<tr>
<td>Mr. Sutipong</td>
<td>Vice President (TAO Member)</td>
<td></td>
<td>2,3</td>
</tr>
<tr>
<td>Mr. Kasan</td>
<td>Secretary to the President (TAO Member)</td>
<td></td>
<td>2,3</td>
</tr>
<tr>
<td>Mr. Samart Dejitja</td>
<td>TAO Member</td>
<td></td>
<td>2,3</td>
</tr>
<tr>
<td>Name</td>
<td>Position/Role</td>
<td>Location/Title</td>
<td>Code</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Mr. Vinai Sirichaiprueks</td>
<td>Village Vice President (TAO Member)</td>
<td></td>
<td>2,3</td>
</tr>
<tr>
<td>Mr. Chaluemchai Piriyalakhun</td>
<td>Phuyai Baan (villager headman) of Baan Wat Chan</td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>[Name not given]</td>
<td>Kamnan (sub-district headman)</td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>Mr. Suchai Sonvised</td>
<td>President</td>
<td>TAO Chaem Luang</td>
<td>1,3</td>
</tr>
<tr>
<td>Mr. Leme Sinmitrapab</td>
<td>President</td>
<td>Mae La Oop River Basin Network, Tambon Chaem Luang</td>
<td>1,2</td>
</tr>
<tr>
<td>Mr. Vijid</td>
<td>Secretary</td>
<td></td>
<td>1,2</td>
</tr>
<tr>
<td>Mr. Lom Thalim</td>
<td>Treasurer/Natural Resources Manager</td>
<td></td>
<td>1,2</td>
</tr>
<tr>
<td>Mr. Thayakorn Gaechue</td>
<td>Villager Working with GPS Technology</td>
<td>Baan Huai Khiat Haeng Village, Tambon Chaem Luang</td>
<td>1,2</td>
</tr>
</tbody>
</table>

### 3.1.3 Coding Interviews

The team analyzed the interview transcripts through open coding. Open coding is a process of breaking down, examining, comparing, and marking data by descriptive indicators (a code). Codes are assigned to label patterns and discover categories of information (Khandkar, 2009). The goal of coding is to build a descriptive conceptual framework which allows for analysis later. Our project team conducted the open coding process outlined below.

**Step 1: Conduct Interview**
See the section titled “Interviews” in Table 3-2 in Section 3.1.1 for list of interviewees.

**Step 2: Transcribe and Translate Interview**
See Section 3.1.3 for the process of transcriptions and translations.
**Step 3: Open Coding Highlighting**

Our project team began the highlighting in a group to make any important decisions and define concepts. The team created a series of codes pertaining to each objective. Table 3-3 includes the labels for the codes with their respective color shade.

<table>
<thead>
<tr>
<th>Table 3-3: Conceptual Categories for Coding by Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1</strong></td>
</tr>
<tr>
<td>Benefits of living in conserved forest</td>
</tr>
<tr>
<td>• Forest Management</td>
</tr>
<tr>
<td>• Conservation</td>
</tr>
<tr>
<td>• Preservation of Cultural Traditions</td>
</tr>
</tbody>
</table>

| **Objective 2** |
| Role in collecting GIS data | How GIS maps are used | Opinions on GIS |
| • Villagers | • Villagers | • Positive |
| • Tambon Officials | • Tambon Officials | • Negative |
| | | • Indifferent |

| **Objective 3** |
| Benefits | Challenges |
| • Community Self-Sufficiency | • Replicability |
| • Community Participation | • Limited Impact without Government Support |
| • Village and Tambon Maps | • Concern for Future Generations |
| • Marking Boundaries | |
| • Decreased Conflict |

Two group members coded each interview independently for these pre-established categories. Figure 3-2 and Figure 3-3 are examples of the highlighting from two coders of one interview. In both, the coders highlighted the first sentence as “Marking Boundaries” and the last sentence as “Forest Management.” The coders marked the second sentence differently. Coder 1 highlighted it as “Forest Management” while Coder 2 highlighted it as “Community Self-
Sufficiency.” In instances like this where coders did not agree on categories, the two coders discussed it before agreeing to accept only one category or to place the information under multiple categories. Having two independent coders during the process of highlighting provided two perspectives while reviewing the information.

**Figure 3-2: Transcript from Coder 1 during Highlighting Process**

**Figure 3-3: Transcript from Coder 2 during Highlighting Process**

**Step 4: Organize Sections in Excel**

The project team used Microsoft Excel to compile the highlighted information from each interview into the coding categories. Each interview had its own spreadsheet. The team copied the highlighted information and placed it into the respective categories to summarize the information as data.
Step 5: Group Comparisons
After the team placed information in their respective categories, the team compared the data from interviewees who held similar roles (the TAO Presidents, TAO Baan Chan members, and Mae La Oop River Basin Network Members). The team did not compare data from interviewees in which there was only one interviewee in that role (for example Phuyai Ban, Kamnan, and Villager Working with GPS Technology).

Step 6: Draw Conclusions
The final step in the open coding process was drawing conclusions from the summarized data. The project team summarized the data from all of the interviews based on three themes directly relating one theme to one specific objective. These themes were: Forest Management and Conservation Practices (Objective 1), GIS Mapping Process (Objective 2), and Benefits/Challenges of GIS for Forest Management (Objective 3).

3.1.4 Site Observation
Site observation, the second method of gathering information, allowed for photographic documentation of forest management legislation and practices in AGV. Team members observed a drafting of local legislation known as Management of Natural Resources and Environment during a TAO meeting in Tambon Chaem Luang. The team also visited hill tribe villages and forested areas in Tambon Chaem Luang and Baan Chan with RTF Field Officer Keattisak Chokparungrueng. Images captured include examples of villagers using the land and signs labelling land use zones of the forest in Tambons Baan Chan and Chaem Luang.

---

7 Management of Natural Resources and Environment is an example of a resource management and development plan that Tambons can draft to govern themselves as permitted by the Tambon Council and Tambon Administrative Act of 1994. See Section 2.6 for more detail.
3.2 Objective 1

Our first objective was to identify the benefits of allowing the hill tribe villagers to live in conserved forest land. To achieve this objective we conducted a series of interviews and observations in AGV. The team coded these interviews and collected information for an entitlement map displaying the relationship between the hill tribe villagers and the conserved forest land, including the ways in which the villagers use the forest land. The following sub-sections describe the interviewees and conceptual coding categories related to Objective 1 and the process of creating an entitlement map.

3.2.1 Interviews

The Thai members of our team conducted interviews with the TAO Presidents, Phuyai Baan, members of the Mae La Oop River Basin Network, and one member of a local village (See Table 3-2). We designed the questions for these interviews to understand the hill tribe villagers’ cultural and spiritual relationship with the forest, the livelihoods of the villagers, and the villagers’ techniques and strategies for managing the forest. In addition to understanding how the forest relates to the cultural identity of the villagers, we designed the questions to gauge the benefits of the mapping process to the local hill tribe villagers. Appendices A and D, under the General, Community Forest, and Reflection/Going Forward sections, contain the questions for these interviews.

3.2.2 Coding Interviews

The team coded these interviews pertaining to the benefits of having the hill tribe villagers live in conserved forest.

Table 3-4 below lists the categories for coding interviews as well as the colors associated with them.
The team coded the benefits of the villagers living on the forest land based on three categories: “Forest Management,” “Conservation,” and “Preservation of Cultural Traditions.” The team summarized this data to understand how the villagers use the forest and why it is important for them to remain living in it. For each interview the team described information relevant to the theme of Forest Management and Conservation.

### 3.2.3 Entitlement Map

The team also coded interviews for elements of the entitlement map. The team created an environmental entitlement map based on the template map in Figure 2-6, to show the relationships between the hill tribe villagers, the government (the Tambon, Amphoe and RFD), and the forests (Leach et al., 1999). In our entitlement map, the team examined conserved forest land as the environmental resource and the hill tribe villagers of AGV as the stakeholder (social actor). The team used information from interviews and research from the background chapter to create this map which shows the endowments (stakeholders’ rights to resources) and entitlements (stakeholders’ command over resources) that the villagers gain from the forest land. In addition to showing the relationship between the villagers and the forest land, this map shows the role of the Tambon, Amphoe, and RFD. Our entitlement map conceptually displays the hill tribe villagers’ dependence on conserved forest land. The team contacted Dr. Laureen Elgert, an

<table>
<thead>
<tr>
<th>Benefits of living in conserved forest</th>
<th>Entitlement Map</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Forest Management</td>
<td>• Institutions Involved</td>
</tr>
<tr>
<td>• Conservation</td>
<td>• Command Over Resources</td>
</tr>
<tr>
<td>• Preservation of Cultural Traditions</td>
<td></td>
</tr>
</tbody>
</table>

Table 3-4: Conceptual Categories for Coding Objective 1
assistant professor of environmental studies in the Social Science & Policy Studies Department at Worcester Polytechnic Institute, to review and validate our entitlement map.

### 3.3 Objective 2

Our second objective was to determine how hill tribe villagers and Tambon officials use GIS mapping. To achieve this objective the team conducted a series of interviews and observations in AGV to understand the purposes behind implementing the GIS mapping process and to learn how both the villagers and the Tambon officials use the GIS maps. The team analyzed the GIS maps acquired from the RTF, examining the GIS maps for forest management and comparing it to the coded information that the team gathered from interviewees. The following sub-sections describe the interviews, conceptual coding categories of Objective 2, and the GIS map analysis.

#### 3.3.1 Interviews

The Thai members of our team conducted the interviews with hill tribe villagers and Tambon officials from Baan Chan and Chaem Luang to understand more about the mapping process and the use of GIS in AGV. The team interviewed TAO Presidents, TAO Baan Chan members, the Phuyai Baan, Kamnan, members of the Mae La Oop River Basin Network, and one member of a local village. The Thai members of our team asked the same questions of each party involved regarding their involvement in the GIS mapping process. According to RTF, each group or individual interviewed held a different role in the mapping process. So the team aimed to collect information on their roles and opinions on the process. Appendices A and D, under the GIS Mapping Process section, contains interview questions regarding this objective.
3.3.2 Coding Interviews

The team coded the interviews based on what roles villagers and Tambon officials play in collecting GIS data, how they use GIS maps, and their opinions on this technology. Table 3-5 below lists the conceptual categories for coding interviews based on Objective 2.

<table>
<thead>
<tr>
<th>Role in collecting GIS data</th>
<th>How GIS maps are used</th>
<th>Opinions on GIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Villagers</td>
<td>• Villagers</td>
<td>• Positive</td>
</tr>
<tr>
<td>• Tambon Officials</td>
<td>• Tambon Officials</td>
<td>• Negative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Indifferent</td>
</tr>
</tbody>
</table>

The team summarized the data relating to the theme of Objective 2, GIS Mapping Process. The coding distinguished who uses the GIS maps and for what purposes. The team coded for opinions on GIS to assess the villagers and TAO officials’ ease or difficulty with the GIS mapping process. Coded information explaining the role of the contributors led to any possible challenges of replicating the GIS mapping process.

3.3.3 Analysis of GIS Maps

In AGV, many villages have already created GIS maps with the help of RTF, CCT, and GISTDA. The team acquired three types of GIS maps from RTF: a map of Tambon Chaem Luang, a map of Baan Mae La Oop Village, and an Individual Land Plot Document. These maps were in Thai, so the Thai members of our team translated them to English. The team examined the information represented on each map to see how the villagers and Tambon officials use GIS information. The team examined elements of each of the three types of maps including content and contributors. The team compared these maps to the information gathered in interviews about forest management and the GIS mapping process. By comparing the information from interviews and maps, the team confirmed how both the villagers and TAO officials use the maps.
3.4 Objective 3

The final objective was to evaluate the benefits and challenges of using GIS mapping for forest management. The team accomplished this through meetings with CCT and RTF and interviews in AGV. These meetings and interviews gave us direct perspectives from multiple viewpoints of the GIS mapping process in AGV. The team summarized meetings, coded interviews, and gathered photographs from observation to understand the use of GIS mapping for forest management. The following sub-sections describe the meetings and interviews and their analyses through coding.

3.4.1 Meetings

The team met with RTF and CCT to understand their involvement in the process of collecting GIS data within hill tribe villages in AGV. The team planned on meeting with GISTDA, the agency using ArcGIS software to generate the GIS maps for the process, but RTF suggested that the team meet with the CCT instead to learn more about the social and cultural aspects of this project. RTF and CCT took on the role of facilitators in the mapping process. So, the purpose of these meetings was to improve our understanding of the GIS mapping process and the maps as a tool for forest management.

3.4.2 Interviews

The team assessed the use of GIS as a tool for forest management in AGV by interviewing TAO Presidents, TAO Baan Chan members, the Phuyai Baan, the Kamnan, and one local villager. The team designed these interviews to understand the benefits and challenges of GIS maps as a tool for forest management. Appendices A, C, and D contain interview questions regarding Objective 3 under the GIS Map Product and Reflection/Going Forward sections.
3.4.3 Coding Interviews

The team coded interviews based on the benefits and challenges of GIS mapping as a tool for forest management. Table 3-6 below lists the conceptual categories for coding interviews based on Objective 3.

**Table 3-6: Conceptual Categories for Coding Objective 3**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Community Self-Sufficiency</td>
<td>• Replicability</td>
</tr>
<tr>
<td>• Community Participation</td>
<td>• Limited Impact without Government Support</td>
</tr>
<tr>
<td>• Village and Tambon Maps</td>
<td>• Concern for Future Generations</td>
</tr>
<tr>
<td>• Marking Boundaries</td>
<td></td>
</tr>
<tr>
<td>• Decreased Conflict</td>
<td></td>
</tr>
</tbody>
</table>

The team coded for specific benefits such as “Community Self-Sufficiency” and “Participation,” “Marking Boundaries” and “Decreased Conflict” and challenges such as “Replicability” and “Limited Impact without Government Support.” The team selected these categories to look for trends between the interviewees. The team anticipated the benefits would outweigh the challenges in the process for all interviewees. The team summarized this data under the theme for Objective 3, Benefits/Challenges of GIS for Forest Management.

3.5 Methodology Overview

The team aimed to evaluate hill tribe forest management practices in support of their residency and use of conserved forest land by achieving the three objectives explained above. As shown in Table 3-7, during the first three weeks of our project the team dedicated our time to research and site preparation for the interviews and meetings. During the third week the team travelled to Chiang Mai Province to begin qualitative data gathering. During the third and fourth weeks, the team conducted meetings, interviews, and site observations. Upon returning to Bangkok in the fourth week, the team began transcribing and translating interviews while
tangentially analyzing the maps and coding the interviews. The team concluded analysis with the creation of an entitlement map. The following chapter provides results from the data gathered and then analyzes the results that lead to the team’s conclusions and recommendations.
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<th>Week 1 Jan 11-17</th>
<th>Week 2 Jan 18-24</th>
<th>Week 3 Jan 25-31</th>
<th>Week 4 Feb 1-7</th>
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Table 3.7: Project Methodology Timeline
4 Results and Analysis

This chapter contains results from meetings and interviews conducted in Tambons Baan Chan and Chaem Luang of Amphoe Galyani Vadhana (AGV). This section includes summaries of our meetings, a discussion of the GIS maps, analysis of the interviews, and observations that the team made during meetings and site observation in Tambons Baan Chan and Chaem Luang. Analysis led to the creation of an entitlement map between the hill tribe villagers and the conserved forest land.

4.1 Meetings

The hill tribe villagers in Northern Thailand are working with Raks Thai Foundation (RTF) and Church of Christ in Thailand (CCT), two Non-Government Organizations (NGOs). RTF and CCT facilitate the hill tribe villagers’ collection of GPS data by providing training and equipment. The team met with the two NGOs to discuss forest management and the GIS mapping process. The interview summaries below detail the importance of using both GIS and traditional knowledge for forest management.

4.1.1 Raks Thai Foundation

The meeting with RTF focused mainly on the use of GIS maps for forest management. RTF representatives explained that they were searching for a tool to help convince the Thai government to allow the hill tribes to use conserved forest area. The hill tribe villagers only had hand-drawn maps, which the government does not accept. Ultimately, RTF chose GIS as a means of forest management because it is a credible tool which the Thai government, as well as most academic and international communities, accepts.
Benefits/Challenges of GIS for Forest Management:

Currently, villages within AGV have nearly reached an agreement with some local administrative authorities on local legislation known as Management of Natural Resources and Environment. The villagers, Tambon, and local RFD officers all mutually agree on the boundaries set by the GIS maps. However, the local RFD’s agreement is unofficial because the hill tribe villagers are still violating the National Reserved Forest Act of 1964. If the central government orders military planes to take aerial images of AGV, they may see that the villagers are practicing rotational shifting cultivation and misinterpret their agricultural practices as deforestation. In this case, Thai laws would require that the Chiang Mai Governor order the arrest of these villagers.

In response to the 1964 Act, the Thai government ordered the National Park, Wildlife, and Plant Conservation Department to make a new map of the forest to update their current knowledge on the forest and the villagers’ land use. However, the government did not include the villagers as participants in the map making process. “They made a mistake. This problem originated in the map making process because the Thai government did not include villagers’ land use in the official map,” said Mr. Direk, a RTF representative. RTF hopes that they can use the new GIS maps to retroactively show the government that the villagers have been living there.

Currently, the government does not accept the villagers’ GIS maps as official documents or agreements. However, the villagers can use their maps to reduce their own punishments. For example, in the province of Nan, the RFD arrested a villager for cutting down a tree in conserved forest area. The court declared the villager guilty and sentenced him to four years in jail. When the villager provided his Individual Land Plot Document as evidence to show that he has specific boundaries on his land use, the court reduced his sentence to four months of parole. RTF
organized and aided in the creation of these GIS maps, along with the CCT, another organization concerned with the social issues facing the hill tribes.

4.1.2 Church of Christ in Thailand

The meeting with the CCT concentrated on their efforts to facilitate and aid hill tribe villagers with their GIS mapping process. The CCT works with hill tribe villages on building leadership and fostering community development. The CCT’s most important ongoing project is Managing Natural Resources and Land Management for Hill Tribes via GIS. 

Benefits/Challenges of GIS for Forest Management:

The CCT is developing a GIS database for villages that can assist in reducing tension and increasing transparency on land use between the hill tribes and the Royal Forest Department (RFD). This database, which the CCT started planning ten years ago, provides a collection of data that users can access to create maps with specific information. When asked about their expected outcome of the project, Ms. Kwanjit, a CCT representative, responded that she hopes that the CCT can use the data which villagers collected to provide evidence of land use for future generations.

The CCT also believes that the hill tribes and authorities can reach a cooperative agreement, where the hill tribes help RFD officers to take care of and to restore conserved land. Ms. Kwanjit stated that this cooperative agreement would further reduce the amount of legal action taken against villagers who live on conserved land. Before the mapping process began, the police arrested villagers and held them at bail. The villagers often accept the accusations made against them to avoid going to court where they could lose their land if they lose the case. Since the mapping process began, there has not been any case of arrest that has gone to court in AGV. The police are familiar with the hill tribe villagers, so they empathize with the villagers’ situation
and prefer to not arrest them. The maps detailing the hill tribe villagers’ use of the land and the length of time that they have used it, enables the police to avoid arresting the villagers since GIS is an internationally recognized tool for mapping. However, the CCT is not confident that the maps will protect the hill tribe villagers if the RFD decided to arrest them.

The CCT explained that the maps could be helpful in preventing the arrests of the hill tribes because they include information on village agricultural practices. However, this is the main source of misunderstanding between the villages and the government. Using documentation data (discussed in Section 2.8.1), these maps allow communities to clarify that they practice rotational shifting cultivation instead of pioneer shifting cultivation which the public often perceives as destructive. The CCT stated that the maps show that villagers use only 5% of land in village boundaries for residence. The GIS maps help the villagers know the geographic location of their homes and serve as a means of regulating the community by showing villagers where the Tambon will allow them to cultivate (Figure 4-1 to Figure 4-5 are examples of such maps).

In addition, the villagers are using the maps to unofficially document their villages and populations of people in the highlands by including individual landowner information, such as their name, relationship status, Thai National ID, and address. The CCT stores this information, if the landowner provides it, in the form of documentation data linked to geodatabase data, giving the geospatial location of each individual landowner’s land. The CCT is aware that the Thai government does not officially accept this process of mapping for population documentation. However, they think that this information will help Thai government and Thai society understand not only where the hill tribe villagers are living, but how they are managing the forest. CCT also believes the maps can provide proof for current and future generations that the hill tribe villagers have not expanded their village boundaries. The CCT is preparing the
villagers to easily provide any information that government regulations demand of them. The CCT expects that all Tambons in AGV and throughout Thailand will eventually accept GIS maps. In the future this may allow for the development of national legislation permitting the hill tribes’ use of conserved forest land.

GIS Mapping Process:

The CCT representatives also described the GPS technology training process and their role in it. The CCT facilitates the training of volunteer GPS surveyors and collection of GPS data by mediating between the hill tribe villagers and GISTDA, who uses GIS software to create maps from the GPS data. To date, the CCT has helped 10 villages in Northern Thailand complete the mapping process. In each village, they set up a schedule for data collection. Then hill tribe villagers who volunteer as GPS surveyors complete a three-day training program with GISTDA to learn how to use GPS technology. The hill tribe GPS surveyors then receive a document explaining the training process and another document outlining the process for working with village landowners\(^8\) in GPS data collection. Landowners are responsible for collecting their own data with a trained GPS surveyor. The CCT stated that each landowner has 2-3 rai (3,200 – 4,800 m\(^2\)) of land and is responsible for assisting the GPS surveyor with mapping the land on which he/she lives and/or cultivates on. The village community cross-references Individual Land Plot Documents with the land use zones on maps created by GISTDA with the village to ensure that there are no inconsistencies between the two maps or any Individual Land Plot Documents. Then the CCT is in charge of transporting the data from AGV to GISTDA at Chiang Mai University to create the map.

\(^8\) The CCT and RTF refer to “landowners” as the hill tribe villagers residing on and/or using a piece of land even though they do not have a legal right to that land. Throughout our paper we use the term landowner in the same way.
Additionally, the CCT representatives described the process of mapping the GPS data to create GIS maps with the non-profit organization GISTDA. The CCT has been collaborating with GISTDA to create maps using GPS data. The CCT chose to work with this organization because GISTDA can process the raw GPS data and provide expert knowledge about the functionalities of GIS. GISTDA uses ArcGIS to create maps which the CCT transports from the GISTDA office to the hill tribe villages so that the Phuyai Baan can check the accuracy of the map and make corrections as needed. CCT repeats this process at least three times until the Phuyai Baan approves the map as correct.

CCT said that the most difficult part of the GIS mapping process was to change villagers’ perspectives and to encourage them to join the project. Ms. Kwanjit motivates villagers to participate by asking them, “will you manage [the land] yourself, or will you allow others to manage it for you?” Overall, the GIS mapping process requires the villagers to manage their own land, rather than letting outsiders take care of it and this provides a better sense of self-sufficiency.

4.2 GIS Map Analysis

The team analyzed GIS maps that RTF provided to compare the map with information collected from interviews. This section analyzes three maps: Tambon Chaem Luang, Baan Mae La Oop Village and an Individual Land Plot Document. Details on the Tambon and village level maps had similar formatting, legends, scales, and contributing parties. Each map contains a specific section highlighting forest management practices.

4.2.1 Tambon Chaem Luang

The first GIS map is Tambon Chaem Luang. Refer to Appendix R: English Translation of Tambon Chaem Luang GIS Map for translations of each red box of Figure 4-1 below.
The key features on this map of Tambon Chaem Luang are red boxes section 3 and 4. Red box section 4 is a table showing the percentages for different land use types. Residential land covers 1.98% of the total area. Agriculture land covers 35.7% of the total area. Forest area covers 62.32% of the total area. Figure 4-2 is an enlargement of red box section 3 from Figure 4-1. This table includes land use zones split up into three types: residential, agricultural, and forest areas. The village surveyors demarcated the boundaries of each of the zones which received an identifying color on the map. For example, under the “Forest Area” section, zones were marked as conserved forest area, watershed forest area, rehabilitation forest (areas where
forest is being regrown after excessive use or wildfire), forbidden spiritual forests, wildlife conservation forest, utilized or economic forest, general forest area, and forest area covered by water bodies. These zonings with unique conservation purposes suggest a holistic forest management plan within Tambon Chaem Luang.

Figure 4-2: Enlargement of Land Use Types from Tambon Chaem Luang

4.2.2 Village of Baan Mae La Oop

Figure 4-3 below is the GIS map of Baan Mae La Oop Village. Refer to Appendix S: English Translation of Baan Mae La Oop Village GIS Map for translation of each red box numbered on the map.

Figure 4-3: GIS Map of Baan Mae La Oop Village
While this map at the village level does not show land use percentages, it has detailed information regarding forest management in the village. Red box section 4 includes all village landowners and their respective areas of land in rai (1 rai = 1,600 m²). Village leaders and local officials use this information to keep track of agricultural areas which village landowners use. Unlike the map of Tambon Chaem Luang, the village map for Baan Mae La Oop includes village level regulations for managing the forest, referred to as Community Rules for Resource Management. Red box section 5 in Figure 4-3 displays these Community Rules that the village leaders and members created for managing natural resources and environment. Red boxes section 6 and 7 list the contributing people and organizations to the map, confirming the participation of community members (village members, village leaders, TAO officials) and local administrative organization representatives with their signatures. The identification of these community representatives explicitly in the map elevates the credibility of this type of maps as evidence of the villagers’ responsible and sustainable land and forest management practices.

Figure 4-4, which is an enlargement of the top half of red box section 5 from Figure 4-3, shows the Community Rule section from Baan Mae La Oop Village (Appendix T: Translation of Community Regulations from contains a full translation of the Baan Mae La Oop Community Rules).

The Community Rules pertain to conserved forest lands, rivers, and water bodies, trading of resources and land, and firewood/fuel collection. These rules suggest the existence of a comprehensive natural resource management plan within the village of Baan Mae La Oop. Red box section 1 of Figure 4-4 states that the villagers in Baan Mae La Oop must contribute to the conservation of forests, water sources, and rivers. This rule encourages conservation and promotes sustainable management of the forest land that the villagers use. Red box section 2 of
Figure 4-4 states that if an individual breaks one of the Community Rules, the village leaders may fine that individual 500 to 5,000 baht.

4.2.3 Individual Land Plot Document

In comparison, GISTDA formatted the Individual Land Plot Document like a title deed including detailed information on the landowner, the location of the plot, those that contributed to the creation of the document, the signature of the landowner, etc. As Figure 4-5 shows below, the map component of the Individual Land Plot Document is an aerial photograph overlaid with GPS data. The Individual Land Plot Document, Baan Kiuw Pong 0001-01, is an example of one of 328 documents that RTF provided. Refer to Appendix U: Individual Land Plot Document for a translation of the numbered red boxes on the map.
Figure 4-5: Individual Land Plot Document 0001-01
Unlike the Tambon and Village GIS maps, red boxes sections 4 to 7 of Figure 4-5 include personal information regarding individual landowners and their respective plots of land. This document is an informal agreement between the landowner and the village leaders asserting that the landowner will maintain this plot of land. Upon signing, landowners agree that their property cannot be bought, sold, or rented. It is for future generations. Red box section 8 of Figure 4-5 lists the names and signatures of contributors and advising individuals involved in the creation of the map. By signing this document, each contributor must agree to all of the information it lists. Through analysis of this document and the village and Tambon maps, the team determined that hill tribe villagers in AGV do not expand out of the boundaries that they established. While the RFD does not officially accept this document, individual landowners have used it to reduce the severity of their punishment for encroaching on conserved forest land as RTF described in Section 4.1.1.

4.3 Interviews with Local Officials and Villagers

After analyzing the GIS maps, the team coded interviews gathered from Tambons Baan Chan and Chaem Luang relating to the three project objectives. Based on the three objectives, the team summarized the coded information into three main themes: Forest Management and Conservation Practices (Objective 1), GIS Mapping Process (Objective 2), and Benefits/Challenges of GIS for Forest Management (Objective 3). Each subsection includes summaries of the coded information from the interviews pertaining to these three themes. The team organized the following subsections by interviews because they provide different perspectives on forest management and the GIS mapping process. Since each interviewee had similar positive viewpoints, the project team could justify that the GIS mapping process was an
effective tool for forest management in communities within AGV. Appendices E-P contain transcripts for the interviews in the following subsections.

4.3.1 Tambon Administrative Organization Presidents

The project team met with two Tambon Administrative Organization (TAO) Presidents regarding forest management and the GIS mapping process. The first interview was with the TAO Baan Chan President (See Figure 4-6). The second interview was with the TAO Chaem Luang President.

Both TAO Presidents have been involved in village projects relating to conservation, including the GIS mapping process. However, each TAO President had a different experience working on the GIS mapping process. The TAO Baan Chan President, having been in office for just one year, did not have the same depth of knowledge on the GIS mapping process that the TAO Chaem Luang President had.

Forest Management and Conservation Practices:

Within Tambon Chaem Luang, villagers and TAO officials practice their own forest management methods. The TAO officials use GIS maps that include zones set by the TAO (See Figure 4-1), mapping the boundaries of land use areas on conserved forest land such as residential, agricultural, cultural, and watershed areas. TAO officials, village leaders, and village landowners, sign village maps to show that the officials and villagers know not to intrude on
specific areas of the forest. Because of the maps, the TAO can offer the villagers more support to continue living on the conserved forest land. Both TAO presidents feel that the villagers coexist with the forest. As the TAO Chaem Luang President said, “people live with forest and forest lives with people” (Appendix F: Transcript of Interview with Mr. Suchai Sonvised, TAO contains full transcript of interview).

The TAO Chaem Luang President also said that the hill tribe villagers have lived in their villages for over 200 years and they have many traditional cultural practices concerning forest conservation. For example, one practice includes wrapping an orange cloth around a tree declaring that no one should harm it. Villagers designate other conserved areas in the forest like watershed areas where “Nham Ork Ru,” or natural springs occur. The TAO Baan Chan President told us about several other traditional methods of conservation. One traditional method known as “Pha Sadue,” explains that when a baby is born, the family takes the baby’s umbilical cord and puts it in a container. Then they hang the container around a tree so no one can harm it without suffering consequences such as death for no reason or explanation. These practices and beliefs show that conservation is part of the hill tribe villagers’ culture.

**GIS Mapping Process:**

The TAO President of Chaem Luang told us that the GIS maps help Tambon officials by “assist[ing] in city planning, in terms of constructing roads and government buildings.” GIS maps also allow Tambon officials to identify the exact boundaries of villages without having to go out and visit the villages themselves.

**Benefits/Challenges of GIS for Forest Management:**

The TAO Presidents value the GIS mapping process because it exemplifies the hill tribe villagers’ commitment to conservation. In the GIS mapping process, the TAO and villagers mark
boundaries pre-established by landowners and officials, to create maps like the GIS map of Baan Mae La Oop Village (see Section 4.2.2). The villagers follow these boundaries strictly, agreeing not to use or intrude on the conserved forest area that lies outside of their boundaries. One major challenge is that the hill tribe villagers tend to lack knowledge of regulations until the government enforces them. The villagers rely on the TAO and village leaders to inform them about regulations. Therefore, the TAO plays an important role in this project by offering support to the villagers and encouraging community involvement.

4.3.2 TAO Baan Chan Members

The team interviewed four members of the TAO Baan Chan: the Vice President, the Secretary to the President, and two members of the TAO (see Figure 4-7 below).

![Figure 4-7: Interviews with TAO Baan Chan Members](image-url)
These individuals helped villagers in Tambon Baan Chan learn to use the GPS technology so that they could collect data on their own. The TAO members view and edit multiple drafts of the GIS maps to mediate any boundary issues between neighboring villagers. Following the creation of the maps, these TAO members worked with the TAO Baan Chan President and the leaders of villages in Tambon Baan Chan to draft local legislation known as Management of Natural Resources and Environment.

GIS Mapping Process:

In Tambon Baan Chan, members of the TAO worked closely with villagers in the GPS data collection and GIS map making phases of the project. TAO members acted as volunteer surveyors, helping each villager map his/her boundaries by walking with the villager who held the GPS remote. After only a few hours of training, villagers learn to successfully use the GPS devices. The TAO members accompanied the villagers as they surveyed to ensure that the villagers completed the process consistently and accurately. Additionally, the interviewed TAO members aided in the collection of GPS data for the Tambon boundaries. TAO Baan Chan members explained that GPS devices are accessible and easy to use for villagers and TAO members.

Benefits/Challenges of GIS for Forest Management:

After GPS data collection, all TAO members noted that the finished GIS maps provide a clear visualization of the Tambon, village, and individual boundaries. All TAO members articulated that the GIS maps accurately represent the different zones for forest land. Prior to the use of the GIS maps, the TAO members and villagers partitioned the forests into conserved zones, economic zones, and residential zones. As discussed in Section 4.3.1, the TAO members are then able to label these pre-established zones on the GIS maps. The introduction of the maps
gave both the TAO and villagers documentation of their land use practices at a higher quality and granularity than the previously used hand drawn maps. The TAO members explained that villagers resolved intra-village conflicts quickly by referencing the GIS maps.

Additionally, Mr. Sutipong, Vice President of TAO Baan Chan, stated that within each village of Tambon Baan Chan, village leaders like him hold monthly meetings, inviting all community members to discuss the zones on the GIS maps. During these meetings, villagers establish, revise, and agree upon the Community Rules which pertain to land use and resource management in the village (Section 4.2.2 contains an example of Community Rules for Baan Mae La Oop Village).

4.3.3 Mr. Chaluemchai - Phuyai Baan of Wat Chan Village

The team interviewed Mr. Chaluemchai, the Phuyai Baan of Baan Wat Chan Village in Tambon Baan Chan (see Figure 4-8) about forest management and the GIS mapping process.

*Forest Management and Conservation Practices:*

Mr. Chaluemchai claimed that in Baan Wat Chan Village about 70% of the land known as “Pha Cha”, or the forbidden forest, is actually forested. Villagers use wood from this area to build houses, while using the remaining 30% of village land for residential and agricultural purposes. A majority of the forested area is populated with pine trees. The villagers are concerned about the pine needles
because they can fuel wildfires during the dry season. The villagers perform a procedure known as “Ching Phao,” or controlled burning in which dead leaves and pine needles are intentionally burned from the ground. The benefits of controlled burns, which include lowering the risk of fire by reducing the amount of fuel on the forest floor and recycling nutrients into the soil, are recognized internationally. Mr. Chaluemchai admitted that burning leaves is risky, but is a successful preventative measure to address the larger risk of uncontrolled fires.

Mr. Chaluemchai also acknowledged that the villagers strain the forests, but to remedy this, they work to repair these areas. Village residents have begun a process described as “returning wood to the forest,” by planting new trees where existing ones were previously cut down. Hill tribe villagers also have spiritual conservation practices. For example, Mr. Chaluemchai told us that “hill tribe villagers believe in ‘Phe Ton Nham’ to conserve watershed areas in the forest because they believe that spirit guardians protect these areas.” Hill tribe villagers bring chicken and rice whiskey as offerings to these spirit guardians. The other beliefs and methods he shared matched the descriptions that the TAO Baan Chan President had provided (see section 4.3.1). Mr. Chaluemchai noted that the villagers make great contributions to the conservation of the forest because it is their home. Without the forest, they would have nowhere to go.

GIS Mapping Process:

When asked for his opinion of GIS, Mr. Chaluemchai stated that the collection process was difficult at first, but GPS technology became easier to use after just two or three hours of practice. During the process, Mr. Chaluemchai helped to draw maps and check them for errors. In addition to making sure that the boundaries were correct, he also checked the map for the accuracy of owner information such as the name, address, and Thai National ID number of the
landowner. Mr. Chaluemchai noted that the maps may help the villagers receive official land deeds in the future, but he also said “if we do not have the deed, it is alright because the way that the Karen hill tribe lives is well known as the forest conservers.”

**Benefits/Challenges of GIS for Forest Management:**

Mr. Chaluemchai also gave insight to some of the benefits and challenges presented in GIS mapping for forest management. Tambon Baan Chan was the first sub-district in AGV to begin the mapping process. Therefore, there were not many guidelines on how to successfully implement GIS mapping. Starting the project was difficult because villagers were unsure of the new technology. However, once the villagers witnessed their neighbors joining the mapping process, community participation improved. Overall, Mr. Chaluemchai feels that GIS is an efficient and accurate way to maintain existing land boundaries.

4.3.4 **TAO Baan Chan Kamnan**

The team interviewed the TAO Baan Chan Kamnan (seen below in Figure 4-9) about forest management and the GIS mapping process.

**Benefits/Challenges of GIS for Forest Management:**

Like the Phuyai Baan, the Kamnan and many of the villagers feel confident about the GIS mapping process because the TAO and village committee, which deals with resource management, accepts the maps locally. The Kamnan explained that Individual Land Plot Documents (See Section 4.2.3) give a sense of pride.
to the villagers. The Kamnan also described that the village map (See Section 4.2.2) for Baan Chan stores information regarding where and with whom landowners practice their agriculture. Eventually, the Kamnan wants the RFD to accept the GIS maps and Individual Land Plot Documents as official documents. However, he admitted that this is a difficult goal since the hill tribe villagers are technically living illegally on conserved land.

A benefit of the GIS mapping process is that the TAO and the hill tribe villagers manage the forest cooperatively. To reach this cooperative agreement, the Kamnan worked in collaboration with the President of the TAO during the GIS mapping process. One example of cooperative forest management is enforcing the Community Rules which the village leaders create during the GIS mapping process and list on village GIS maps. A village committee grants permission to cut down trees in the conserved forest for building houses because the trees are higher quality for construction. If villagers cut down trees in the conserved forest without permission, the village committee will inform the local RFD officers to arrest them. When asked about what he expected to be the major challenges of replicating the GIS mapping process outside of AGV, the Kamnan responded that convincing the Amphoe, Tambons, and villagers to actively participate would be most difficult.

4.3.5 Mae La Oop River Basin Network Members

The team met with members of the Mae La Oop River Basin Network regarding forest management and the GIS mapping process. The team conducted interviews at the TAO office in Tambon Chaem Luang, and can be seen in the Figure 4-10 below. Within the Mae La Oop River Basin Network, members work to manage the waterways and water systems within the three Tambons of AGV: Baan Chan, Chaem Luang, and Mae Daet.
GIS Mapping Process:

Due to their dealings and relationship with the forests, water sources, and other natural resources in AGV, members of the Network have invested greatly in the GIS mapping process. RTF representatives trained each of the members that the team interviewed to use GPS technology. GPS training enables the Network members to collect GPS data on the location of physical structures (like dams) and waterways (like springs, rivers, ponds, etc.) that relate to their duty of managing waterways within the three Tambons. During the mapping process, Network members assisted in training villagers to use GPS technology to collect their individual plot boundaries.

Villagers paid 100 baht to map each plot of land. The money for each plot was split as follows: 50 baht for the map and 50 baht for the volunteers and equipment (GPS battery, paper and pen). RTF provided about ten GPS devices to the volunteers for mapping boundaries. Two people surveyed land boundaries per device: a GPS volunteer and the individual landowner. One of the members of the Network told us a village committee approves the land boundaries of individual plots. As discussed in Section 4.2.3 about the Individual Land Plot Document in
Figure 4-5, the Network member confirmed that the landowner, village leaders, village elders, and religious leaders must sign the document to approve the land boundary.

**Forest Management and Conservation Practices:**

Similar to the Phuyai Baan’s statements, Network members previously relied on hand-drawn maps to keep track of where they established physical structures used to manage the forest. Now Network members use GPS to demarcate the location of fire protection walls, cement dams, and other forest management practices within different villages of the Tambons. The use of GPS by this local forest management organization suggests that GIS mapping has potential as a successful tool for forest management, especially when combined with traditional hill tribe practices. Network members are passionate about the maintenance and conservation of the forest lands and water resources. This has resulted in a strong presence and investment within the communities of the Tambons in AGV. While the Network is committed to aiding the aforementioned communities, they also encourage communication between villages throughout AGV to promote cooperative management of forest land in the region.

In tandem with sustainable resource management, the Mae La Oop River Basin Network focuses on encouraging families to raise “forest-minded individuals” in order to ensure that future generations will take care of the forest. The Network employs many cultural and forest management practices through their work. For example, to protect the watershed areas as mentioned by the Phuyai Baan in Section 4.3.3, Network members practice “Fai Cha Lor Nham,” in which they construct small dams made of bamboo and concrete to regulate water flow to agricultural fields during the dry season. Other conservation methods described by the Network match descriptions given in previous interviews.
4.3.6 Villager Working with GPS Technology

The final interviewee was a villager from the Baan Huai Khiat Haeng Village (see Figure 4-11) of Tambon Chaem Luang named Thayakorn Gaechue who worked with GPS technology. He walked the perimeter of his land with a volunteer GPS surveyor from his village that held a GPS device to collect data on Mr. Gaechue’s land boundary. Mr. Gaechue explained that an RTF field officer taught volunteer villagers how to use the GPS devices.

![Figure 4-11: Baan Huai Khiat Haeng Village Residence](image)

**GIS Mapping Process:**

When RTF began collecting GPS data, some of the villagers were anxious because they did not fully understand the purpose behind the mapping project. Initially, Mr. Gaechue felt similarly, but when he saw his neighbors collecting GPS data, he decided to try participating as well, despite knowing that he would not obtain an official land deed. Families pass down land for many generations, and without surveying the land, many villagers would be unsure of where
their exact boundaries were. Using the GPS device has allowed villagers to accurately demarcate boundaries for themselves, their neighbors, and their Tambon. As many of the trained Tambon members mentioned, Mr. Gaechue told us that the GPS device is not difficult to use. With the help of a RTF Field Officer, it took him approximately an hour to learn how to use the device.

Benefits/Challenges of GIS for Forest Management:

Mr. Gaechue described that he, like many other villagers, feels insecure about his residence on the land, even with the GIS map, because the maps are not official documents. He recognizes that the GIS maps do not provide an immediate solution to the problem of land use rights, but he understands that they could be useful for his situation. In addition, he acknowledged that the GIS maps assist villagers in addressing their land management conflicts with neighbors. The maps are a tool for neighbors to record their exact boundaries, and as a result, conflicts are resolved. Lastly, he said that he and other villagers are proud that they can now clearly identify their boundaries because of the GIS mapping process. However, since the government does not officially accept this process, he and other villagers remain concerned that the government will confiscate their land and force them to move.

4.4 Observation

The project team observed the drafting of the Tambons development plan (Management of Natural Resources and Environment) at a TAO meeting. Through site observation, the team gathered evidence about forest management practices from the government and where the villagers apply these practices in the field.

4.4.1 TAO Chaem Luang Meeting

While in Tambon Chaem Luang, the team observed a meeting at the TAO Chaem Luang Office (seen below in Figure 4-12). The TAO encouraged local people to participate during the
drafting process for a Tambon development plan called Management of Resources and Environment since this local legislation concerns the community. The drafting of this local legislation requires three stages as follows: 1) Community Forum Phase, 2) Revisionary Phase, and 3) Voting Phase. During each of these phases the TAO encourages open discussion and participation from the community. Mr. Suchai, President of TAO Chaem Luang, requests that each village keeps a record of attendance at each village meeting during the Community Forum Phase to know who participated in the drafting of each local legislation. The TAO and villagers are taking responsibility for managing the forest area in which they reside. Since villagers and TAO officials are working together to draft this legislation, the team confirmed that they are taking care of the forest while reducing misunderstandings with local people and promoting community involvement.

Figure 4-12: Tambon Chaem Luang Meeting on Drafting Local Legislation Called Management of Natural Resource and the Environment
4.4.2 Site Observation

In AGV, the team observed forest management and conservation practices in Tambons Chaem Luang and Baan Chan, recording our results with photographs. En route to conducting interviews in Baan Huai Khiat Haeng Village, Tambon Chaem Luang, the team took photos of large valleys in Baan Sao Daeng where divisions of residential, agricultural, and conserved forest land were clearly visible. Figure 4-13 below shows boundaries between agricultural land and conserved forest area. The divisions between plots for agriculture and conservation forest support the TAO Presidents’ and other interviewees’ statements that the land is divided by zones.

Figure 4-13: Different Zones in Tambon Chaem Luang
Figure 4-14 shows additional displays of the distinct boundaries between land use zones. Figure 4-14A shows the clearly visible boundary between agricultural and conserved forest area. Figure 4-14B shows the clearly visible boundary between a hill tribe village and the conserved forest.

![Figure 4-14: Examples of Conserved Forest Boundaries next to a) Agricultural Area and b) Residential Area](image)

The team made observations at Baan Hui Hom Village in Tambon Baan Chan (see Figure 4-15). The villagers of Baan Hui Hom do not have modern plumbing or electricity, which suggests that they do not have much disposable income. Their livelihoods come directly from the forest, which shows how important the forests are to these villagers.

![Figure 4-15: Residential Areas in Baan Hui Hom Village](image)
Observation of a local strawberry farm and multiple agricultural fields indicated that local farmers use traditional farming methods for agriculture. From an informal discussion with Ms. Puangtong, a local strawberry farmer, shown in Figure 4-16, the team learned that small-scale farming can be extremely difficult without the use of pesticides and connection to a municipally managed water source.

In all agricultural areas viewed, there was no industrial machinery used for tilling land. Ox driven carts were the only large tools seen on agricultural lands. Hill tribe villagers practice terraced farming to allow water to flow naturally from highland streams to the lowest section of an agricultural field (see Figure 4-16). This is a common practice in Northern Thailand because it reduces both erosion and surface runoff. These traditional farming practices and tools indicate that the villagers in Baan Hui Hom efficiently use resources available to them.

![Figure 4-16: Agricultural Practices: A Villager and her Strawberry Farm and a Terraced Farming Area](image)

In Baan Hui Hom Village, most villagers build their homes from wood and thatched grass that they collect from economic forest zones. Additionally, all homes have stacks of logs harvested from the economic forest zone (see Figure 4-17).
Shown in Figure 4-18, most of the villagers store rice and other food in containers made of bamboo and buffalo dung. The frame is made of bamboo and the villagers use buffalo dung as a cohesive substance to bind the bamboo together. The reuse of natural waste shows that villagers use resources efficiently by recycling waste. The team also observed “Ching Phao,” the controlled burn practice described in Section 4.3.3 (See Figure 4-19 below). Hill tribe villagers commonly employ this practice in rotational shifting cultivation.
In an economic forest zone, the team observed and inspected pine trees that villagers use to collect rubber and pine sap for fuel as shown in Figure 4-20: Pine Trees Stripped for Rubber. Local villagers strip bark from a small area of the tree to allow the sap to leach out from the trunk. Villagers only collect pine sap from trees that are beginning to die so that they do not harm healthy trees that could better serve as building materials for residences. It also shows a plastic cup that the villagers used as a container for collecting rubber.

Figure 4-19: Controlled Burn in Agricultural Field

Figure 4-20: Pine Trees Stripped for Rubber
During observations of residential, agricultural, and conserved forest zones, the team viewed many signs demarcating these zones. Interviewees (like in Section 4.3.1) mentioned the zones as a method of forest management. Figure 4-21 below shows use of a green sign to demarcate the economic forest zone while Figure 4-21B illustrates the use of a blue sign to indicate the conserved forest zone for watershed conservation. In the past, trees were marked for different zones by slashing the bark on trees in different directions. However, villagers have discontinued this practice of stripping bark from trees because it harms healthy trees. As an alternative method, the use of signs to demarcate zones of the forest suggests improved methods of communication regarding the forest boundaries.

Figure 4-21: Signs Demarcating Zones of a) Economic Forest and b) Conserved Forest

Figure 4-22: A & B) Conserved Watershed Area A and Figure 4-22B indicate different watershed areas where villagers maintain waterways and sources. Villagers preserve these water sources for agricultural and in-home purposes. Figure 4-22: A & B) Conserved Watershed Area A is a picture of a stream that directs water to villagers’ farmland and residential areas for collection during the wet and dry seasons. During the dry season (when the picture was taken), the villagers build small cement dams called “Fai Cha Lor Nam” (also called “Fai”) with PVC piping to regulate the flow of the natural spring. The villagers locate natural streams by the presence of “Ton Jak” plants seen in Figure 4-22B. Ton Jak plants indicate the presence of
natural water sources. These measures to protect water sources suggest that local villagers understand the importance of maintaining and conserving watershed forest areas.

Figure 4-22: A & B) Conserved Watershed Area C) Conservation Sign

Figure 4-22C is a white poster that explains that the forest areas and animals are valuable so don’t burn the forest or its value will be lost. These posters also educate younger generations of villagers on conservation and forest management practices.

The team’s site observations support and reinforce the descriptions of land use and conservation methods described in interviews coded under Objective 1. The observations also match the descriptions of land use provided by RTF and CCT. Overall, the site visits our team conducted provide evidence of the widespread application of the forest management techniques by villagers in AGV. These observations gave the team confidence that the results from interviews were accurate
and reliable. The next section summarizes the information collected from interviews and observation into tables reflecting the three objectives.

4.5 Analysis Summary

The team coded interviews and analyzed maps to understand the content and parties involved. To corroborate the results from the maps and interviews, the team observed forest management techniques and applications of the GIS maps. In addition, the tables display information regarding the three main themes: Forest Management and Conservation Practices, the GIS Mapping Process, and Benefits/Challenges of GIS for Forest Management. From the coded interviews and site observations, the team determined that hill tribe villagers in AGV practice forest management and conservation techniques.

Table 4-1 summarizes the practices that interviewees mentioned relating to Objective 1: Forest Management and Conservation Practices. The table includes the names of the practices, their classification as cultural, agricultural, or forest management, a description of the actions associated with a practice and the actions’ purpose.

During the GIS mapping process, there were many actors involved in different activities required to generate GIS maps and create official legislation managing resources in the villages and Tambons. From our coding for the GIS mapping process, the team determined that both villagers and TAO officials use GIS maps as a tool to visualize how the villagers use the land. However, this is only one way in which GIS maps are used by the villagers and TAO officials.
Table 4-1: Cultural, Agricultural and Forest Management Practices in Amphoe Galyani Vadhana

<table>
<thead>
<tr>
<th>Name of Practice</th>
<th>C</th>
<th>A</th>
<th>FM</th>
<th>Description</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest Zoning</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Marking boundaries and dedicated to zones of land on maps</td>
<td>To physically demarcate where zones are located, so villagers know where zones are located</td>
</tr>
<tr>
<td>Nham Ork Ru</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Setting strict boundaries around water sources to not disturb spirits</td>
<td>To protect water sources vital for rice cultivation</td>
</tr>
<tr>
<td>Fire Protection Wall</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Cutting back forests by 10 meters</td>
<td>To decrease the intensity of wildfires</td>
</tr>
<tr>
<td>Ching Phao</td>
<td>X</td>
<td></td>
<td></td>
<td>Controlled burning of dead crops</td>
<td>To prepare farmland for next cultivation season and prevent uncontrollable wildfires</td>
</tr>
<tr>
<td>Pha Sadue</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Hanging umbilical cord of newborn in a container from a tree</td>
<td>To create a connection between an individual and a tree to protect the forest</td>
</tr>
<tr>
<td>Phe Ton Nham</td>
<td>X</td>
<td></td>
<td>X</td>
<td>Praying to the forest spirit; giving offerings of chicken and rice whiskey to the forest</td>
<td>To ask the forest spirit to protect the forest land from harm</td>
</tr>
<tr>
<td>Fai Cha Lor Nam (Fai)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Constructing a bamboo dam in small streams</td>
<td>To prevent sedimentation and to provide small animals shelter</td>
</tr>
</tbody>
</table>

Table 4-2 on the next page displays the information obtained from coding for Objective 2: GIS Mapping Process. It includes the actors and their degree of participation in the different activities of the GIS mapping and executive decision-making processes.
Table 4-2: Participation of Actors in GIS Mapping and Executive Decision-Making Processes

<table>
<thead>
<tr>
<th>Participation (Y: Significantly Involved, N: Not Involved, P: Partially Involved)</th>
<th>Activities</th>
<th>Tambon Presidents</th>
<th>Tambon Members</th>
<th>Village Chiefs</th>
<th>Villagers</th>
<th>Mae La Oop</th>
<th>RTF and CCT</th>
<th>GISTDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS Mapping Process</td>
<td>3-Day Training Program</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>P</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Use of GPS</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>GIS Map Generation via ArcMap10</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Executive Decision-Making Process</td>
<td>Drafting Legislation for Management of Natural Resources and Environment</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>N</td>
</tr>
<tr>
<td>Enforcing Legislation</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>P</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

*Mae La Oop refers to the Mae La Oop River Basin Network*
From the summary of our meetings with CCT, data from interviews coded for Objective 2: GIS Mapping Process, and data from our map analysis, the team divided the mapping process into four stages: the Preparatory Phase, the Data Collection Phase, the Mapping Phase, and the Management Planning Phase. Through the characterization of this process, the team determined that the GIS mapping process encourages community participation and self-sufficiency in natural resource management. Table 4-3 on the next page presents the phases of the GIS mapping process with the actors involved, specific activities and tools for their completion, and the outcome from each phase.
As a measure to assess the benefits of using GIS as a tool for forest management (Objective 3), the team compared the forest management practices used in AGV to Elinor Ostrom’s Eight Principles for Managing a Common Resource (see Table 4-4).
Table 4-4: Comparison of Ostrom’s Eight Principles for Managing a Common Resource to Case Study of Amphoe Galyani Vadhana

<table>
<thead>
<tr>
<th>#</th>
<th>Principle</th>
<th>Case Study of Amphoe Galyani Vadhana</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Define clear group boundaries.</td>
<td>Villagers and Tambon members use GPS technology to collect data on land boundaries and record this data on maps.</td>
</tr>
<tr>
<td>2</td>
<td>Match rules governing use of common goods to local needs and conditions.</td>
<td>Villagers attend open forums where village leaders moderate the drafting of Community Rules.</td>
</tr>
<tr>
<td>3</td>
<td>Ensure that those affected by the rules can participate in modifying the rules.</td>
<td>Village leaders hold monthly meetings where villagers discuss and revise Community Rules.</td>
</tr>
<tr>
<td>4</td>
<td>Make sure the rule-making rights of community members are respected by outside authorities.</td>
<td>Local RFD representatives allow villagers within Tambons to cultivate and live on conserved forest land via the Community Rules they have made for themselves.</td>
</tr>
<tr>
<td>5</td>
<td>Develop a system, carried out by community members, for monitoring members’ behavior.</td>
<td>Community Rules act as local legislation to ensure the sustainable use and management of conserved forest land.</td>
</tr>
<tr>
<td>6</td>
<td>Use graduated sanctions for rule violators</td>
<td>Violation of Community Rules results in a fine between 500 and 5,000 Baht depending on the severity and frequency of the violation.</td>
</tr>
<tr>
<td>7</td>
<td>Provide accessible, low-cost means for dispute resolution.</td>
<td>Village leaders mediate the resolution of land boundary conflicts by consulting individual and village GIS maps.</td>
</tr>
<tr>
<td>8</td>
<td>Build responsibility for governing the common resource in nested tiers from the lowest level up to the entire interconnected system.</td>
<td>Villagers have established Community Rules used to manage the forest at a village level. Tambons have created legislation regarding forest management. The Mae La Oop River Basin Network practices and promotes sustainable forest management across all Tambons in Amphoe Galyani Vadhana.</td>
</tr>
</tbody>
</table>
As seen in Table 4-4, by meeting the first three principles the hill tribe’s forest management practices encourage community participation and self-sufficiency by enabling villagers to demarcate their own land and participate in creating local regulations. From this, the team determined that hill tribe villagers in AGV sustainably and equitably manage the forest. Once a village establishes Community Rules, the village leaders enforce this system for managing the forest and other natural resources, fostering a sense of responsibility amongst the villagers in practicing sustainable forest management. With the aid of GIS technology, the residents of AGV have documented their residence, agricultural practices, and forest management practices to assert their common need to gain entitlements from the conserved forest land. By meeting these eight principles, the team concluded that the local community can manage forest lands in AGV sustainably and equitably.

Table 4-1 summarizes the information learned about Forest Management and Conservation Practices as well as the GIS Mapping Process. The team used Table 4-2 and Table 4-3 to examine the GIS Mapping Process and Benefits/Challenges of GIS for Forest Management. Table 4-4 compares this case study to Dr. Elinor Ostrom’s Eight Principles for Managing a Common Resource. Additionally, the team analyzed the social and cultural relationships between the villagers and the forest through an entitlement map.

4.6 Entitlement Map

The team created an entitlement map as shown in Figure 4-23. Dr. Laureen Elgert, an assistant professor of environmental studies at Worcester Polytechnic Institute, reviewed and validated our entitlement map. This concept map breaks down the relationship between hill tribe villagers (the stakeholders) and conserved forest land in AGV (a natural resource) into endowments and entitlements.
Figure 4-23: Entitlement Map for Hill Tribe Villagers Living on Conserved Forest Land in Amphoe Galyani Vadhana

- Rights over conserved forest land
- Area for living, agriculture (primarily rice which feeds villagers and livestock, and provides income and products to send to the royal project), firewood, building materials, and cultural purposes.

Endowments

Entitlements

- Forestry Department regulations
- Royal Project land-use allowances
- Royal Project land-use restrictions
- Signed GIS maps indicating land boundaries
- Physical land demarcations (ex. fences, posted signs)
- Royal Project trade regulations
- Informal trade networks among villagers
- Informal land-use agreements among villagers

Villagers

- Tambon Administrative Office
- Hill tribe villagers have lived on forest land in Amphoe Galyani Vadhana for 200 years
- Informal inheritance through families

National
Regional
Local
The endowment examined in this map is the hill tribe villagers’ rights over forest land. In this analysis, “rights” refer to the legal allowance of the hill tribe villagers to use the conserved forest land, rather than formal land deeds or land ownership.

The team made the list of entitlements based on results from the coding category “Command Over Resources” (see Table 4-1) in our analysis of the interviews. The entitlements listed show the techniques that the hill tribe villagers use in the conserved forest land to improve their livelihood. Although interviewees indicated that residential purposes were the most common use of the conserved forest land, the GIS maps show that hill tribe villagers use less than 5% of the land in village boundaries for residence. Agriculture is the predominant use of conserved forest land while most forested areas are zoned for conservation by the villagers. From the land used for agriculture, the hill tribe villagers grow crops (mainly rice) to feed the villagers and livestock. There was no indication by any interviewee that the hill tribe villagers acquire food from any other sources. During our interview in Tambon Chaem Luang, Lom Tanrin from the Mae La Oop River Basin Network told us that all income for the village comes from agriculture or trade of agricultural products. Hence, our evidence suggests the hill tribe villagers are dependent on this agricultural entitlement.

The team selected the institutions listed on the right side of the concept map through coding, under the category “institutions involved” (see Table 4-1). The team categorized these institutions into national, regional, and local (community, family, individuals) levels. The team also grouped these institutions into three clusters, each corresponding to one part of the relationship between the hill tribe villagers and the conserved forest land. The institutions in the top cluster affect the hill tribe villagers’ rights over conserved forest land. For example, the Royal Forest Department created regulations that do not allow the hill tribe villagers to live on
conserved forest land. However, the hill tribe villagers have not followed these regulations because they have lived on this forest land, passing residential areas down through families for approximately 200 years. The regulations were enacted in 1964, and the fifty-one years since is shorter than the period of time the hill tribes have been on the conserved land.

In the second cluster, the institutions listed impact how the hill tribe villagers gain their entitlements from their endowment. For example, the Royal Project has land use restrictions that determine how the hill tribe villagers can use their land (for residence, agriculture, cultural purposes, etc.). Therefore, the Royal Project land use restrictions determine the entitlements the hill tribe villagers can gain from the land. Additionally, on a local level, the hill tribe villagers self-restrict their own entitlements with fences and signposts that mark areas of land for a specific use. The villages using GIS maps also agree upon land boundaries with signatures. The physical land demarcations (fences and signposts) and signed GIS maps indicating land boundaries determine the entitlements the hill tribe villagers can gain from their land. According to our interviews, the hill tribe villagers have imposed many of their own land restrictions to allow for better forest conservation and forest management techniques. For example, the Phuyai Baan of Baan Wat Chan Village described their practice of “Pha Cha” in which about 70% of an area is protected forest, while only 30% is allowed to be residential and agricultural (see Section 4.3.3).

The institutions listed in the third cluster affect how the hill tribe villagers benefit from the entitlements listed. For example, the Royal Project restricts who the hill tribe villagers can trade with and what products they can trade. Therefore, the Royal Project, by influencing the hill tribe villagers’ trade abilities, mediates the relationship between the hill tribe villagers and their entitlements. Additionally, informal trade networks and land use agreements among villagers,
such as two neighbors agreeing to share their fields and income, alter the way the villagers benefit from their entitlements. In this case, the neighbors would receive benefits coming from their combined entitlements.

Overall, the entitlement map shows that the relationship between the hill tribe villagers and the conserved forest land is complex and dynamic and involves various formal and informal institutions. The conserved forest land provides the villagers with their source of food and income as well as a place to live. From the creation of the entitlement map, the team determined that the villagers need the right to use the forest land in order to gain their entitlements, which allow them to maintain and/or improve their livelihoods. If the hill tribe villagers lose access to the conserved forest land, they will lose many of their entitlements and this will negatively impact their well-being. In addition to other institutions, the hill tribe villagers actually self-restrict their land use through the GIS mapping process. As shown above in Figure 4-23, the GIS mapping process is one of several self-imposed strategies used by the hill tribe villagers to effectively manage the forest land.

Based on this and previous findings, the team determined that GIS is an effective tool for forest management for AGV. The hill tribe villager’s forest management practices encompass traditional conservation and agriculture and GIS mapping. The employment of traditional forest management practices promotes environmental stewardship while GIS mapping enables sophisticated visualization of these traditional practices. Hill tribe villagers and TAO officials then use these GIS maps in the process of creating a Tambon development plan called Management of Natural Resources and Environment and village level Community Rules. These two forms of local law promote and ensure the sustainable management of the forest lands that the hill tribe villagers reside on.
5 Conclusion

This project evaluated hill tribe forest management practices in Amphoe Galyani Vadhana (AGV), a district in Northern Thailand. Raks Thai Foundation (RTF) worked to facilitate a GIS mapping process in AGV that documents the hill tribes’ land use and forest management practices. In collaboration with RTF, the project team conducted interviews and observation in Tambons Baan Chan and Chaem Luang, two sub-districts in AGV where hill tribe villagers have been combining their forest management practices with GIS maps to maintain their livelihoods on the conserved forest land. This is the first case study to examine the creation of GIS maps as a means for individuals to defend their rights to reside on or use conserved forest land.

Our research shows that hill tribe villagers in AGV have designed a variety of conservation and forest management practices to protect the forest land. For example, villagers zone the forest dividing it by different types of land use. This information is recorded on GIS maps to demarcate the different land zones and inform other villagers of the locations of these areas. A spiritual practice known as “Pha Sadue,” in which the family of a newborn baby places an umbilical cord in a container and hangs it on a tree for protection, creates a spiritual connection between the baby and the tree. These two examples illustrate the techniques that the hill tribe villagers implement from their own culture to protect the land they reside on. By using Dr. Elinor Ostrom’s Eight Principles for Managing a Common Resource as guidelines, the team determined that the hill tribe villagers in AGV use the forest sustainably.

The team discovered that GIS maps are useful to both hill tribe villagers and Tambon officials. Villagers use GIS maps to unofficially document their residence and as evidence that they have not expanded beyond their self-imposed boundaries. The GIS mapping process
empowers villagers in their ability to use the land that they reside on. Tambon officials, on the other hand, use the GIS maps to identify the pre-established boundaries of the Tambon, different villages and individual plots of land, as well as the boundaries of different zones of land use within a village. In sum, the GIS mapping process and the resulting maps have generated community participation between the villagers and Tambon officials. This enables TAO officials to provide the villagers more support to continue living on conserved forest land. Background research and data collected suggest that the combination of traditional forest management practices and GIS technology can be used to support hill tribes’ residence on and use of conserved forest land.

From this information, the team recommends that further evidence must be collected to inspire any policy changes of hill tribes’ legal residency on conserved forest land. This project provides a case study specific to two Tambons in AGV. More evidence of effective hill tribe forest management practices is needed before convincing the government and the public that national level policy changes on land use are warranted.

Researchers interested in promoting this social issue should conduct a broader investigation by creating more independent case studies on other hill tribes as well as the government’s and the public’s perception of hill tribes. This research will strengthen the claim that hill tribe villagers should be allowed to reside on and use conserved forest land. The team created a list of suggestions for further research:

- Future researchers should conduct case studies on other Amphoes that have used GIS technology for forest management. Different case studies may provide similar perspectives from local officials and villagers.
• Researchers should study the cultural, spiritual and agricultural practices of other hill tribes to see if they can easily be mapped. If these practices prove to be similar to those of the Karen hill tribe in AGV, there is a high possibility that GIS can be a successful tool for forest management.

• Researchers should interview higher level government officials on their perspectives of GIS and community based forest management. Higher level government officials are a critical institution of this social issue, and their national agendas regarding hill tribes and conserved forest lands need to be investigated further. Researchers should also consider looking for evidence that could influence policy changes.

• Future researchers should consider interviewing or surveying Thai people about their perception of hill tribes. The team suspects that understanding the public perception of hill tribes could illuminate public misconceptions. NGOs or researchers can conduct these interviews or surveys, and if necessary, they can address misconceptions through an awareness campaign about the hill tribes and their lifestyles.

This project provides evidence to RTF in support of hill tribes’ rights to reside on and use conserved forest land. In the case of AGV, GIS was a successful tool for forest management. The project team hopes that this project will set the precedent for other GIS-based community forest management projects throughout Thailand, inspire researchers to study similar cases, and interview hill tribes and higher level government officials related to this social issue. The team is confident that additional research will strengthen the case of the hill tribes, and that they will eventually be allowed to maintain their livelihoods, with complete government support, on conserved forest land.
6 References


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Appendices

Appendix A: Interview Questions for Tambon Administrative Organization (TAO) Presidents

Where: TAO Baan Chan and Chaem Luang offices

*The information you provide in this interview is confidential. Your participation in this interview is voluntary. You may skip any question if you wish. We are conducting this interview on behalf of Raks Thai Foundation to collect evidence in support of an argument allowing hill tribe villagers to live on conserved forest land.*

**General:**
1. How long have you lived in the Tambon?
2. Related to working with the hill tribes, what are your responsibilities as president of the Tambon?
3. How do the villages within this Tambon communicate with each other? What about with villages in other Tambons?

**Community Forest:**
1. Who creates the set of rules on how the forest is managed?
2. What type of policy (agreement) does the Tambon have with the hill tribes?
3. How often do you meet with villagers about land boundaries?

**GIS Mapping Process:**
1. Have you played a role in collecting GIS with hill tribe villagers? If so, what role?
2. Who else was involved in the collection of GIS data? How long did the data collection take?
3. Do you have a Tambon council that helps with the GIS?
4. How involved is the community in the process of making the map? How long did making the map take?

**GIS Map Product:**
1. What are the different zones you have for village and forest land?
2. What is valuable about the GIS map that the villagers created?
3. How does the Tambon use the map? Have mapping efforts been useful to both the Tambon and the hill tribe villagers?
4. Do you have specific requirements for establishing an agreement with the hill tribes?
Forest Management:
1. Do you know how the hill tribes manage the forest?
2. Which of these techniques is most successful at conserving the forest? How do you measure the success of these forest conservation techniques?

Reflection/Going Forward:
1. How did the GIS mapping project start in your Tambon? Did you learn about it from another Tambon or an organization (ex. RTF, CCT, GISTDA)?
2. What would you suggest to another village who would want to start this project? What do you think are the biggest challenges to reaching an agreement with the hill tribes?
3. Do you know how your Tambon compares to other Tambons in reaching an agreement with hill tribes using GIS mapping?
4. What do you think the villagers need the most/what do you need the most help with?
5. What are future plans for the GIS and this project?

Thank you for your time.
Appendix B: Interview Questions for Tambon Administrative Organization Members, Kamnan, and Phuyai Baan

Where: TAO Baan Chan office

The information you provide in this interview is confidential. Your participation in this interview is voluntary. You may skip any question if you wish. We are conducting this interview on behalf of Raks Thai Foundation to collect evidence in support of an argument allowing hill tribe villagers to live on conserved forest land.

General:
1. How long have you lived in the village/Tambon?
2. Related to working with the hill tribes, what are your responsibilities as a council member of the Tambon?

Community Forest:
1. Who creates the set of rules on how the forest is managed?
2. What type of policy does the Tambon have with the hill tribes?
3. How often do you meet with villagers about land boundaries?

GIS Mapping Process:
1. Have you played a role in collecting GIS with hill tribe villagers? If so, what role?
2. Who else was involved in the collection of GIS data? How long did the data collection take?
3. How involved is the community in the process of making the map? How long did making the map take?

GIS Map Product:
1. What are the different zones you have for village and forest land?
2. What is valuable about the GIS map that the villagers created?
3. How does the Tambon use the map? Have mapping efforts been useful to both the Tambon and the hill tribe villagers?
4. Do you have specific requirements for reaching an agreement with the hill tribes?

Forest Management:
1. Do you know how the hill tribes manage the forest?
2. Do the hill tribes do a good job of conserving the forest?

Reflection/Going Forward:
1. What would you suggest to another village who would want to start this project? What do you think are the biggest challenges to reaching an agreement with the hill tribes?

2. What do you think the villagers need the most/what do you need the most help with?

3. What are future plans for the GIS and this project?

Thank you for your time.
Appendix C: Interview Questions Mae La Oop River Basin Network Members

Where: TAO Chaem Luang Office

The information you provide in this interview is confidential. Your participation in this interview is voluntary. You may skip any question if you wish. We are conducting this interview on behalf of Raks Thai Foundation to collect evidence in support of an argument allowing hill tribe villagers to live on conserved forest land.

General:
1. How long have you lived in this Tambon?
2. What is the purpose/mission of this network?
3. Why did you take on your role within this network?
4. Related to working with the hill tribes, what are the responsibilities of your role?
5. How do different villages communicate with each other?

Community Forest:
1. Who creates the set of rules on how the forest is managed?
2. How does your network influence these sets of rules on how the forest is managed?
3. Do you meet with villagers about land boundaries? If so, how often?

GIS Mapping Process:
1. Have you played a role in collecting GIS with hill tribe villagers? If so, what role?
2. Who else was involved in the collection of GIS data? How long did the data collection take?
3. How involved is the community in the process of making the map? How long did making the map take?

GIS Map Product:
1. What are the different zones you have for village and forest land?
2. What is valuable about the GIS map that the villagers created?
3. How does villagers/Tambon use the map? Does your network use this map for any purpose?

Forest Management:
1. Do you know how the hill tribes manage the forest?
2. Which of these techniques is most successful at conserving the forest? How do you measure the success of these forest conservation techniques?

Reflection/Going Forward:
1. What would you suggest to another village who would want to start this project? What do you think are the biggest challenges to reaching an agreement with the hill tribes?

2. What do you think the villagers need the most/what do you need the most help with? For example: does your village want land deeds?

3. What are future plans for the GIS and this project?

Thank you for your time.
Appendix D: Interview Questions for Villager working with GPS Technology

Where: Baan Sao Daeng Village, Tambon Chaem Luang

The information you provide in this interview is confidential. Your participation in this interview is voluntary. You may skip any question if you wish. We are conducting this interview on behalf of Raks Thai Foundation to collect evidence in support of an argument allowing hill tribe villagers to live on conserved forest land.

1. How long have you lived in this Tambon?
2. What is your occupation?
3. Do you own your own piece of land?
4. Why did you volunteer to help collect GIS data?
5. How long have you worked with GIS/GPS?
6. How many people in your village/this Tambon use GPS to collect data?
7. Did you participate in a 3-day training program with GISTDA? Who from GISTDA trained you?
8. How has GIS improved your forest management techniques? How does GIS data affect how you manage the forest? What challenges do you still have working in the field?
9. Can you describe the process for collecting GPS data? For example: Do you walk along the border with a remote? Can you demonstrate for us?
10. How do you conserve the forest? For example, the orange cloth on the tree? How do you demarcate the conserved forest?
11. We heard that some villagers in this Tambon have been arrested. Do you know of anyone that this has happened to? If so, what did they experience? How did they solve this issue?
12. How long did it take to collect all of the GIS data for your village boundaries?
13. Have you updated the GIS data you collected?
14. How does the village use the map?
15. Can you show us around the village?

Thank you for your time.
Appendix E: Transcript of Interview with Mr. Veera Yingrakpetchan, TAO Baan Chan President

Attendees

- Dr. Nattapong Paiboonvorachat
- Mr. Siri Nittayakasetwat
- Mr. Napat Asawachaisopon
- Ms. Chalita Aphirakaramwong
- Mr. Nattasaet Sirikanerat

- Prof. Fabienne Miller
- Mr. Obiora Ofokansi
- Ms. Caitlin Swalec
- Mr. Alexander Zitoli
- Ms. Brigitte Perera

Date: Monday February 2, 2015

Mr. Siri (1.01)

ในฐานะที่ท่านเป็นนายก อบต. ท่านมีความรับผิดชอบด้านใดต่อป่าไม้ในชุมชนนี้บ้างครับ

As the role of TAO Baan Chan President, what are your responsibilities toward the forest management in this Tambon?

Mr. Veera (1.15)

 ผมเพิ่งเข้ามาใหม่ได้ปีกว่า ยังศึกษาเรื่องนี้อยู่ตลอด ผมเข้ามาอยู่ตรงนี้ก็อยากให้ประชาชนรักต้นไม้ในน้ำ

I just move in for about a year and I’m still learning new things about the villages. The reason I come here is that I want the villagers “to love” the trees and watershed area as well.

ทางหมู่บ้านเรายังตกลงกันไม่ได้ แต่ผมเห็นว่ามันเป็นสิ่งสำคัญ

There is still no agreement between villages in this Tambon. But I think it is an important aspect.

แล้วทางมหาวิทยาลัยก็เข้ามาเรียบร้อยแล้ว เหลือแต่บอกประชาคมหมู่บ้าน

Some universities already took a look at this issue. The only thing left is announcing to the community.

บอกรายละเอียดให้เขาให้เขาเข้าใจ

Explaining all the details to them.

ถ้าเราไม่ทำกฎหมายนี้ ถ้าเกิดมีอะไรขึ้นมา ทางรัฐจะไม่รับผิดชอบ

If we do not create this kind of regulation, the TAO will not be responsible for the things that villagers have done.

ถ้าโดนจับเราจะไม่ช่วยเหลือ

If they are arrested, we will not offer any help. Thus, all the villagers must have an agreement that they have to help conserving the forest. Cultural aspects are also involved.

พอผมเข้ามา ผมก็อยากให้ชุมชนบ้านวัดจันทร์รักษาต้นไม้เพื่อลูกเพื่อนหลานให้ลูกหลานได้เห็นได้รู้เรื่องสิ่งแวดล้อม นี่คือสำคัญครับ

When I took the position of president in this Tambon, I want to see the villagers of Baan Wat Chan village conserving the forest for their sons and daughters in the future.
Mr. Siri (5.35)
ท่านทำงานกับชาวบ้านบ่อยไหมครับ ได้ลงไปทำงานกับชาวบ้านบ่อยไหมครับ

How often do you work with the villagers? Have you ever work with villager?

Mr. Veera (6.05)
บ่อยครับ ไม่ได้ยิน ถึงแม้ว่าจะมีงานก็ไม่ได้เลย แต่จะพี่เฝ้าซักใจจิ้นแล้ว แต่ไม่ได้ยินข้อบัญญัติ
I often work with villagers, even though I have another responsibility. I do go down to see these people. But all the villagers already have a clear understanding. But it just not in the local legislation yet.

ที่ตั้งแต่ปี 2552 ตอนนั้นก็แล้วแต่ผู้นำ ผมก็ลงไปบ่อย แต่เรื่องนี้เข้าใจนานแล้ว แต่ไม่ได้อยู่ในข้อบัญญัติ
In the year 2009, at that time it depended on the leaders, I also think that it should be done.

เพื่ออนาคตของราษฎร์และประเทศชาติ มันเป็นนโยบายของระดับสูง
For the future of the villagers and the country. It is the policy of National Council for Peace and Order as well.

Mr. Siri (8.10)
ในตําบลนี้มีหมู่บ้านกี่หมู่บ้านครับ
How many villages are there in this Tambon?

Mr. Veera (8.15)
มี 7 หมู่บ้าน 4 คลองชัน แต่จํานวนประชากรไม่ได้ยิน
There are 7 villages and 4 sub-villages but I do not remember the population.

Mr. Siri (8.45)
หมู่บ้านต่างจากหมู่บ้านอย่างไรครับ
What is the difference between village and sub-village?

Mr. Veera (9.00)
สมมติผมอยู่หมู่บ้านที่ 7 คือหมู่บ้านใหญ่ แล้วก็เย็นนั้นจะมีหมู่บ้านเล็ก
If I live in main village number 7 which is a big village and around that area there will be the small sub-village.

มันจะห่างกันเหมือน แต่จะตั้งเป็นหมู่บ้านเกินไม่ได้ ประชากรไม่ครบ
It might be little further from each other but the population is too small to officially set up a village.

คือถ้าหมู่บ้านนี้ตั้งอยู่ในหมู่บ้านแต่ย้อมหมู่บ้านมีประชากรน้อยแต่มันอยู่ใกล้กันตั้งกลับไม่ได้ ถึงอ้าขวา
So the sub-village can be considered as a village with low population, like a branch of the big village.

Mr. Siri (13.20)
ท่านมีความรู้เรื่อง GIS มาสเคยไหมครับ ท่านคิดว่ามีความสำคัญอย่างไร

How much do you know about GIS? Do you think it is important?

ที่ใช้ได้มีกับทางกรมป่าไม้หรือในกรณีอื่นๆได้
As it could be used as supporting evidence against the RFD or any other cases.

Mr. Veera (13.35)
เรื่องป่าไม้ ทางผู้นำเขาได้ประชุมกันแล้ว เขาไม่มีปัญหา หลังจากที่ตั้งกฎระเบียบแล้วนี้
About the forest, the Phuyai Baans already have a meeting so there will be any problems after the regulation was stated.

คือจะไม่กระทบกับป่าไม้ ทุกครั้งที่มีประชุมก็ได้มีข้าม้า ว่าย้ำให้รักษา
So it will not affect the forest. Every time when we have meeting we also invite the RFD to join as well.

มีต้นน้ํา มีต้นไม้ เรื่องสมุนไพร คด ถ้าเราปล่อยไปเรื่อยๆจะทำลาย เป็นการรำรบ
We tell them that villagers maintain the watershed areas, trees, herbs and vegetables or else it will die and affect our way of live.

ที่ผ่านมากรมป่าไม้ก็เข้ามารับรอ ที่ร่างบัญญัติขึ้นมา
Previously, RFD also joined the meeting on drafting the local legislation.

เรื่องนี้ได้ทำให้กฎหมาย เราให้ชาวบ้านร่วมกันดูแล เราจะให้คนอื่นมาปกครองเราไม่ได้
Things we do do not conflict with the law. We let the villagers take care the forest by themselves, but we refuse other to control us.

อย่างน้อยชาวบ้านก็มีสิทธิ์ แล้วก็จะตั้งกรรมการขึ้นมาเพื่อดูแลรักษาต้นไม้
At least, these villagers have their rights and able to establish a committee to take care of the forest.

ตอนนี้เหลือแค่เราออกกฎระเบียบก็เรียบร้อยแล้ว
Now, what we have left is just passing the legislation.

Mr. Siri (15.35)
ในมุมมองของทางอบต. คิดอย่างไรกับ GIS อยากทราบความเห็นของท่าน อย่างน้อยก็มีกฎหมายที่
In your point of view, what do you think about GIS? So we would like to know your opinion toward the usage of the map.

มีความสำคัญหรือไม่ในการใช้พื้นที่ของชาวบ้านมากกับกฎหมายไม่ใช่
How important is GIS to the right of villagers using the land?

Mr. Veera (16.15)
เรื่องป่าไม้ก็มีข้าม้า ว่าย้ำให้รักษา
Things we do must not conflict with the law.
Dr. Nattapong (16.40)
ท่านเห็นประโยชน์จากด้านการที่ใช้ GIS ไหมครับ
What do you see any benefits from using GIS in this project?

ท่านมีส่วนอื่นที่จะเพิ่มเติมวิธีการทำงานของ GIS ต้องล่วงหน้าหรือต้องขออนุญาต ไหมครับ
Do you have any suggestions about how GIS could be beneficial in other aspects?

Mr. Veera (17.30)
ความต้องการของชาวบ้านคือต้องใช้รูปแบบของคณะกรรมการ เช่น
The villagers want the village committee pattern.

ที่ผ่านมา먹์แขนแต่ทุกคนไม่เข้าใจจุดประสงค์ของส่วนรวม หรือว่า
Because in the past the area of Mr. A, Mr. B, Mr. C and another area is shared among them
which is in the economic forest area.

ไม่ใช่แค่ที่ในป่าใช้สอยเท่านั้น เขาต้องอยู่ในกรอบ ไม่ต้องไปรบกวน ไม่มีการขยายต่อไป
When they want to build a home, they must build within their boundaries without disturbing the
forest.

ใช้แค่ที่ในป่าใช้สอยของตนเอง มีคณะกรรมการและต้องขออนุญาติ ไม่เช่นกันจะมีกฎหมายไปเปลี่ยน
Economic forests are the only forest that we can use. Moreover, the village committee must
approve upon the action, otherwise people would just keep expanding.

จะขัดแย้งไปเรื่อยๆที่ให้พื้นที่หลักๆ ผลประโยชน์มีอยู่ในกรอบ
We will not keep adding fuel to the fire. We will not create more damages to the forest -
everything must not conflict the law.

Ms. Chalita (21.05)
ทางต่างๆมีแผนที่ของต่างในรูปแบบไหนบ้างครับ
Do you have the map for this Tambon? And how many types of map are there for this
Tambon?

Mr. Veera (21.20)
มีแผนที่ครับ
Yes.

Ms. Chalita
ได้ใช้GISในการดำเนินแผนที่อย่างไรคะ
Does it use GIS in the map making process as well?

Mr. Veera (21.25)
ใช้เรียบร้อยแล้วครับ
Everything is done.
Mr. Decha (22.05)
ประเด็นของน้องคือเริ่มใช้ในการจัดการพื้นที่ป่า
What Ms. Chalita said is that she is referring to when is the forest land management has been used?

Mr. Veera (22.15)
เริ่มใช้ตั้งแต่ปี 2554
Since the year 2011.

Mr. Decha
ของวัดจันทร์นี้ ก็แล้วเสร็จปี 2556
The map of Baan Wat Chan village was finished in year 2013.

Mr. Veera (22.25)
ผมเพิ่งเข้ามาใหม่ ผมไม่ค่อยรู้ข้อมูล แต่โครงการนี้เริ่มมาตั้งนานแล้วนะครับ
I have just been here as a president for a year. I do not know much but this project have started a long time ago.

Mr. Siri (23.55)
เรื่องชุมชนป่าไหมครับ ตอนนี้มีข้อตกลงระหว่างกรมป่าไม้กับตระเวนแล้วกับชาวบ้านแล้วใช้ที่ป่าครับ แต่ว่าเรื่องยอมไปยังองค์กรของทีมคัน
About the community forest, there already have an agreement between the RFD, Tambon and villagers? But not the Amphoe am I correct?

Mr. Veera (24.15)
ถึงแล้วครับ
It reaches the Amphoe level already.

Right now, the only thing that’s still missing is the local legislation.

But the map have already been done, I have to set up the community meeting again
จนเข้าใจแล้วก็ต้องจัดตั้งเป็นข้อบัญญัติ จะประชุมเดือนนี้
Until they understand and create the local legislation.

Mr. Siri (24.40)
แล้วข้อบัญญัติเป็นอย่างไรครับ
What is the local legislation?

Mr. Veera
เป็นข้อบัญญัติชุมชนคัน ว่าด้วยผลประโยชน์ การปกครอง ผลประโยชน์ของตระเวน
It is the local legislation for the Tambon about advantages and disadvantages, and the benefit that we will receive for Tambon.
เรื่องการใช้บประมาณ เรื่องจ่ายภิลด บางครั้งก็เป็นเรื่องฝายน้ำล้น ส่วนวัต รักษาแนวกันไฟ
And also the budget on supporting fire protection line, “Fai Maew”, “Fai Nham Lon”
ต้องมีใบเซ็นเซ็นที่ เพื่อให้เข้าบริษัทมีส่วนร่วม
There must be the local legislation in order for the TAO to participate.

Mr. Siri (25.15)

Like setting up a project that involves all committee members and the Amphoe will provide
the budget to support this project?

Mr. Veera (25.25)

Yes. The budget has to be set first.

The budget provides support on the building of fire protection line as well as conserving the
watershed area.

It will also depend in the Amphoe too whether the local legislation or village rule must be first
created as well.

The Amphoe will reconsider that it contradicts with the “mother” law or not. The assistant
district officer and the university will also take a look at this to make sure that it will not create
any legal issue.

Tomorrow I’m having a meeting with the villagers and explain the information to them so that
they will have a better understand.

Mr. Veera (28.00)

In this Amphoe, there are 3 Tambons which are Mae Daet, Baan Chan and Chaem Luang. We
have already done only one Tambon which is Mae Daet.

In Tambon Chaem Luang, we would try to finish as fast as possible because they have a good
leader but in Tambon Baan Chan I would like to clear this with the villagers first before start
doing.

Dr. Nattapong (28.40)
แจ่มหลวงที่บอกว่าให้ทำเร็วๆนี่คือคนเร่งครับ ใครเป็นคนเร่ง?

Mr. Veera (29.00)
ทรงพลังทางการพิจารณาเร่งหมาย บอกว่า จะทำเร็วๆนี้ เขามีม้าหาเชือกเกี่ยวว่า อยากให้ทำเร็วๆนี้ ถ้า kamnan คือคนที่เร่ง

Mr. Siri (30.20)
การจัดตั้งโครงการชุมชนป่าไม้ ใครบอกว่าอะไรต่างๆไม่เป็นรูปเป็นร่าง ต่างคนต่างยกท่า

From the Tambon perspective. What are there any obstacles in initiating the forest community project?

Mr. Veera (30.40)
From what I observed, in the past there is problem about obtaining woods from the forest for different purposes.

In present, once the local legislation was created so I would like the villagers to be part of forest conservation.

Mr. Siri (31.45)
About the local legislation, is it difficult to set up from Tambon to Amphoe?

Mr. Veera (32.05)
I think that it is not that difficult because the RFD will understand, so they are not much obstacles.

Because the old chief called the RFD every time when he want to have a meeting. And most of the time the RFD does not seem to have any opinions or suggestions.
Dr. Nattapong (33.35)
ขออนุญาติถามเพิ่มเติมนะครับ เรื่องกฎระเบียบที่อาจารย์บอกว่าเป็นข้อบัญญัติของต่างๆ แต่ละตําบลเหมือนกันไหมครับ

About the villager’s rules, different Tambon have their own local legislation?

Mr. Veera (33.45)
ต่างกันครับ ของฉันจะอ่อนๆ ไม่แข็ง
Yes. Mine is not that harsh.

Dr. Nattapong (34.15)
What’s the meaning for policies stated “from top to bottom”?

มีแนวนโยบายหรือว่าแนวร่างด้านบนครับ
Is there a policy from the central government?

Mr. Veera (34.30)
We want the villagers to get involved in the process of drafting local legislation for their own benefits.

Every year the TAO will help the villagers building the fire protection line because it do not stated in the local legislation.

ทางกรมป่าไม้ก็ช่วยบ้าง
RFD sometimes also come to help about smoke and fire problem but if we have the legislation. There will be more agencies come to help and support which is a good thing.

Mr. Nattasaet (35.25)
Do you know how these villagers use their indigenous knowledge to preserve the forest?

Mr. Veera (35.40)
According to the conserved forest technique, we have already done it such as if I live up the hill, I just use the resources up there to use.

RDF often goes up to see the boundaries so there would not be any expansion of the area even though they want to. The only forest that can be used is only the economic forest.

Mr. Nattasaet (36.55)
เมื่อก่อนรถที่มีปรากฏ
On the way in I saw orange clothes tied around the trees.

Mr. Veera
ใช้ อบต.เรือสีน้ำเงินอันนี้มิให้เห็น ที่ต้นนี้จะไปปรากฏ พอปรากฏก็ไม่มีใครไปตัด ไม่มีใครมาตัด เจ้าตัว ทางพุทธศาสนา คนเป็นคริสต์
ให้ตัดสิทธิ เป็นความขัดขวางชีวิตของชาวบ้าน
Yes. Our TAO emphasize on this so no one will down the trees because it’s against the religions. I am Christian so I use white clothes, it is the belief.

Mr. Nattasaet (37.40)
นอกจากบวชป่าแล้วมีวิธีอื่นไหมครับ
Beside from orange cloth tied around the trees, is there anything more?

Mr. Veera (38.15)
วิธีที่ 1 ตั้งคณะกรรมการแล้วก็จะไปสำรวจดินและครั้งที่ 2 ครั้งไปสำรวจ ไม่ตัดคณะกรรมการแต่จะหมุนอันนี้ ไปสำรวจ
1. Tie the orange clothed around the tree called “Buad Pha”
2. Set up the village committee for each villages and survey on the boundaries twice a months.

Mr. Nattasaet (39.20)
I heard that there are “Fai Cha Lor Nham”

Mr. Veera (39.25)
ต้องดูว่า แต่ละหมู่บ้าน ทางเรือสีน้ำเงินไปลองดูว่า มีฝายชะลอน 8 ที่ มันจะเก็บน้ำไว้ จะไม่แล้ง แต่ตอนนี้เริ่มแห้ง
These are good things such as Chaem Noi village has 8 “Fai Chalor Nham” which is good for conserving the water. If no “Fai Chalor Nham”, the land will dry and the fish will die.

Last year I asked for RTF to support on the “Fai Cha Lor Nham”. They came in and developed 10-20 “Fai Cha Lor Nham” and the villagers now understand the benefit of having “Fai Cha Lor Nham” so they ask them continuously.

If we are able to pass the local legislation, the TAO will be able to provide financial support.

Mr. Nattasaet (42.15)
Beside you use map for setting up boundaries, what else it could do?

Mr. Veera (42.30)
Majority, it is used for agriculture purpose, more like gardening.
And the fruit products are supported by Royal Project such as plum, Chinese pear and Chinese plum.

Mr. Siri (43.45)
ที่กล่าวมาแล้ว โครงการหลวงส่วนมากจะสนับสนุนไม้ผล ลูกพลับ สาลี่ บ๊วย ที่ทำรายได้
Before this, at the meeting with Tambon and Amphoe, RFD usually does not have any respond or comment. Is this means that RFD disagree with this?

Mr. Veera (44.10)
ที่ประชุมที่ผ่านไปไม่เห็นว่าจะว่าอะไร เพราะว่ามีประชุมไม่ครั้งครั้งที่ไม่เคยที่จะพูดอะไร
They have never said anything in any meeting.

Mr. Decha (44.35)
กรมป่าไม้เขาไม่ยินยอมตกลงกับโครงการนี้ครับ
They wanted to disagree, but this is the policy from the provincial office. If they disagree, it would conflict with their own policy. So, they did not say anything in the meeting room.

Mr. Siri (45.10)
พี่หมายถึงนโยบายนี้ หมายถึงนโยบายจากส่วนกลางหรืออะไรครับ
What do you mean by the policy? Is it policy from the central government division?

Mr. Decha (45.20)
ถ้าพูดในประเด็นตรงนี้ คนเริ่มคือคุณวิบูลย์ สมยศ ตอนที่เป็นผู้ว่าฯ แก้ปัญหาอยู่ 4 ประเด็น
If mention about this aspect, the person who started is Mr. Viboon Sayompong, at that time he was the governor of Chiang Mai. There are 4 main topics:

ประเด็นที่ 1 ก็คือเรื่องของพื้นที่ป่าบุกรุก
The first one is the overrunning forest area problem.

ประเด็นที่ 2 ก็คือเรื่องฝุ่นควัน
The second one is the problem with smoke.

ประเด็นที่ 3 ก็คือเรื่องแรงงานต่างด้าว
The third one is about non Thai citizenship workers.

ประเด็นที่ 4 ก็คือเศรษฐกิจ
The fourth one is about the economic.

โดยจะแก้ปัญหาระดับ 4 เรื่องนี้ จัดทำแผนที่ GIS ที่ครอบคลุมพื้นที่ 3 อับบก
To solve all the 4 problems is to create GIS map that cover the three Amphoes.

อันนี้ที่มีน้อย ท่านประกาศนโยบายจังหวัด เริ่มตั้งแต่ปี 2553
The policy has been declared since the year 2010 as provincial policy.
Mr. Veera (46.35)

During any meeting with him, he will emphasize on this aspects, which is similar to our policy.

Mr. Siri (49.05)

You said that RFD disagree with this but does not say anything. Will this creates any problems in the future?

Mr. Veera (49.20)

I still do not know what RFD is thinking. The Amphoe is our “center” and we hope that RFD would have thought the same.

Ms. Chalita (51.30)

In case if the villagers must move out of the forest, what do you think would be the effect?

Mr. Veera (52.20)

The villagers would be in trouble, but the forest will not have any problems. These villagers have been living in this place for over 100 years. What other places that they could live? As I already said we must help each other preserving the forest.

Mr. Napat (53.10)

The agreement between villagers and president of Tambon about land management? Could you give example of what might be an example of the agreement?

Mr. Veera (53.40)

It depends on the village committee.

Mr. Napat (54.00)

What’s the regulation do might be about?

Mr. Veera

to follow the rules and not use the land outside their boundaries.
The rule will be in booklets form and I have to sign as well as the chief of the Amphoe have to sign the booklet and other people who are involved.

**Mr. Napat (55.20)**
แล้วเล่มนี้ถือถึงไปคนในหมู่บ้านด้วยใช่ไหมครับ ก็ต้องไปคนละเล่ม

**And the booklet is passed out to the villagers as well?**

**Mr. Veera (55.25)**
ใช่ครับ ต้องถ่ายเอกสารแจกให้ผู้นำแจกให้ชาวบ้าน ทุกคนต้องมีส่วนร่วม มันเป็นผลดีต่อพวกเราด้วย

Yes, it will be photocopy and pass out to the Phuyai Baans, villagers and everyone who are involved.
Appendix F: Transcript of Interview with Mr. Suchai Sonvised, TAO Chaem Luang President

Attendees

- Dr. Nattapong Paiboonvorachat
- Mr. Siri Nittayakasetwat
- Mr. Napat Asawachaisopon
- Ms. Chalita Aphirakaramwong
- Mr. Nattasaet Sirikanerat
- Prof. Fabienne Miller
- Mr. Obiora Ofokansi
- Ms. Caitlin Swalec
- Mr. Alexander Zitoli
- Ms. Brigitte Perera

Date: Tuesday February 2, 2015

Mr. Siri (00.01)
ท่านนายกได้ทำงานเป็นนายกอบต. ต.แจ่มหลวงมาถึงกี่ปีแล้วครับ

How long have you been working as TAO Chaem Luang President?

Mr. Suchai (00.10)
เป็นมาสองปีกว่าสี่เดือน
I have been working for almost 2 years 4 months.

Mr. Siri (00.20)
ท่านมีบทบาทหน้าที่ที่เกี่ยวข้องกับโครงการชุมชนป่าไม้และการทำแผนที่ในด้านใดบ้างครับ

What role have you been involved in community forest project and map drawing process? And in which way you are being involved?

Mr. Suchai (00.40)
ในส่วนของอบต. มีส่วนร่วมเกือบทุกๆด้านนะครับ ไม่ว่าจะติดอาญ การอนุรักษ์ทรัพยากรธรรมชาติและสิ่งแวดล้อม เช่น บัวไฟ
As the president, I have been involved in almost every process. I have been involved in the fire protection line process and conservation of natural resources such as wrapping orange cloth around the tree to consider, so that no harm will come to this tree.

Mr. Siri (01.00)
คือเหมือนมีหน้าที่ทำสิ่งเรียบร้อย แล้วประสานงานให้โครงการก้าวหน้าได้

Like you have the duty to cooperate every division in the organization within the Tambon Chaem Luang in order to move the project forward?

Mr. Suchai
ถ้าถ้า
Yes.

Mr. Siri (01.20)
ท่านมีความเห็นอย่างไรในด้านโครงการชุมชนป่าไม้รถย์

What is your opinion on the community forestry project?
Mr. Suchai

Since the entire area of Amphoe Galyani Vadwana are in the conserved forest, I would like the villagers to stand up by themselves and be able to look after the forest by themselves. People live with forest and forest live with people.

Mr. Siri (2.00)

Are there any obstacles during the work operation both in the past and in the current day?

Mr. Suchai

In the past, there are many obstacles. Since these hill tribes having lived in the conserved forest for almost 200 years, but the Bill was declared just approximately 60 years ago. Therefore, I have to create the Tambon legislation, so we can manage the forest by ourselves.

Mr. Siri (2.30)

After the Bill was declared, was there any problem? Or were there any impact to the villagers?

Mr. Suchai

We have not announced the Tambon legislation yet. Recently, we are gathering information and analyzing how it would affect the villagers, such as the pros and the cons.

Ms. Chalita (3.10)

Is the local legislation applied to Tambon Chaem Luang only?

Mr. Suchai

Yes, Tambon Cham Luang and Tambon Baan Wat Chan have separated local legislation.

Ms. Chalita

Does the TAO office have their own land deed?
Mr. Suchai
ที่ไม่มีนั่นแหละ
No.

สถานที่ราชการทุกแห่งก็ไม่มีถูกยื่นถึงนั่นแหละ เช่น วัด โบสถ์ โรงพยาบาลส่งเสริมสุขภาพชุมชน โรงเรียน สำนักงานอบต. ไม่มีถูกยื่นถึง All official places, such as temple, church, school and hospital, still do not have the land deeds.

Mr. Siri (03.40)
แล้วปัจจุบันมีปัญหาเกี่ยวกับกรมป่าไม้ไหมครับ
Currently, are there any conflicts with the RFD?

Mr. Suchai
ก็มีบ้าง แต่ว่าเนื่องด้วยเราก็ประคับประคองกันไปนะ ผู้น่าทุกท่านเข้าไปเขาไปพูดกันบ้าง เคนด้วยเราอยู่ที่นี่ สิ่งเราไม่สร้างบ้านปลูกเรือน เราอยู่กันไม่ได้ เราจับเป็นพื้นที่กัน
Yes, there is but not as much, because we try to maintain good relationship with the local RFD. Also, every Phuyai Baan has met with them. Therefore, it is very important if we help support each other when facing with any problem.

ถ้าพูดว่าผิดไหม เราผิดเพราะเราอยู่ในป่าสงวน
But technically speaking, we are guilty because we live in the conserved forest area.

Mr. Siri (4.30)
เคยมีทางรัฐบาลเข้ามาดูเรื่องนี้ไหมครับ แล้วทำไมทางอบต.ถึงสามารถใช้พื้นที่ครับ
Have there any governmental agencies come to take care of this issue? And why the TAO is able to use the area?

Mr. Suchai
เรามาทำหนังสือแล้วขอใช้พื้นที่ โดยเฉพาะที่เป็นพื้นที่โครงการหลวง เราจะเปลี่ยนที่อยู่ไปเป็นโครงการหลวง แล้วโครงการหลวงก็ต้องพื้นที่ก่อนสร้าง
We made a document asking for the permission to use the land from the Royal Project, and they gave us a green light to use the area.

Dr. Nattapong (5.00)
แปลว่าโครงการหลวงได้พื้นที่จากทางรัฐบาลใช้ไคในครับ
So this means that the Royal Project got permission to use the land from the government?

Mr. Suchai
ที่ศิริราชรัฐธรรมนูญโครงการหลวง ก็ilogy all jurisdiction from the Royal Project ที่ศิริราชก่อนจะเป็นพื้นที่ที่コレก์และส่งเสริมชาวบ้าน
ถ้าไม่เกินพื้นที่ออกไป เราจะไม่สามารถส่งเสริมชาวบ้านได้อย่างไร
The allocations of the Royal Project were initiates by His Majesty the King. They need the area because they need facilities to promote agriculture for villagers.

Dr. Nattapong (5.40)
The Royal Project’s area is legal?

Mr. Suchai

ใช่

Yes.

Mr. Siri

พูดถึงแผนที่จะครับ ท่านก็เห็นความสำคัญอย่างไรกับแผนที่นี้ว่ามันจะมีประโยชน์กับชาวบ้านอย่างไร ภารกิจการจัดการชุมชน

Talking about the map. In your opinion, what is the importance of having the map for the villagers? And for the community management? As well as the benefits to TAO Chaem Luang in what ways?

Mr. Suchai (6.00)

The map is very useful for our TAO. Currently, we use it for constructing roads. So, we must have the map and the GPS coordinates, for planning.

ของอบต. เราจะก่อสร้างอาคารต่างๆ จะไป ที่ไหน ค่า GPS มันต้องมี

As well as government building, we also need the GPS coordinates to determine where it would be built.

Mr. Siri (6.30)

So the map is used for city planning?

Mr. Suchai

ใช่

Yes.

Mr. Siri

แล้วท่านมีความเห็นกับแผนที่นี้มีประโยชน์ต่อชุมชนกันในด้านการจัดการทรัพยากรป่าไม้อย่างไรบ้างครับ

So in your perspective, what is benefit of having the maps for natural resource and forest management?

Mr. Suchai (7.00)

The map will be divided into different zones: economic forest, agricultural and residential area, watershed forest, and cultural forest.

ถ้ามันจะมีประโยชน์ที่จะทำให้ข้อมูลข้อมูลที่มีอยู่มันจะมีประโยชน์ต่อชุมชนภูมิภาคต่อไปนี้ที่จะทำให้ประชาชนมีประโยชน์ต่อไปในอนาคต
We did this because we do not want the villagers to overrun their boundaries and intrude into the conserved forest area. That is why we have to clearly define the different zones for specific purposes. We have to agree on the same idea between different villages.

At this moment, there seems to be no problem with the overrunning of the villagers to forest area, and we also hope that the new generations will do the same.

**Mr. Siri (8.30)**

**Did you worked on this project since the beginning?**

**Mr. Suchai**

I have been working on this almost a year. All is left is passing the local legislation at the Tambon Council.

**Dr. Nattapong (9.00)**

But you were not the TAO President, when this started right?

**Mr. Suchai**

I have been in working with politic for quite a long time. I started as a member of TAO, then a vice president of the council, and then became president of the council. Finally, I became the TAO President.

**Dr. Nattapong**

So it seems that you have observed every single process of the project all along.

**Mr. Suchai**

Yes, but I have been active on this project for only a year.

**Dr. Nattapong (9.30)**

What is the motivation that makes you joined this community forest project?

**Mr. Suchai (10.00)**

When I was a child, I have noticed that the world keep changing too fast.
As the administrator of the Tambon, I consulted with the Sub-district Headman about should we create the Tambon legislation right away. The headman replied that it’s a good idea because he is the one who came up with this idea. Therefore, we went to have discussion with Mr. Decha.

Mr. Siri (11.00)

Since you have seen the project from the start, do you notice any difficulties in the working process?

Mr. Suchai

Yes definitely, because many villagers have different opinions. The villagers were frighten that TAO will force them out of the area.

But we try to provide these villagers the knowledge, so that the land would pass down to the next generation without interfering with conserved forest area. Also the RFD will not come to this area.

If we do not create the Tambon legislation, the villagers will have conflict with the RFD. The TAO can only support these villagers by maintain good relation with the RFD.

Mr. Siri (12.00)

So the TAO also help looking after the conserve forest area?

Mr. Suchai

Yes.

But sometimes the RFD misunderstood. They thought that the TAO was taking control over the forest, but actually we just want to help them.

Now they already understand that the local will help conserve the natural resources and environment.
Mr. Siri (13.00)
ท่านมีความเห็นหรือคิดอะไรที่จะอยากให้ทั่วทั้งอำเภอหรืออำเภออื่นๆที่จะอยากให้เริ่มโครงการนี้ไหมครับ
Do you have any suggestion or advice for the other Amphoes and Tambons if they want to start this project as well?

Mr. Suchai
ก็ผมเพิ่งทํานะ ผมตอบไม่ได้ ผลดีผลเสียต้องดูก่อน ให้พี่น้องต้าบลอื่นๆศึกษากันไป
I have just started working so I could not answer this question. We have to look for pros and cons first. Also let the villager in that area study about this project first.

Mr. Siri (13.30)
ถึงเรื่องภูมิปัญญาชาวบ้าน ท่านเห็นภูมิปัญญาหรือวัฒนธรรมของชาวบ้านที่จะสามารถ ช่วยโครงการนี้ได้ไหมครับ พวกเรื่องการอนุรักษ์ธรรมชาติ
About villager’s indigenous knowledge or their cultural belief could also be applied to this project? Such as forest conservation?

Mr. Suchai (14.00)
ก็มีหลายอย่างนะ
There are quite a lot though.

พวกป่าภูมิปัญญา เช่นป่าต้นน้ำอortic ป่าล่างกู ป่าเขื่อน ก็จะไม่ใหญ่
Such as the belief that obtain a newborn umbilical cord and put in the container, then hang on the tree so they believe that this tree will have owner so no one will be able to harm it. Or if they do, they will suffer the consequence such as death without any reason or explanation.

เช่น “น้าออรู” คือที่ดินนี้พวกเขากลัวกันนะ แบบอยูรูน้าออกมาๆ เขาจะไม่ใหญ่นะ
Another example is “Nham Ork Ru”, is when the water just pop up from the ground. Because they are afraid of this incident so they will consider this as a watershed area, majority of them will refer to it as conservation area.

Mr. Suchai (15.00)
แล้วก็ “เดมะเบอ” คือ กูเล็กนิ่งๆในไหนๆที่วัว รอบๆกูนั้นน้ำอยู่ต่ําไม่นั้นน้าอูใช้ไม่ได้ น้าที่เล็กนั้นเป็นน้าอู เข้าที่ถือ
“De Ma Boe” forest is defined as a small hill surrounded by water, as if the little bump created by nature, this is what they believed.

Mr. Siri (17.00)
ในอนาคตถ้าโครงการนี้สำเร็จ ท่านมีแผนอะไรที่จะต่อยอดความสำเร็จของโครงการนี้ไหมครับ
In the future, if this project succeed? Do you have any plan that might contribute to the success of this project?

Mr. Suchai
แผนนี้คือเกือบทุกปีนะ เพราะอบต.จะต้องมีการวางแผนประจำปีทุกปีอยู่แล้ว
Actually we do have plan almost every year because TAO must have the annual plan.
Such as last year, we have Tambon legislation on the forest fire and smog. This year we are focusing on environment and natural resources conservation.

Next year we will consider things that could support the villager even more.

There will be a plan for sure, but we have not decided what the plan will be about.

Dr. Nattapong (18.00)
Are you trying to obtain official document about the rights to land use?

Mr. Suchai
Yes, the villagers live by themselves and they are facing many problems but it’s the problems that we could not solve directly.

If we help each other to solve this problem, we could come up with some negotiation.

Mr. Siri (18.30)
Talking about official document, if the official document is obtained. Do you think this official document would have effect on the forest?

Mr. Suchai
Because of the official document, further expansion to the forest area would not be possible.

Dr. Nattapong (19.00)
Do you have the confidence that the problems with intruding forest land will not happen again?

Mr. Suchai
Yes, especially with Karen hill tribe villagers.
If these villagers got their official deeds, they will be able to sell or rent the land. Do you think there will be a problem?

Mr. Suchai (20.00)
In this case, because it’s the Amphoe legislation, it already stated that the land cannot be sold or bought.

Mr. Siri (20.30)
How much confidence do you have on this project? If this project is to apply to other communities within the forest area of Thailand, it would be beneficial to the forest itself and to the villagers as well?

Mr. Suchai (21.00)
In my opinion, pros and cons will depend on how well the project is done. The RFD official will consider how well the project is being conducted.

Mr. Suchai (22.00)
We have both village’s regulation and Tambon legislation. And we also have the “mother” regulation that applied throughout Thailand. With these regulations we have, it would be impossible for villagers to expand the area.

Mr. Suchai (22.30)
Wherever the Hmong hill tribe goes, the mountains will be destroyed as there are no trees but if it is Karen hill tribe, they will conserve the forest.
Appendix G: Summary of Interview with Mr. Sutipong, TAO Baan Chan Vice President

Attendees

- Mr. Napat Asawachaisopon
- Mr. Obiora Ofokansi

Date: Monday February 2, 2015

How long have you lived in the village?

He was born in the village for 37 years.

Related to working with the hill tribes, what are your responsibilities as an officer of the Tambon?

He is of the member of the village committee.

Have you reached an agreement with hill tribe villagers on land boundaries?

They reached the agreement to set up the boundaries of the forest. They will conserve the forest and do not expand or own another land which is in the conserved area.

How often do you meet with villagers about land boundaries?

The whole village committee meets with the villagers and Mr. Sutipong about land boundary decisions once a month. He will repeat the rules 2-3 times for the villagers to listen and memorize the rules. He has a good relationship with the villagers and goes around the village to see how the members are doing.

Have you played a role in collecting GIS with hill tribe villagers? If so, what role?

1. Mr. Sutipong drew the map
2. Another member of the village committee held the GPS device
3. Another member of the village committee was a land owner

What is valuable about the GIS map that the villagers created?

The GIS map was valuable because it allowed villagers to know exactly where the land boundaries were. They worked better than fences or other physical boundaries. The maps let them identify farming land which was very important. It was an obstacle for him because this was new technology that they had never used before. A RTF officer came to show them the basics of using the GPS.
How does the Tambon use the map? Have mapping efforts been useful to both the Tambon and the hill tribe villagers?

The maps are very useful for both the Tambon and the villagers because without it, the forest land would be used up at a faster rate. This could cause problem, especially with land investors, who buy new plots of land after exhausting their old ones. The maps are useful because they help control the amount of lands consumption.

Do you have specific requirements for reaching an agreement with the hill tribes?

Every month, the committee meets with the hill tribe villagers to remind them of the rules. The villagers memorize them and read paperwork that is provided for them by the committee about the rules.

What do you think are the main hurdles to reaching an agreement with the hill tribes?

As of now, there are not many problems with the hill tribes.

Do you know how the hill tribes manage the forest?

1. Old belief - every newborn umbilical cord will be put in jar and hang on the tree. They believe that this tree belongs to the newborn so no one will cut down the tree. Or if they do cut down the tree they will face unfortunate consequences.

2. ผีต้น้ำ (Phe Ton Nham) - every year they will pray for the spirit to protect the forest land because they believe that every land have they own spirit as a protector of the forest. In this case they will collect money from the villager to buy a chicken or maybe a bottle of whisky to serve the spirit.

Do the hill tribes do a good job of conserving the forest?

Currently the hill tribe are doing good job compare to the others hill tribes. Most of the farm lands are passed on from the ancestors. The land will be divided among the household. Therefore, if there are less family members in the household, it means that they could use more farm land area within their divided farm land. As the matter of fact, the land which is divided among them is within the boundary of the whole village.

What do you think would happen to the forest if the hill tribes were to leave?

No matter what who come in or leave the forest land, if they do not obey the rule among the use of the land. The forest land will eventually run out soon.

Where would hill tribes go if they had to leaves?

They are used to live in the high land. Therefore, by moving them to the lower land, they would have less knowledge to compete with the other lowland people. The land they use for agriculture is mostly for their living not for selling.
Appendix H: Transcript of Interview with Mr. Kasan, TAO Baan Chan Secretary

Attendees
- Mr. Nattasaet Sirikanerat
- Ms. Brigitte Perera

Date: Monday February 2, 2015

Mr. Nattasaet (0.01)
พี่อยู่ที่นี่มากี่ปีครับ
How long have you been living here?

Mr. Kasan
ประมาณ 30 ปี
For almost 30 years.

Mr. Nattasaet
คุณพี่มีหน้าที่อะไรในหมู่บ้านบ้างครับ หน้าที่หลักของพี่
What is your responsibility or duty in this village?

Mr. Kasan
ท างานเกี่ยวกับเยาวชน เป็นประธานเยาวชนของเขตพื้นที่ ก็อาชีพด้านศาสนาคริสต์ และพี่ท างานเลขา
My work is related with juvenile, I am the president of juvenile club in the local area. My work is also related to the Christian religious and I also work as TAO Chaem Luang Secretary.

Mr. Nattasaet
หน้าที่เลขาพี่ท าอะไรบ้างครับ
What is your duty as a secretary?

Mr. Kasan
ก็ดูเเลนายก กับการจดบันทึกการประชุม แลกิจกรรมที่นายกต้องการ
I assist the TAO President, record the meeting, and organize the activities for the TAO Chaem Luang.

Mr. Nattasaet
What do you think about your community area such as agricultural and residential areas?

Mr. Kasan
คือเมื่อก่อนหน้านี้พวกผม ได้เห็นปั๊มน้ำที่ที่รักไทยทำ แล้วมันจะเป็นเขตพื้นที่ของแต่ละบ้านเมื่อครั้ง
I saw the map that RTF did, the map was divided into individual land plots.

แล้วก็จะมีการจดสัญญา ซึ่งเบอร์เลขของที่
They also had the individual land plot signed.
Mr. Nattasaet
ที่ได้มีส่วนเกี่ยวกับข้างzejieในไทยครับ

Do you involve in any process of GIS mapping?

Mr. Kasan
ถ้าถามว่าเกี่ยวข้องอย่างไรพี่ล่ะก็เป็นคนในพื้นที่ด้วย และพี่ก็ลงพื้นที่ด้วย และถ้าพี่เห็นด้วยกับสิ่งที่ทำ เพราะว่าเป็นการกำหนดพื้นที่ให้กับคนในพื้นที่ให้เจาะจง

If you ask how it is related to me, I could say that I am one of the villagers as well. I also work in the field and I pretty much agree with boundary set up because the villagers could be clearly define their boundaries.

ที่นี้เป็นของใคร ของนาย ก นาย ข นาย ค ใครอย่างนี้ ชาวบ้านจะได้ไม่บุกรุกเพิ่มเติม

For example, this land belongs to Mr. A, Mr. B or Mr. C so that the villagers will not intrude the conserved forests more.

Mr. Nattasaet
แล้วพี่ลงไปเจอกับคนในพื้นที่บ่อยไหมครับ

How often you met with the villagers?

Mr. Kasan
บ่อยมากครับ พบกับชาวบ้าน มีปัญหาอะไรเราแลกเปลี่ยนกัน เพื่อที่เราจะได้ร่วมกันคิด ช่วยกันทำ

Very often I could say, when the villagers face any problems, we are able to think about how to solve this problem together, like we are sharing our ideas.

เกี่ยวกับพื้นที่ทั้งหมด ชี้แนะบางส่วน

Such as the agricultural and residential area, we could come up with some advises.

Mr. Nattasaet
เหมือนอย่างนี้จะช่วยปัญหาอะไรบ้างในไทยครับ

Like you are managing everything for these people?

Mr. Kasan
รับ
Yes.

Mr. Nattasaet
แล้วคุณช่วยอีกในพื้นที่ที่มีกิจกรรมที่น่าสนใจ

When you are working in the field on demarcating the boundaries, what did you do?

Mr. Kasan
ช่วยวางแผน เพราะว่าพื้นที่ของแต่ละหมู่บ้านมีขอบเขตของมัน

I helped with planning because each area in each village has its own boundaries.
Therefore, we had to plan out that which area we should the data be collected first.

Mr. Nattasaet
และทำการสำรวจเมื่อเท่าที่จะทำได้ครับ

After finished planning, what is the next thing you do?

Mr. Kasan
จริงๆ คือ мы должны сначала обсудить с жителями пару вопросов

Actually, we have to meet up with the villagers to discuss on the plan before we even start.

Mr. Nattasaet
แล้วพี่จะเป็นคนนัดประชุม นัดเหตุการณ์ในองค์กร

So you make all the appointments by yourself?

Mr. Kasan
จริงๆ คือ calorimeter ที่เเบบเข้าของผู้ใหญ่บ้านละเอียด แต่ว่าเราประเมินว่ามีการประชุมกัน

Making appointment is not my duty, it is the Phuyai Baan duty. But I announce the places and time to the village.

Mr. Nattasaet
แล้วพี่จะคิดว่าแผนที่ที่เข้าใจจากชาวบ้านจะแต่ง ที่สุดค่ะ?

In your opinion, how valuable the maps are to these villagers?

Mr. Kasan
คือ คำถามว่ามีคุณค่าแค่ไหนนี่ มันมีอยู่ 2 ประโยชน์คือ

1. การกำหนดขอบเขตพื้นที่ทำ🌾พืช ที่ทำเหมือนที่ทำแบ่งชุมชนนั้น ๆ ของแต่ละหมู่บ้านให้ชัดเจนขึ้นมา การดูแล การรักษาแปลงข้าวและพืชหลักฐานข้าวมีข้อเสียที่ชัดเจนขึ้น

To answer this question about how valuable it is, there are 2 benefits:

1. Setting up defined boundaries in the villages will make it easier for taking care and as well as it could be an evidence for the boundaries.

Mr. Nattasaet
นอกจากนี้ยังมีส่วนที่ไม่ได้ระบุ

Other from indicating the area, what other purposes map could be used for?

Mr. Kasan
การประกอบอาชีพ การทำสวนมันจะช่วยอย่างที่ทำอะไรที่ทำไม่เข้าใจ เขอมองว่าเราสามารถทำกินได้อย่างเหมาะสม ตอนนี้ไม่เกี่ยวกับปัญหาที่ทำไว

The map could be of use for occupation purpose. It would be easier to manage the farm land and the RFD understands from this point of view. Currently, there seems to not be any problem.

Mr. Kasan
ถ้าเป็นแต่ละกิจกรรมนี้จะกระทบหรือมั้ยครับ มันจะทำอย่างไร ต่อจะมุ่งมั่นมากยังไม่ได้
In the past, there was the problem with regulation, was the thing that keep you afraid of the consequences and it needed a lot of permission for using the land.

เจ้าหน้าที่ป่าไม้กับชาวบ้านไม่เข้าใจกันก็มีในเรื่องบางเรื่อง
The RFD officers may have misunderstanding with the villagers in some aspects.

**Mr. Nattasaet**

กรับ

**Mr. Kasan (10.45)**

ครับ

In addition, I explain more about the benefit of having the map, by having the map will be benefit toward the forest conservation too?

**Mr. Nattasaet**

ครับ

Like when the villagers know more about the land boundary so there would not be any expansion of the forest land which leads to fewer lands being damaged?

**Mr. Kasan**

ใช่ๆ

They have division of forest area such as economic forest, farm land, and conserved forest.

**Mr. Nattasaet**

ขอมา GIS ถ้ามีจะทำไปทำอะไรบ้างครับ

Does GIS information can be used for other purposes?

**Mr. Kasan**

ใช่

Is to improve the detail of the map.

**Mr. Nattasaet**

แล้วข้อตกลงระหว่างชาวบ้านเรื่องขอบเขตพวกนี้ นอกจากแผนที่แล้วต้องมีอะไรบ้าง

Other from the map, what else need to be use to come up with an argument?

**Mr. Kasan**

The agreement between the villagers?

Mr. Nattasaet
ชาวบ้านกับกรมป่าไม้ที่เข้ามาจับ
Like the agreement between RFD and the villagers.

Mr. Kasan (13.50)
จริงๆ ข้อตกลงวัดพื้นที่เเต่ละครั้ง คือเราจะแจ้งให้เจ้าหน้าที่ป่าไม้ให้ทราบด้วยเนอะ
Actually, the agreement in measuring the boundaries is that we will inform RFD officer to let him understand the agreement as well.

คือเปิดโอกาสให้ทุกฝ่ายมีส่วนร่วม เราจะช่วยกันทำ ถ้าถามว่าขอบเขตต่างๆเนี่ยคือชาวบ้านกับชาวบ้าน จะรู้เอง
We will give opportunity to everyone involved, and we will help each other. The villagers will know the best of the boundaries.

Mr. Kasan (15.15)
2. มีการออกกฎระเบียบในหมู่บ้านด้วย แต่ทั้งนี้คือถูกยอมรับจากทุกฝ่าย กฎระเบียบเกี่ยวกับการอนุรักษ์การดูแลพื้นที่ของตัวเอง
2. The regulation within the village that must be accepted from every division. The regulation is about conserving and taking care of the individual land area.

Mr. Nattasaet (16.20)
ระหว่างที่ตกลงกันมีอะไรที่เป็นอุปสรรคไหมครับ
Are there any obstacles in setting up with the agreement?

Mr. Kasan (16.45)
ปัญหาที่เกิดขึ้นคือชาวบ้านบางส่วนน้อย ชื่อของชาวบ้านไม่ชัดเจน อย่างเช่นพื้นที่น้อง บางทีอาจจะบอกว่าของที่น้อง
Another problem in land measurement, since it is in the forest area so the problem with boundary overlapping might be occurred. Therefore, this problem can be resolved by the village leader.

อีกปัญหาคือการวัดพื้นที่แต่ละครั้ง เป็นป่า มันอาจจะเลยพื้นที่ของอีกคน หรือเกิดพื้นที่ล้้าเข้าไปที่อื่น หรือล้้าไปที่ของอีกคน
The problem that happened to the minority of the villagers is that the boundaries of an individual are not clearly stated. So there might be misunderstanding between villagers that cause the Phuyai Baan to solve the problem.

Mr. Nattasaet (18.00)
แล้วเวลาไกล่เกลี่ย ส่วนใหญ่ทำอย่างไรครับ
What do they do exactly to mediate the trouble between villagers?

Mr. Kasan
เมื่อผู้นำเข้ามาไกล่เกลี่ยคือถูกล้อมรอบ คือทุกฝ่ายต้องมีการยอมรับทั้ง 2 ฝ่าย ถ้าเข้าใจกันก็ง่าย
When the Phuyai Baan steps into mediating the problem, both sides must admit their guilt and create an understanding between them. The good thing of these villagers is that they do not usually have that much argument.
Mr. Nattasaet (18.55)
นอกจากชาวบ้านมีปัญหาล้ำเขตแดนกัน

Mr. Kasan (19.15)
ก็ไม่มีปัญหาอะไรถ้าใคร เพราะทุกคนรู้เรื่องด้านล่างนี้ทำให้ทราบ

Mr. Nattasaet (20.40)
พี่พอจะรู้การจัดการพื้นที่ของชาวบ้านไหม

Mr. Kasan (21.00)
ชาวบ้านที่นี่มีข้อดีอย่างหนึ่งคือ มีขนบธรรมเนียม ประเพณี วัฒนธรรม เช่นการจัดการส่วนนี้ด้วย

Mr. Nattasaet (21.20)
จัดการในด้านใดในครั้บ

Mr. Kasan (22.50)
อย่างที่บอกมีการแบ่งเขตพื้นที่ทำให้ชัดเจนแล้ว ดังที่ได้กล่าวถึง

Mr. Nattasaet (24.25)
การอนุรักษ์ธรรมชาติของชาวบ้าน มีการพัฒนาขึ้นเกี่ยวกับเรื่องที่สว่าง곽 เหล่าที่มีวิจัยเรื่อง
About forest conservation knowledge of the villagers in the past have been improving or getting worst? Could you explain each of the knowledge?

Mr. Kasan (24.45)
มากความสามารถจริงๆ แต่ระบบการอนุรักษ์พื้นที่นี้ พิจาร์ดีณ์สมบูรณ์ ไม่แย่เกินไป เมื่อหลายปีที่แล้วเคยทำงานในโครงการหลวง
ในพื้นที่มีสภาพจูงใจได้ แต่ที่นี้ตั้งแต่เดิม คิดว่าเป็นสมบูรณ์อยู่
The development has been increasing in a constant rate. I have been in the Royal Project for some time where the forest was degraded but this forest area, I think it is already well preserved.

Mr. Nattasaet (26.50)
ถ้าสมมติว่า ชาวบ้านที่นี้ใครรู้ใส่ร้ายๆ จะเกิดอะไรขึ้นเกี่ยวกับชาวบ้านและป่า
For instance, if the villagers are to move out the forest land? What possibility could happen to the villagers as well as the forest?

Mr. Kasan (27.05)
บอกตรงๆ แต่ละปีเรื่องของการอนุรักษ์หรือการป่าไม้ไม่เคยพิจาร์ดีณ์สมบูรณ์ ถ้าเกิดสมมติเกิดการโยกย้าย
กระทบป่าไม้ใหญ่อย่างที่รุนแรงสำหรับพื้นที่นี้จริงๆ มันย่ำยอกไม่ได้ ถ้าเกิดต้องการเปลี่ยนแปลง คงต้องมีบางองค์การเข้ามาช่วยเหลือ
Karen hill tribe has done a great job in conserving the forest. If the relocation happens, it would be a big problem. The government must have the land ready for us to move in. It is almost impossible for us to move out and people will resist. So we need some agencies to come in and lend us some help.

Mr. Nattasaet (30.45)
Is there any RFD close to here?

Mr. Kasan (30.55)
Yes.

Mr. Nattasaet
Do they come and help with these problems about creating the map?

Mr. Kasan (31.00)
They were involved in supporting us rather than take part on the field. By supporting, it means they give the opportunities to us without any argument.

Mr. Nattasaet (31.25)
Who went to the field with you?

Mr. Kasan
Mostly are the village committees, such as Phuyai Baan and others agencies come and help. There are also the officers from RFD who come to help with the accommodations, or they will send the officers to collect the GPS data of the boundary in the forest.

**Mr. Nattasaet (35.35)**

The map progress in Amphoe Galyani Vadhana has worked efficiently. Do you think that if this method is used in other Amphoe that still have land management problem, will there be any problems?

**Mr. Kasan (35.55)**

I talked to Mr. Decha if it is possible to apply to another area. It depends on the community within that area. Unity and understanding are the key factors so that the villagers must have to create a strong community. Once they have stronger community, we are able to help them pass through the tough situation.

**Mr. Nattasaet (39.20)**

Another aspect is that Phuyai Baan must have goodwill in order to help their community as well.

**Mr. Kasan (39.30)**

The process started since 1999 in this area, I am the first person to start the land demarcation. At that time RTF have not came to help yet, I worked with the Royal Project.

**Mr. Nattasaet (40.05)**

They came in approximately 2-3 years ago, before they came, we already collected the GPS data in Tambon Chaem Luang. In contrast, Tambon Baan Chan has been doing this for 3-4 years now.
What did you do at that time?

Mr. Kasan

At that time, the Royal Project has policy related to agricultural and residential land management and they give responsibility to the villagers or any agencies that deal with the villagers in the area and also handle things by themselves which GPS have already been used.

When RTF came to help? What did they do?

Mr. Kasan

He came to help conserving natural resources and creating watershed areas to support the agricultural aspects. Beside that they help setting up the agricultural and residential area. Currently, they give supports to grow more trees and teach the villagers, as well as taking them to see other projects in another area.

When Raks Thai came to help, did they come voluntarily or you asked them for help?

Mr. Kasan

The RTF was originated from The CARE organization. The CARE organization had its own policy which they came and worked at the site, and the villagers also asked for help. If the villagers need help, they will be the one to be asked for help in certain aspects.

Do you have to update the map?

Mr. Kasan

We will have to update the map continuously and 2-3 years after the first update.
In the future, there will be more developments, but currently we are in the process of finishing it up. If you ask me previously 2-3 years ago, we have to keep gathering GPS data, but now the process is completed. The development in the future will focus on mapping process, traverse process, and the intruding to the forest area, as well as watershed development.

Mr. Nattasaet (50.35)
พี่เกิดที่อำเภออะไรครับ

Which Amphoe you were born?

Mr. Kasan
พี่เกิดอำเภอแม่แจ่ม แต่ย้ายมาอยู่กัลยา ตอนนี้เป็นคนพื้นที่กัลยา

I was born in Amphoe Mae Chaem, but moved to Amphoe Galyani Vadhana. At this time, I would consider myself as a villager from Amphoe Galyani Vadhana.

Mr. Nattasaet
อยากให้รักษ์ไทยส่งเสริมด้านไหน มีอะไรอยากให้พวกผมช่วย

What would you like us or RTF to help supporting in any aspect?

Mr. Kasan (52.20)
ด้านเยาวชน เพราะเขาจะเป็นกำลังสำคัญในอนาคต เน้นเรื่องการให้ความรู้ ส่งเสริมคนกลุ่มนี้ ปลูกจิตสำนึก ด้านนโยบายอนุรักษ์ป่า การส่งเสริมท่านมาก่อน อย่างน้อยให้ทำไว้ได้จ้า โดยเฉพาะที่ดินนี้

I would like to emphasize on the juvenile in providing these people knowledge about watershed conservation, and developing their conscious mind toward the forest policy because they will play important roles in the future. At least by doing something is better than nothing.

Mr. Kasan (56.50)
ขอแนะน.annotation ถ้ามีโอกาสอยู่ในเมืองสภาพสังคมเป็นอีกแบบหนึ่ง ทำหน้าที่ขัดแย้งเป็นเท่าเทียมกัน โอกาสที่น้อยในทางของการศึกษา

I would like to add some comments. We have completely different social and way of living in the city compare to living up the hill. We have less opportunity in learning compare to you guys.

เรามีแผนที่จะสร้างอาคารให้กับเยาวชนที่นี่ ช่วยเป็นสะพานในเรื่องนี้ให้หน่อยนะครับ ส่วนใหญ่ตอนนี้เราจะไปเช่าพื้นที่เขา แต่ถ้ามีพื้นที่ของเรา เราจะสามารถรองรับคนได้

We also have a plan to construct the buildings for these people. Could you help us informing about this situation in any directions. Mostly we rent a land for living but the land itself could not handle all of us.
Appendix I: Transcript of Interview with Mr. Vinai Sirichaiprueks, TAO Baan Chan Member

Attendees
- Ms. Chalita Aphirakaramwong
- Ms. Caitlin Swalec

Date: Monday February 2, 2015

Ms. Chalita
อยู่หมู่บ้านวัดจันทร์มานานเท่าไรคะ
How long have you lived in Baan Wat Chan village?

Mr. Vinai
อายุ52ปีแล้ว ถึงที่นี้
Now I am 52 years old since I was born.

Ms. Chalita
ได้ทำงานที่เกี่ยวกับชาวเขาไหมคะ
Does your job relate to the hill tribes?

Mr. Vinai
คือเกี่ยวกับชาวเขาในหมู่บ้าน
Not really because most of the time we usually help each others in our villages.

Ms. Chalita
แล้วทราบเกี่ยวกับเรื่องอาณาเขตของชาวเขาและรัฐบาลไหมคะ
Do you know the situation about the land conflict between the government and the hill tribes?

Mr. Vinai
รู้ครับ
I do know. I know the boundaries of each villages.

Ms. Chalita
ทั้งหมู่บ้านก็คือชาวเขาหมดเลยหรอคะ
All the villagers are hill tribe people?

Mr. Vinai
ใช่ครับ
Yes. About 80-90 percent are hill tribe people.

Ms. Chalita
ช่วยกันปรึกษาหรือไม่เรื่องอาณาเขตกับรัฐบาลไหม?
Do the hill tribe villagers consult with each other about the boundaries to the RFD?
Yes. At first, the hill tribes live on the watershed area. We need to consult with each other concerning in multiple aspects first. Now, there is the water crisis situation because the rain does not fall regularly in rainy season.

Mostly the hill tribes grow rice, so they have to take care of watershed forest by having their own rain forecast called “Pasa Nham” and managing the boundaries. Therefore, it will be easier to take care of the water management.

How many villages in Tambon Baan Chan?

Tambon Baan Chan has 7 villages and another 2 sub-villages which have about 10 houses that far away. Now we are at main Baan Wat Chan village which has about 100 houses.

Do you help to do anything about GIS?

There is a committee. The people, who know how to use GPS, can point out the land boundary, such as the landowner and the neighbor landowner, and I will help to take care of the land boundaries of those people. Before we go out to measure the land by using GPS, we have to consult to the village headman and the villagers first so that we understand each other.
Do they have any problems about the land boundary? For example, are there any overlapping of the lands?

**Mr. Vinai**

ไม่มีเลยครับ อันนี้เราพูดไว้ก่อนว่าขอบเขตของใครอยู่ถึงนี่นะ ผู้ใหญ่บ้านแต่ละหมู่บ้านจะทำการจัดขอบเขตจะสุดกันไว้ก่อน จริงๆแล้วเคยสำรวจตั้งแต่ก่อนมาแล้วครับ แต่ไม่ได้ใช้จาก GPS เท่านั้น

They do not have any problems at all. The Phuyai Baans of each villages have to talk about the land boundaries first. In addition, we have surveyed the boundaries since in the past without using the GPS devices.

Sometimes the villagers from Baan Wat Chan grow rice at Baan San Muang village, so Baan San Muang villagers only tell them that where are the forest boundary and living area. We will use the GPS 10-20 meters far from their rice field then create the fences. So, the village headmans of each villages can tell the RFD about our limited areas. Moreover, the villagers can know their areas of each person and each family.

**Ms. Chalita**

มีแผนที่เป็นของตัวเองใช่ไหมคะ

**Mr. Vinai**

มี แต่ละหมู่บ้าน

Yes, each villages also has the maps.

**Ms. Chalita**

มีแผนที่จาก GPS ที่ทำหรือคะ

**Mr. Vinai**

มี แต่พอจะใช้

Yes. To know their boundaries.

**Ms. Chalita**

มีแผนที่โดยเวลาที่ทำหรือคะ

**How long that they have the maps?**

**Mr. Vinai**

ไม่นานเข้าข้อง คือเรารู้ เราไม่ได้ทำแผนที่ละเอียด ตอนนี้จะบอกพื้นที่ของหมู่บ้านเรียบร้อยแล้ว

It is not time consuming. We collected the GPS data already, but it isn’t in full details.
Ms. Chalita
กี่อย่างที่เป็นราวะ อีกฟื้นที่โดยละเอียดแบบนี้

How long does it take to complete the detailed map?

Mr. Vinai
4-5 ปีที่แล้ว เราทำเมื่อออกแผนที่ไม่ได้เป็นแผนที่แบบนี้ พื้นที่เป็นแนวกับจะรู้อย่างไงฉนงด้วยกัน
About 4-5 years. In the past, we did not have a map like today, but now we know where the watershed located.

Ms. Chalita
ก็อย่างเก่าก็ใหม่เก่าก็อยู่ในพื้นที่ป่าสงวนหรือคะ

Amphoe Galyani Vadhana is the new Amphoe and it locates on the conserved forest area?

Mr. Vinai (12.36)
ครับแล้วก็มีโครงการหลวง โครงการหลวงปี 2522 ในหลวงเสด็จ มีหลายโครงการพระราชดำริ ทั้งฝ่าย สยามฯ แล้วก็มีแผนที่เป็นอย่าง อย่างที่เคยใช้ก่อน 2522
Yes and also there is the Royal Project. In 1979, the king visited us, so there are many Royal Projects helping us such as Fai Cha Lor Nham construction.

Ms. Chalita
ก็อย่างเก่ากับใหม่เก่ากับฝ่ายที่เป็นกัลยานิวัดะนาคะ

So the villagers have lived here before Amphoe Galyani Vadhana was establish?

Mr. Vinai
ใช่ครับๆ ขึ้นต่อต่ำบบแม่ล้อ คือแยกจากต่ำบบแม่ล้อ เมื่อปี จําไม่ได้
Yes. We used to be in Tambon Mae Chaem but now we are in Tambon Mae Suek, I cannot remember when we changed.

Ms. Chalita
นานไหมคะ

How long was it, was it over 50 years?

Mr. Vinai
ไม่ถึงครับ ไม่นาน
Not that long.

Ms. Chalita
ถ้าก็รู้ว่าต้นน้ําอยู่ไหน สามารถแล้วก็จะไปใกล้แหล่งน์้าหมดให้ได้คะ

If they know where the watershed is, can they move closer to the water source?

Mr. Vinai
ไม่ย้ายครับ เพราะเป็นเขตป่า พื้นที่ที่กันน้ำที่มีดินแน่นแหละ
We will not move because it is the forest area. We only use the agricultural and residencial area.
Mr. Vinai (17.14)
บางทีหน้าฝนต้องนอนข้างติดกัน 2 คืนเพื่อที่จะไปประชุมที่อำเภอแม่แจ่ม เมื่อวานเราไปอำเภอแม่แจ่มเนี่ยออกไปค่อนข้างไกลเกินไปจะไม่ได้ไปประชุมที่อำเภอแม่แจ่ม นั่นเองเพราะที่อำเภอแม่แจ่มนั้นที่ไปไปซับซ้อนๆ ไม่พยายามคิดจะนามแบบที่ไปประชุมที่อำเภอแม่แจ่ม ต้องไปนอน 2-3 คืน
Sometime it took 2 days to get to the meeting in Amphoe Mae Chaem in rainy season.

Ms. Chalita
ไเม่แจ่มนี้คือเชียงใหม่ แต่ปายนี้คือแม่ฮ่องสอน
Amphoe Mae Chaem is in Chiang Mai but Amphoe Pai is in Mae Hong Sorn province?

Mr. Vinai
ที่คือถนนมันไม่ดี (เสียดวยกันทางโน้น มันคลุกคลุกไถ่ใหญ่กับแต่งต่างตอน ถนนที่เดิมไม่มีที่)
Because of the road was not good, so we had to go another way. The roads were renovated just a few years ago.

Ms. Caitlin
What is the main obstacle of how they met an agreement with the hill tribe? What are the challenges of the hill tribe on the agreement of the boundary?

Mr. Vinai (21.00)
คุยกันก็เรียบร้อยเลย แต่ละหมู่บ้านที่เราไปนั้น อย่างวัดจันทร์ คือสามารถจะรู้จักกันเป็นญาติพี่น้องกัน มีความเข้าใจกันดี เพราะมันไม่กี่ปีแล้ว
We just talked and we also understood each other so there will be no obstacle. Each villages such as Baan Wat Chan, mostly we are family and siblings so that there is no obstacles or challenges.

Ms. Chalita
ถ้าเกิดไม่มีเขา ชาวบ้านอยู่ในพื้นที่ป่าสงวน ก็คิดว่าเป็นอย่างไรบ้างคะ
What do you think if there is no hill tribe living in the conserved forest?

Mr. Vinai
คือไม่แน่ คือไม่รู้เหมือนกันคิดเอาออกไปไม่ได้แล้ว หวังว่าเราจะยังไงที่จะรักษาป่าให้ดีสุด
I do not know where we will go if we have to move out. We just have to find ways to conserve the forest.

Ms. Chalita
มีไหมไถ่ป่าใหญ่คะ
Is there any forest fire?
Mr. Vinai
มันจะมีทางทำแนวกันไฟของแต่ละหมู่บ้านตลอด ตอนนี้ก็ทำเสร็จแล้ว คือเราไปดู ช่วย ว่าทำไหมก็ได้ไหม
ถือว่าไปตรวจเวรเป็นระยะๆช่วงนี้ก็เริ่ม
There is fire protection line in each village. Now, we have finished already. Moreover, we also observe in the summer frequently.

Ms. Chalita
เพราะมันแห้งมันจึงเกิดเองใช่ไหมคะ
Is the dry weather cause the fire?

Ms. Chalita
เหรอที่จะทำภารกิจ
Do they burn for cultivation?

Ms. Chalita
ถ้าสมมติเพื่อเกษตรกรรม จุดเผาเพื่อให้เคลียร์พื้นที่หรือเปลี่ยนชนิดพืชคะ
Do they burn to clear the area or change the types of crops?

Mr. Vinai
ส่วนมากเพื่อเปลี่ยนชนิดพืช
They burn their agricultural areas to change different types of crops.

Ms. Chalita
คือตัดต้นไม้เพื่อที่ทำเกษตรกรรมใช่ไหม
Do they cut down trees for cultivation?

Mr. Vinai
ก็คือเพื่อที่ทำเกษตรกรรมใช่ไหม
Mostly, the villagers use the terraced field to do cultivation.
Appendix J: Transcript of Interview with Mr. Samart Dejitja, TAO Baan Chan Member

Attendees

- Mr. Siri Nittayakasetwat
- Mr. Alexander Zitoli

Date: Monday February 2, 2015

Mr. Siri (0.10)
พี่เคยทำเกี่ยวกับ GIS พี่รู้จัก GIS ไหมครับ พีเป็นคนเดินเก็บข้อมูลหรือครับ

Have you participate in working with GIS? Do you familiar with the term GIS? Are you the one that collecting the GIS data?

Mr. Samart (0.20)

เคย แต่รู้จักแค่ GPS

Yes, but I know only GPS.

Mr. Siri (0.45)

Are you the one who walk with the GPS?

Mr. Samart (0.50)

และเดินเก็บให้กับมูลนิธิรักษ์ไทยครับ เดินจับ GPS อย่างเดียว แต่เรื่องข้อมูลไม่ได้ทำ การจัดระเบียบที่ดิน ภายในหมู่บ้าน

Yes I’m just the person who walk for RTF. I holded the GPS device, but I did not organize the gathered information neither the land management within the village.

Mr. Siri (1.20)

ในความเห็นของพี่ ในการทำแผนที่มีประโยชน์อย่างไร

In your opinion, what is the benefit of the map?

Mr. Samart (1.30)

มีประโยชน์ครับ เพราะจะได้รู้ว่าที่ทำกินมีกี่ไร่ เพราะมีการแบ่งเป็นสามส่วน 1 ป่าใช้สอย 2 ที่ทำกิน 3 ป่าอนุรักษ์

It is useful because we could identify how many rai is use for agricultural and residencial area because we divide forest into 3 parts:
1. Economic forest area
2. Agricultural and residencial area
3. Conserved forest area

แต่เวลาจับ GPS เข้าริ่งที่ทำกินก่อนแล้วจะไปวัดที่ป่าอนุรักษ์

And when they work with GPS, they will measure the agricultural and residencial area first. Then, they will measure the boundary of the conserved forest area.

Mr. Siri (2.20)
Measure the agricultural and residencial area of each an individually?

Mr. Samart

กร้าบ

Yes.

Mr. Siri (3.25)

ทางตําบลมีการใช้แผนที่ช่วยชาวบ้านให้สามารถดูพื้นที่ทําภิรมย์ได้อย่างไรบ้างครับ

Do the Tambon use the map to help the villagers having better quality of lives?

Mr. Samart (4.00)

ทําให้ชาวบ้านนั้นได้รับประโยชน์ หลังจากที่ทําแผนที่มีการแน่นอน แล้วไปบนภาคล้อขั้วจะได้ลงแปลงไปครับ

It improves villagers’ quality of lives, after measure the boundary there would be certain in agricultural and residencial area which lead to future possibility for obtaining the land deed.

Mr. Siri (5.00)

หลังจากกําหนดที่ตําบลมีข้อกําหนดที่ชาวบ้านต้องทําตามไหมครับ ช่วยพูดคร่าวๆหน่อยครับ

After the boundaries have been set up are there any procedures or policies that villagers must participate or follow?

Mr. Samart (5.30)

ถ้าวัดกันเรียบร้อยแล้ว เป็นป่าก็ต้องเป็นป่า สำหรับที่ทําภิรมย์ก็ต้องเป็นที่ทําภิรมย์

After the measurement, conserved forest area must be conserved and agricultural and residencial area must be use for agriculture and residence.

ในเขตป่าที่เราได้ป่าดีนี้ เรามีป่าต้นน้ํา ไม่ไปพันน้ําจะเป็นป่าที่เป็นประโยชน์กับชุมชนก็ได้ ไม่ต้องไปทำภาระที่ให้เกิดปัญหา

In the watershed forest area, the villagers come up with the agreement that there will do no harm to this area and this area should be conserve.

Mr. Siri (6.30)

แล้วพื้นที่อื่นๆแล้วครับ ที่ไม่ให้ป่าดีนี้

How about another forest area that is not watershed forest area?

Mr. Samart

พื้นที่อื่นที่เป็นที่ทําภิรมย์ของชาวบ้าน เราจะไม่ขยายแล้ว

Other areas is the agricultural and residencial area of the villagers which we will not further expand the agricultural and residencial area.

Mr. Siri (8.00)

ในเรื่องของผลการที่ตําบล มีการซื้อเอกสารเป็นลายลักษณ์อักษรในครับ

About the agreement with the Tambon, are there any documents or paperwork that should have signature on?
Mr. Samart  
มีครับๆ มีการเซ็นเอกสาร
Yes. There is the document for confirmation.

Mr. Siri  
เอกสารประเภทไหนครับ ช่วยอธิบายเพิ่มเติมหน่อยได้ไหมครับ
What kind of document? Could you explain more about this document?

Mr. Samart  
เป็นแผนที่ที่ทำกัน
The map of agriculture and residence area.

Mr. Siri  
คือเป็นเอกสารระบุที่ทำกินของที่ แล้วให้พี่เซ็นเอกสารรับรู้ใช่ไหมครับ
Oh, so it’s a document on agriculture and residence area. Do you have to sign the document for acknowledgement?

Mr. Samart  
กรับๆ ใช่ครับ
Yes.

Mr. Siri (9.00)  
ตอนทำข้อตกลงระหว่างชาวบ้านกับทางต้าบลพี่เห็นอุปสรรคคืออะไรไหมครับ ถ้ามีช่วยอธิบายให้ฟังหน่อยได้ไหมครับ
At that time what seems to be an obstacle in process of agreement between villagers and Tambon? Could you explain more to me?

Mr. Samart  
มีๆ ตอนแรกที่เข้ามาวัดที่ชาวบ้านไม่รู้ว่ามันเป็นอย่างไร? มันต้องทำอย่างไร? ทำไปแล้วมันจะมีปัญหาต่อชาวบ้านไหม?
Yes, at first the villagers have no clue of what is GPS and how it works; will there be any problem with the villagers after the process is done.

ตอนแรกๆก็มีปัญหาเยอะแยะแยะ แต่พอชาวบ้านเข้าใจแล้ว ก็ทำตามที่เจ้าหน้าที่ที่เข้ามาสอน
But when the villagers started to understand and do what field officers told.

Mr. Siri (9.30)  
ที่ข้ามอธิบายให้ชัดเจนกว่านี้ได้ไหมครับ
Could you please explain in more depth?

Mr. Samart  
ตอนแรกที่เข้ามาวัดที่ชาวบ้านไม่เข้าใจ แล้วตอนนี้เข้าใจแล้ว
So the first measure of the boundary, the villagers still do not understand but now they understand.

Mr. Siri
So at first the villagers do not understand why the maps have to be done but now they do understand?

Mr. Samart
Yes.

Mr. Siri (10.00)
How long it took for the villagers to understand why the maps have to be done?

Mr. Samart
About a year.

It takes almost 2 years to start making the maps.

Mr. Siri (11.00)
Did RTF send someone to teach you about this?

Mr. Samart
Yes. I learnt from Mr. Decha.

Did he come in the village himself to teach you?
Yes. He taught me how to use the GPS device, but he is the one who finalize the map.

**Mr. Siri**

Is that the only job you do?

**Mr. Samart**

Yes, just information gathering.

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**Mr. Siri (12.00)**

How long does it take for Mr. Decha to teach you about using GPS?

**Mr. Samart**

About a day.

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**Mr. Siri**

Is it difficult using the GPS device?

**Mr. Samart**

It is not difficult because I just press the button from rai 2 to 3 to 4 and continue.

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**Mr. Siri (14.30)**

How long it took for you to gather GPS data?

**Mr. Samart**

Quite long, almost a month because there are a lot of spots to gather GPS data.

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Mr. Siri (16.00)
The collaboration happened in which level? The Amphoe level or the Tambon?

Mr. Samart

Right now we already have agreement with the Tambon but the Amphoe is in the progress.

Mr. Siri

Are there any obstacles or problems you are facing now?

Mr. Samart

I do not really know.

Mr. Siri

Who is the person to transact with the Amphoe?

Mr. Samart

The president and Mr. Decha are taking care of the transaction with the government.

Mr. Siri (17.30)

Could you give me a permission to refer to previous conversation about when there are still no mapping process did the RFD come in and chase you away from your land?

Mr. Samart

Yes. Because it’s the forest area but after the mapping was done, they know now that these area is the village agriculture and residence area so they will not bother this villagers.

Mr. Siri (18.00)

Have the RFD ever chase the villagers away from their lands?

Mr. Samart

No.

Mr. Siri

Could you explain in depth? How they did? Or did they use any power forcing?
Mr. Samart
They just came in a give us a warning but they use no physically chasing at all.

They just let this villagers know that they will come in and confiscate the land.

But after the map have been done, they stop bothering.

Mr. Siri (19.00)
How did you divide the conserved forest area?

Mr. Samart
They put a sign clearly explain in each boundary.

Mr. Siri
Who is the person to do the sign? RFD? Villagers?

Mr. Samart
The villagers did by themselves.

The owner’s of an individual area is the person who put the sign for their boundaries.

Mr. Siri
How about if the villagers put up the sign by themselves, do the RFD come in and say that what these villagers did is not right?

Mr. Samart
There already has been the agreement between RFD and the villagers.

Mr. Siri
The map is for settle up the agreement?
Yes.

Mr. Siri (22.30)
When you mention RFD, you mean the Tambon, RFD and the villagers has accept the agreement?

Mr. Samart
Yes. Agreement between 3 parties.

RFD mostly arrest people who cut down trees. They did not really arrest people from their agriculture and residence area.

Mr. Siri
Cut down the tree for sell?

Mr. Samart
No.

Villagers cut down the trees to build a house.

So if the villagers cut down trees from the conserved forest area, they will get arrested and if they cut down tree from the economic forest area, they do not get arrested?

Mr. Samart
In the conserved forest area, we did not cut down trees but in the economic forest area we did cut down trees.

Mr. Siri 23.30
So if the villagers cut down trees from the conserved forest area, they will get arrested and if they cut down tree from the economic forest area, they do not get arrested?

Mr. Samart
In the conserved forest area, we did not cut down trees but in the economic forest area we did cut down trees.

Mr. Siri 24.00
Mentioning about the arrest, have villagers ever been arrested?

Mr. Samart
In the past, the villagers got arrested by obtaining woods in their home.
Mr. Siri
แต่คือตัดจากป่าใช้สอย?
The wood is from the economic forest area?

Mr. Samart
ก็ใช่ ไม่ได้ใช้ต้นที่ไม่ใหญ่ขึ้นไม่ได้ เพราะต้องตัดไม้มาสร้างบ้าน ชาวบ้านเลยต้องไปตัดจากป่าอนุรักษ์
The trees in the economic forest area are not large enough to build a house so the villagers must have to get trees from the conserved forest area instead.

Mr. Siri
อออ อันนี้ก็เป็นปัญหา
Ohh, so the problem occurred.

Mr. Samart
ใช่ครับๆ พอเอากลับบ้านไม้ก็โดนยึด และจับกุม
Yes. The villagers got arrested as well as the woods are being confiscated.

Mr. Siri (27.00)
ที่ได้ตัดขึ้นไม้เพราะติดข้อตกลงกับทางต่อมหรือเจ้าหน้าที่ทางป่าไม้?
The arrest happened because they did not follow the agreement with the Tambon or the forestry official report to RFD?

Mr. Samart
ครับๆ เขาผิดข้อตกลงกับทางต่อม
Yes, we did not follow the agreement with the Tambon.

Mr. Siri
แล้วทางต่อมมีการแก้ไขปัญหาอย่างไรครับ เพราะชาวบ้านได้ตัดขึ้นไม้ไปแล้ว
Does the Tambon have any solution to this problem because the villagers have already committed guilty for their crime?

Mr. Samart
เพราะชาวบ้านตัดไม้แล้วไม่สามารถช่วยอะไรได้
Because they are guilty for their actions so we could not do anything to help them.

ก็เลยติดคุกไปปีกว่า
Therefore, they were put to jail for about a year.

Mr. Siri (28.00)
แต่สุดท้ายก็ได้ปล่อยชก
But at last they were released?
Mr. Samart

กราว
Yes.

Mr. Siri

คืออะไรกว่าของนั้นไม่น่าจะสูญหายไปใช้ในข้อมูลแล้วได้ก็ไป แล้วมีวิธีแก้ปัญหาอย่างไรครับ หรือยังไม่ได้?

So the problem is trees in the economic forest are too small, are there any solution for that?

Mr. Samart

แก้ไม้ได้
No.

They have to request the RFD but there is no clear solution yet of what could be done.

So it leads to robbing trees problem.

Mr. Siri (30.00)

โทษของคดีนี้ คือแก้ต้นทุกหรือมีการปรับตัวแย่หรือ

The punishment for this crime is just arrest or also a fine too?

Mr. Samart

แค่ทับนิ้วเช่นเดียวกัน

Just arrested and confiscate all the woods.

Mr. Siri (30.30)

ตอนที่ชาวบ้านถูกจับกุมไป ทางครอบครัวเขามีปัญหาที่นั้นไหมครับ

Are there any problems with family issues once he/she have been arrest for the crime?

Mr. Samart

มีครับๆ เพราะลูกอยู่นน มีเด็กถึงสองลูกล่าบก

Yes. Problem with raising newborn kids.

Mr. Siri

แล้วทางอบต.มีการช่วยเหลือพวกเขาก็ไม่เข้าใจทำไม?

How about TAO Baan Chan Office, do they give any support to these villagers?

Mr. Samart

เรื่องอาหารนั้น prez ทางพัฒนาช่วยเหลือครอบครัว

They gave food support.

Mr. Siri (33.00)

กลับไปเรื่องGPSครับ หลังจากที่พี่ได้เก็บข้อมูลGPSส่งให้กู้ภัยแล้ว มีการยืนยันความถูกต้องของแผนที่ใช้ในภารกิจ
Refer back to GPS, after you gather the GPS data and sent to Mr. Decha, are there any validations that the map is correct?

Mr. Samart
คุณเดชามีเอาแผนที่มาให้ดู เพื่อนให้เราเช็คๆความถูกต้อง
Mr. Decha brought the map for us to check for any mistakes.

แล้วข้างหลังแผนที่จะมีข้อตกลงถกอยู่ว่า ห้ามข้อ ห้ามขาย เป็นต้นไป
And at the back of the map will be a written message agreement about selling and buying land is prohibited.

แต่นี้ยังไม่ได้โฉนดนะ เป็นแผนที่ของแปลง แต่แผนที่ใหญ่จะอยู่ที่ตัวบ้าน
But still we did not get the land deed, it just the area of the individual but the big map will be at the Tambon Office.

Mr. Siri (37.00)
ถ้ากรณีที่จำนวนประชากรมีขึ้นแล้วต้องขยายพื้นที่นี้ มีการจัดทำแผนที่ใหม่ให้ใหม่หรือไม่ครับ
In case if the population increase and have to expand the area/ boundaries, do you manage to redo the map again?

Mr. Samart
ก็อีที่ดินของผมก็จะส่งต่อให้ลูกๆนะ
The land I am own will be pass on to my children.

ไม่สามารถขยายพื้นที่ได้แล้ว เพราะถูกกำหนดไว้แล้ว
The area expansion is impossible because the boundaries were already set.

ขยายไปเดียวก็โดนป่าไม้มาจับอีก
You will get arrest if you expand the area.

แต่ถ้า 10-20 ปีข้างหน้า มันก็ต้องสิ้น
But in the next 10-20 years, the land will eventually be use up by then.

Mr. Siri (38.30)
แล้วถ้ามันสิ้นชั้นนี้ มีแผนอะไรเพื่อรองรับไปไหมครับ
If the land were to use up, do you have any plan for that yet?

Mr. Samart
ไม่มีแผนครับ ต่างไม่รู้จะมีแผนกัน ล่าม
No, not yet (*Laughing).

Mr. Siri (40.00)
คนที่ทำแผนที่นี้ เป็นใครครับ
Who are the people involve in creating the map?
Mr. Samart
เป็นคนในหมู่บ้านนี้และครับ เป็นกรรมการหมู่บ้าน
There are the villagers and the village committees.

กรรมการหมู่บ้านเป็นคนประสานงานกับทางตําบล และ คนในหมู่บ้านเวลาทําแผนที่
Village committees are the one who corroborate with the Tambon as well as the villagers in mapping process.

Mr. Siri (42.30)
แล้วกรรมการหมู่บ้าน พวกพี่เลือกคนอย่างไรครับ
What is the process of assigning someone to be the village committee?

Mr. Samart
มีผู้ใหญ่บ้านไว้เลือกกรรมการหมู่บ้านไว้เลือกกรรมการหมู่บ้าน
The Phuyai Baan will be the person to elect the person to be village committee.

เลือกผู้ช่วยสองคน และกรรมการอีก10คน
There will be 2 assistants and 10 village committees.
ตัวผู้ใหญ่บ้านเองก็ถูกเลือกขึ้นมาเหมือนกัน
The Phuyai Baan was also elected by the villagers

Mr. Siri (45.00)
หลังจากชาวบ้านได้แผนที่แล้ว ชาวบ้านมีความรู้สึกอย่างไรบ้างครับ
After the villagers have the map, what are their first impressions?

Mr. Samart
รู้สึกว่าตัวเองมีที่ทํางานที่แน่นอน
We feel like we have agriculture and residence area for our own.

Mr. Siri
แล้วชาวบ้านรู้สึกว่า แผนที่มีประโยชน์กับตัวเขาเองไหมครับ
Do the villagers think that the map is useful for themselves?

Mr. Samart
มีประโยชน์ครับๆ เพราะรู้ว่าตัวเองมีอะไร ๆ นิขถึงเขตถึงตรงไหน
Yes, it being useful because now they could know how many area they own and they will know their boundaries.

Mr. Siri (47.00)
ถ้าพี่สามารถรับความช่วยเหลือจากคนภายนอก พี่อยากให้ความช่วยเหลือได้ในด้านไหนครับ
If you could receive help from an outsider, what might you ask them for help?
Mr. Samart
อยากได้โฉนดหรือเอกสารที่ดินที่แน่นอน อะไรก็ตามที่เกี่ยวกับที่ดิน
I would like the land deed or document related to the land area.

เพราะในกัลยานี้ ส่วนมากนั้นไม่มีเอกสารสิทธิ์
Because in Galyani Vadhana, these documents would not exist that often.

การทำแผนที่นี้เพื่อที่ในอนาคตจะได้มีเอกสารสิทธิ์ อย่างที่คนเมืองเขาไว้ พวกโฉนดหรือหน.3
The process of creating the map is for possibility in the future to obtain the land deed like the others or could be หน. 3. (Agriculture certificate)

เพราะถ้ามีโฉนด จะซื้อก็ซื้อได้ จะขายก็ขายได้ อันนั้นจึงจำเป็นไม่ได้
Because by obtaining the land deed, you could be able to buy or sell land because the land belongs to you.

Mr. Siri (48.30)
ณ ปัจจุบันนี้ มีปัญหากับทางตากบลหรือกรมป่าไม้ไหมครับ
In the current day, are there any problems with the Tambon or RFD?

Mr. Samart
ไม่มีนะครับ เพราะ ที่ทำเป็นแบ่งแล้ว ที่ป่าไม่มีแล้ว ที่ป่าใช้สอยก็มีแล้ว
No, because we clearly identify the boundaries.

ในวันพ่อวันแม่เนี่ย พวกเราก็จะมีการเข้าไปปลูกป่าเสริมในพื้นที่ป่าอนุรักษ์
In mother day and father day (Thai’s special occasion), we will plant more trees in conserved forest area.

Mr. Siri (52.00)
พี่บอกว่าพี่แบ่งป่าเป็น พื้นที่ใช้สอย ป่าใช้สอย และ ป่าอนุรักษ์หรือป่าพื้นที่โดยส่วนตัวของพี่แล้ว ป่าระเภทไหนสากลสำคัญที่สุดครับ
You mention that you divide the forest area into economic forest area, agriculture and residence area, conserved forest area and watershed area. In your opinion, which type of forest is the most important?

Mr. Samart
ที่สำคัญที่สุดก็ ที่ทำกิน
Agriculture and residence area seems to be the most important area for me.

รองลงมาเป็นไปใช้สอย
The second is the economic forest area.

Mr. Siri (53.30)
ในพื้นที่ทำกิน ที่ ป่าใช้สอยของที่ดี ก็ต้องทำอะไรบางครับ
The Agriculture and residence area and economic forest, what are you use those area for?
Mr. Samart
พื้นที่ทำกินอย่างไรที่ทำสวนแล้วเลี้ยงสัตว์ ปัจจัยลอยอะไรทำไม่ชำฝิน
For the Agriculture and residence area use for farming animal and farm land and for the economic forest is use for obtaining woods.

Mr. Siri (54.30)
พื้นที่เกษตรอะไรบางเสริม
What kind of product you grow on the farm land?

Mr. Samart
ปลูกพวกฟักทองญี่ปุ่น มีกระหล้าขาว ที่โครงการหลวงเสริม
I grow Japanese pumpkins and white cabbages that supported by the Royal Project.

ที่เป็นไม้ผลก็พวกบั้ยฟักอาโกวาโด
The fruit I grow such as bayberry and avocado.

Mr. Siri (56.00)
คือส่วนมากแล้วเป็นพืชที่โครงการหลวงสนับสนุนใช่ไหมครับ และมีการหมุนเวียนบ้างไหมครับ
Most vegetable is supported by the Royal Project is that correct? Are there any crop rotation activity?

Mr. Samart
ครับๆ ส่วนมากโครงการหลวงสนับสนุน และ เราจะปลูกพืชแบบหมุนเวียน
Yes, most vegetables were supported from the Royal Project and we do the crop rotation activity.

Mr. Siri
ตอนนี้มีปัญหาด้านการปลูกพืชไหมครับ
Right now, do you have any problem with growing the vegetables?

Mr. Samart
มีครับฯ เรื่องราคา ราคาดีไม่ค่อยดี
Yes, the selling is not that good.

Mr. Siri
ราคาล่าสุดนี้ 7 บาทไม่ค่อยดี ถ้าเป็น 10 หรือ 15 บาทจะดี
Cabbage was sold 7 baht for 1 kg. If 10 to 15 baht per 1 kg, it would be nice.

Mr. Samart
แล้วปุ๋ยก็แพง
And the fertilizer is expensive.

แล้วขี้มแกะจะอีกถึงจะยุทัยohon แล้วปลูกยาถาม
If the organic fertilizer will be cheaper but it will be harder to grow.
Mr. Siri (57.00)
ที่มากระแสตลาดนี้ ส่วนมากแล้วใครเป็นคนรับซื้อกันบ้าง
Who appeared to be majority buyer of these products?

Mr. Samart
ถ้าปลูกของโครงการหลวง โครงการหลวงจะเป็นคนรับซื้อครับ
If vegetable supported by the Royal Project, the Royal Project will buy from the villager.

แต่พืชทองญี่ปุ่นนี้มีพ่อค้ากลางมาซื้อ
But Japanese pumpkin, there is a middleman who buy the product.

ก็ส่วนมากแล้วโครงการหลวงจะรับซื้อ แต่ถ้าช่วงไหนราคาดี ก็จะมีพ่อค้ามาซื้อช่วงด้วย
The majority buyer is mostly from the Royal Project and if the price of the product is high or consider a good selling price, there will be more middle man to buy the products.

Mr. Siri (1.02.00)
คำถามสุดท้ายนี้ครับ ที่พ่อค้าไทยมีใครเป็นหรือมากกว่า
Last question, do you know anything about the regulations?

Mr. Samart
ไม่รู้เลยครับ เรื่องกฎหมายนี้ ส่วนมากครับจากจุฬาลงกรณ์มหาวิทยาลัย.เป็นคนบอก
Not at all, some of the regulation I knew from Mr. Decha and TAO Baan Chan Office only.
Appendix K: Transcript of Interview with Mr. Chaluemchai Piriyalakhun, Phuyai Baan Baan Wat Chan Village

### Attendees

- Dr. Nattapong Paiboonvorachat
- Mr. Siri Nittayakasetwat
- Mr. Napat Asawachaisopon
- Ms. Chalita Aphirakaramwong
- Mr. Nattasaet Sirikanerat
- Prof. Fabienne Miller
- Mr. Obiora Ofokansi
- Ms. Caitlin Swalec
- Mr. Alexander Zitoli
- Ms. Brigitte Perera

### Date: Monday February 2, 2015

**Mr. Chaluemchai (2.20)**

In the context of the project which has been ongoing, the community depends on the forest. Their way of life is highly dependent on the forest land. Sometimes, they have done something wrong without knowing that it is against the law that cause problems since 2004 after the government declared the forest area as a conserved forest area.

(3.00)

We are trying to merge people’s way of life with the forest land, so that they could go along well with each other.

(4.00)

Lastly, there is management of land use started from Amphoe Mae Chaem then later on moved to Amphoe Galyani Vadhana.

(4.30)

When it first started, there are many obstacles in the ways. There have been many organizations that try to help, but did not succeed. This problem has been going on for a while until the villagers started to lose hope and get bored.
(5.00)
ส่วนของสับเปลี่ยนจักรยานครับ เป็นสับเปลี่ยนที่ทำ แล้วให้ข้อมูลเพื่อ แล้วก็ให้ข้อเสนอแนะแก่ผู้บริการและตัวบล็อกๆที่ทำ
In this case, Tambon Baan Chan was the first Tambon to start this project and also has been facing many problems that could be used as lessons for the villagers in Tambon Baan Chan and another Tambons as well.

เช่น ปัญหาที่พบเวลาเอาไว้ไปวัดที่ดินที่ทำกิน บางทีเจ้าของไม่ไป ถ้าเป็นปัญหา
For example, there is a problem if the landowners do not show up during the GPS data collection.

(5.30)
ถ้ามีปัญหาเราก็จะถามขั้นตอนไปวันที่ไหนที่มีปัญหา เราจะถามกลับไปทั้งหมด
If there are any problems, we will analyze and recheck the part we have trouble with so that we will try to resolve those problems.

(6.00)
(6.00)
ณ วันนี้ทางต้าบลบ้านจันทร์ ก็ได้เข้าเป็นข้อบัญญัติของต้าบลแล้ว เป็นเรื่องที่เราต้องทำความเข้าใจกับเพื่อนบ้านที่ใกล้เคียง
หลังจากที่เราสร้างไปแล้วมันมีในเรื่องของการทำแผนภูมิที่ถูกต้อง
At present, Tambon Baan Chan has its own local legislation so we have to make these villagers understand the local legislation. In this case, we have accomplished the first step of the boundary mapping of each individual plot already.

(6.30)
ณ วันนี้ก็สำเร็จไปได้ 70% เลย ถ้าตั้งในเรื่องของข้อบัญญัติของต้าบลที่ต้องทำความเข้าใจให้กับประชาชนก็ถูกต้อง
Now we have accomplished almost 70% of the project already. Then, we have to make the villagers understand about the local legislation.

Mr. Napat (11.00)
ผู้ใหญ่บ้านอยู่ที่นี่มานานใช่ไหมครับ
How long have you been here?

Mr. Chaluemchai
ได้ 14 ปี
Yes, 14 years.

Mr. Napat (11.30)
ผู้ใหญ่บ้านมีความรับผิดชอบต่อหมู่บ้านในเรื่องอะไรบ้างครับ
What is your responsibility as a Baan Wat Chan village headman?

Mr. Chaluemchai
จริงๆแล้วมีหน้าที่ในทุกเรื่องในหมู่บ้าน
Actually, I have to take care of almost everything in the village.

(12.00)
As the role of Baan Wat Chan village headman, I must be the one to negotiate when judgments occur.

The constructions such as road, electricity and water supply are the responsibilities of TAO official.

What is your method of making an agreement on each individual area?

The land document of each individual plot states the regulation clearly at the back of the document.

How many rules are in the regulation?

About 10 rules.

Could you give us some example of rules stated in the regulation?

For example, no buying or selling land because it is a conserved area.

If we sell the land and we do not have place to live, we cannot explore more land to live because out of this land is the area that we manage as the conserved forest area.

Intruding the conserved forest area for new areas to live is against the law.

Is it difficult to collect the GPS information?
Mr. Chaluemchai

ไม่ยากครับ แต่แรกอาจจะยากหน่อย แต่พอได้จับเครื่องมือ 2-3 ชม ก็ได้แล้วครับ

It might be difficult at first, but it will become easier after using the device for 2-3 hours.

Dr. Nattapong (15.00)

แล้วตอนต้นๆ นี้ยากไหมครับที่จะพยายามจะกลับกลับมา samt โครงการนี้ คือมีคนที่อธิบายให้พวกเรานี่จะร่วมกับโครงการนี้?

Are there any difficulties in the process of trying to get villagers to become a part of the project? Do the villagers see the benefits of joining this project?

Mr. Chaluemchai (16.00)

ตอนแรกก็ยากอยู่ครับ เพราะมันทำโดยไม่มีเงิน ทำด้วยใจ

At first, it is difficult because there are no wages for the volunteers but they have a strong willing to join the project as they hope to see their better life’s quality.

แต่สุดท้ายพอสำเร็จได้รายแปลงออกมาก็มาเก็บค่ารายแปลงแต่ชาวบ้านไม่เข้าใจ

Finally, after we accomplished the project, we then have boundaries of an individual land plot, and we collect money per each of individual land plot but the villagers seem to not understand why they have to pay at first.

แต่ชาวบ้านได้รายแปลง ก็เข้าใจแล้วก็ยอมจ่ายประมาณแปลงละ 100

Once they understand what the payment is for, they are willing to pay for their land plots which costed about 100 Thai Baht per plot.

เราแบ่ง 50% ให้เป็นค่าแรงของคนที่ทำงานนั้น

After gathering the money from the villagers, the full amount of money is then divided into 50% for people who working this project.

Mr. Napat (17.00)

ผู้ใหญ่บ้านมีส่วนร่วมในการทำแผนที่ GIS ไหมครับ

Does the Phuyai Baan involve in the GIS mapping process?

Mr. Chaluemchai

มีส่วนร่วมทั้งตั้งแต่แรกจนจบครับ ตั้งแต่วาดแผนที่ จนถึงเช็คความถูกต้องของแผนที่

I involved in the mapping process since at the beginning including drawing and checking the map.

Mr. Siri (19.30)

พี่คิดว่าแผนที่ GPS มีประโยชน์อย่างไรถึงนำมาออกจากการให้แผนที่สาระแปลงมา

In your opinion, how do find GPS mapping useful? In other ways, instead of just setting up the boundaries for the village?
There are benefits from the management of land boundary.

It can be used as a database and also could be used as a confirmation tool to other organizations by using GPS.

Otherwise, if the use of GPS device is not involved in the project, there will not be any reliable source of information.

It is a time saving. It normally takes a month to create the map but now with a modern technology, it took about 15 days to finish mapping.

And it is simple to use.

Mr. Siri (21.00)
Do you have any indigenous knowledge that could be applied to the forest management?

Mr. Chaluemchai
Every areas in the village have been divided clearly into sections. We already have the database of the land, then we will plan for the future about what we can do with the database that we have.

Such as, which economic forest zone have been heavily used by the villagers and which area we should consider to restore.

In the conserved forest area, we have planned about where are the fire protection lines should be, where the watershed should be or even “Phe Ton Nham”, which is Thai belief that every watershed or every forest have their own spirit guardians. If we feed these spirit guardians, no harm or bad things will come to the forest.

Mr. Napat (22.30)
How often do you perform for Phe Ton Nham?

Mr. Chaluemchai
We perform this ritual a couple of times a year.

We buy chicken or alcohol for the deities to protect the forest.

We also plan the fire protection lines, watersheds and the ecosystem in those areas.
Once a year, each villager will invest 1-2 baht to buy food for spirit guardians, such as chicken or rice whiskey.

Dr. Nattapong (23.00)
ทุกหมู่บ้านทำแบบนี้เหมือนกันไหมครับ
Do all villages do the same?

Mr. Chaluemchai
บุคคลจะเหมือนกันไหมครับ
Yes. We all do have similar belief.

Mr. Siri (24.30)
แล้วมีอย่างอื่นอีกไหมครับ
Do you have any more beliefs about the forest?

Mr. Chaluemchai
ก็มีพวกป่าต้องห้าม ป่าต้นน้ำ ป่าสะโดง ป่าเขา
We also have forbidden forest, watershed forest, “Pha Sadue”, and “Pha Cha”.

โดยพื้นที่ป่ามันก็มีประมาณ 70% นอก 30% ที่เป็นพื้นที่อยู่อาศัยที่สาธารณะที่ทำกิน
70% is the forest area and 30% is the residential area.

เคยมีในที่ประชุมของหมู่บ้านว่า ป่าเรามีอยู่แล้วเหลือแค่วิธีการรักษา ถ้าไม่ปลูกนี้ จะไม่เกิดผล อย่างวันพ่อวันแม่ถ้าเราทำเข้าไปปลูก
แต่ไม่มีคนดูแล ที่ไม่เกิดผล
There used to be a village meeting talking about we already have the forest area but what we want is the method of preserving the forest area. In some special occasion such as Father’s day and Mother’s day we usually go to plant more trees, but it does not seem efficiency because there is no people take care of those trees.

แต่เราจะเข้าไปรักษามากกว่า เช่น การไปเสด็จฟื้น ไปไหว้ป่า ไปทำนายกันไฟ ในชัยภูมิ
We usually maintain the forest condition such as “Liang Phe” (spirit guardian), “Buad Pha” (orange cloth tie around the tree), do the fire protection line and “Ching Phao”.

Mr. Siri (25.00)
ชิงเผาคืออะไรครับ
What is “Ching Phao”?

Mr. Chaluemchai
พื้นที่ของเรากินส่วนใหญ่เป็นพื้นที่ป่าสน แล้วใบสนนี้เป็นเชื้อเพลิงอย่าง
Most of the forest area is covered with pine trees, the pine leave is considered as a good fuel for burning.

ก่อนหน้าแล้วเร็วก็จะเผาไปชิงเผากระจาย
So we burn it down before the dry season comes.
เผานี้คือเผาไม่ให้ป่ามันเสียนะ ต้นไม้ไม่ตาย ถ้าเราเผาที่จะถึงหน้าแล้ง

The definition of burning in this case is to burn the pine leaves, but do not burn down the trees and the trees will not be burnt. It is better if we burn before the dry season comes.

แต่ถ้าไปถึงหน้าแล้ง ต้นไม้มันอบมันก็จะตาย

If we wait until the dry season, the trees would die from the burning instead.

แต่ถ้าทางหลักวิชาการหรือหลักป่าไม้ก็ยัง ถ้าพูดว่าชิงเผานี้ไม่ได้ออกวัตถุ พูดเป็นการละเลยก็ถ้วนติด

But in theoretical way by mentioning about burning the forest is considered wrong.

สมมติว่าวันนี้เรานัดชาวบ้านว่าเราไปทำจุดนี้นะ เราจะเข้าไปทำทั้งวันเลย

For instance, if we make an appointment with the villagers that we will burn down this particular area, we would work for a whole day.

เรามาเผาทั้งดึกๆเป็นzoneๆไป รอจนกว่ามันจะดับ แล้วพุ่งนี้เราไปจุดอื่น

We burnt down in different zones and waited until it stop burning then we move on to another zone in the next day.

Mr. Napat (27.00)
แล้วมีความเชื่อต่างๆใหม่ๆบ้าง อย่างป่าสะเตียร์ว่าอะไรครับ

Do you have another belief related to the forest conservation? Such as “Pha Sadue”?

Mr. Chaluemchai
ป่าสะเตียร์ก็คือว่า เกลือบนนี้มีกิจลักษณะจะแล่สะเตียร์ได้ไม่รวมกับเพื่อนไปผ่านวิวัฒันได้

“Pha Sadue” is a type of forest, when the newborn was born and his umbilical cord will be put in a container and keep it with the tree.

ถ้าเกิดมีคนนึ่งเห็นต้องรักษาต้นไม้นั้น

as if once there is a newborn, a tree is being safe one by one.

ปี่จำกันติที่หัวผมอยู่ แต่พอโรงพยาบาลมาแล้วงานก็ไม่ได้ไปปลูกต้นไม้ซึ่งมันมีlc

In the current day, this belief still exists but not as much because most of the newborns are born in the hospital.

Mr. Napat (28.00)
แล้วถ้าตัดต้นไม้เต็มต้นดันไปมันจะครบท็ม มีความเชื่อว่าจะตายครับ

How about if the tree is to cut down?

Mr. Chaluemchai
มีความเชื่อว่า มันจะมีผี บางทีมันป่วยถึงกับเสียชีวิต

They believe that some people who cut down trees in “Pha Sadue” will suffer and die eventually.
ไปหาหมอ หมอก็หาสาเหตุไม่เจอ  without any diagnose of any kind of diseases.

**Mr. Nattasaet (31.00)**
แล้วคุณหมอส่งต่างๆของการดำเนินงานในเรื่องของการระเบียบสมบัติ การเดินทามาตรการพื้นที่พื้นที่

**What are the obstacles that got in the way during the working process of land management? As well as mapping process?**

**Mr. Chaluemchai**
เกี่ยวกับที่ เจ้าของไม่ไปตามกำหนดทำให้การยืนยันแผนที่ไม่ชัดเจน

Sometimes the owner of the land absent during the mapping process so the confirmation of his land appears to be unclear.

ยกตัวเช่น ในพื้นที่มีสามคน บางคนเดินทตามไม่ไป

For example, if this land has 3 owners but the other 2 came and another one did not come.

ถ้าไปไม่ได้ก็อยู่รับแบบที่เดินทตามนั้นไป แต่สุดท้ายทางที่เข้ามาcheckอีกที มากมายกระจายหมดมุมบ้าน

For the landowner who did not participate during the mapping process will be considered that he already approved his land boundary. But in the end, we recheck the map again so that the map includes everyone in the village.

(32.00)
พอได้รายแปลงมาก็แจกให้ก็เจ้าของทุกคนให้เช็ค จะมีชื่อของบ้านเล็ก ที่อยู่ รหัส 13 ตัว

Once we obtained the area of an individual and sent out the paper for everyone to check their own boundaries. Name, location, and 13 numbers code (*Thai National ID*) of each individual land plot will show on the map.

**Mr. Siri**
เมื่อพี่พูดถึงเลขบัตรประชาชน ถ้ามีบ้านอยู่ในพื้นที่ป่าสงวนแล้วไม่มีทะเบียนบ้านทำไมค่ะ

You just mention about the Thai National ID, do you have the household legislation document?

**Mr. Chaluemchai**
มี

Yes.

**Mr. Siri**
แล้วถ้ามีบัตรประชาชนได้บ้านจริง ถ้ามีบัตรประชาชนที่บ้านที่อยู่ในพื้นที่ป่าสงวนแล้วทำไมไม่มีทะเบียนบ้าน

How is it possible for a house to have household legislation document on the conserved forest area and without land deed?

**Mr. Chaluemchai**
ทุกบ้านจะมีทะเบียนบ้านกับกำหนดที่บ้าน

Every house has the household legislation document as well as household legislation number.
Dr. Nattapong (32.30)
อันนี้นี่ออกโดยกรมการปกครองใช่ไหมครับ

Is the household legislation document published by Department of Local Administration (*referring to Ministry of Interior)?

Mr. Chaluemchai
ใช่ๆ

Yes.

Dr. Nattapong (33.00)
คือเขาก็ยอมให้เราออกทะเบียบบ้านใช่ไหมครับ

It meaning that the Department of Local Administration approved for each house to have household legislation number?

Mr. Chaluemchai
คืออยู่มาก่อน มาเป็นร้อยอยู่ปี แต่เขาเพิ่งประกาศทับ

We have been here about hundreds years before the regulation declared.

Dr. Nattapong
นั่นก็ว่า ตอนนั้นก็มีทะเบียนบ้านอยู่แล้ว

That means the household legislation number have been used since at that time?

Mr. Chaluemchai
มีแล้วๆ มีอยู่แต่ก่อนแล้ว

Yes.

Mr. Napat (35.30)
การที่เป็นคนไทยหรือไม่ใช่ มีผลกระทบอะไรกับการได้โฉนดไหมครับ

Does Thai citizenship or non-Thai citizenship influence on getting the land deed?

Mr. Chaluemchai
ไม่ครับๆ คำถามให้ได้จากอธิบดี แต่ฉันไม่ได้รู้

No.

แผนที่ในปัจจุบันที่จะเป็นการรองรับการทำโฉนดที่ดินในอนาคต

The purpose of creating the map is to be able to get the land deed in the future.

(36.00)
สมมติว่าในอนาคตระบบจะออกโฉนด เราจะขอแผนที่ตรงนี้ไปไว้รัฐบาล

In the future, if the government is going to assign land deed. We just show the map to them.
The map can be considered as a valid document because the map clearly states the coordinate, address and name.

In my opinion, not having a land deed is a good thing for forest conservation. By having a land deed, people have rights to sell or buy the land. In this case, if the land is sold, people intrude the land more. If do not have the land deed, selling and buying land is not possible. Therefore, the land can be well preserved for the younger generation to be able to use the land for beneficial purpose. This is the advantage for not having the land deed.

Dr. Nattapong 39.00
What is your personal opinion?

Mr. Chaluemchai
If they have the land deed referring to all Thai people, we should be able to have the land deed too.

But if we do not have the deed, it is alright because the way of the Karen hill tribe live is well known as the forest conserver.

Not only this place that have Karen hill tribe people. If you see the mountain that have less forest, you could assume that they were not Karen hill tribe, but if you see farmland, majority of people are Karen.

Dr. Nattapong 40.00
Meaning that the villagers are afraid that if they obtain the land deed, it will lead to forest destruction?

Mr. Chaluemchai
Mr. Siri

แล้วทางรัฐบาลมีการออกโฉนดพิเศษให้ใช้พื้นที่เป็นสิทธิการเป็นเจ้าของ ที่โอกาสของว่ามีมากหรับ

If the government offers special land deed to use the land but not to own the land, would you say yes to that?

Mr. Chaluemchai

โอเค ครับ แต่จริงๆมันเคยมี ทางไปไม่มาจัดทำ สทก. สิทธิ์ที่ทำกัน ค่อนที่จะมีการตัดแบบที่

I would say yes, frankly it used to happen when the RFD came in and manage the economic land use area before the map was created.

แต่ถ้าไม่ได้เป็นแบบนี้ ทำจะวางแผน ถ้าจะให้ข้อตกลงแบบนี้

But they stopped due to the regulation stated that in order to manage the economic land use area, that area must be the open space without any trees.

หมายความว่า ชาวบ้านต้องไปตัดไม้ก่อน เข้าช่องให้เอกสารสิทธิ์ใหม่

That means the villagers must cut down all the trees in order to use the land (*Laughing)

Mr. Siri (44.00)

ทบทวนเคยมีบางครั้งเมื่อข้อตกลงในการทำที่ไม่ได้ ที่ทางที่ทำไปไม่ได้ ที่ทำออกด้วยบอกด้วยการทำที่ไม่ได้ของและหรือทำให้หน่อยได้ใหม่ครับ เชน ต้นไม้ที่ผ่านๆมาจะทำแทนที่ต้นไม้ใหม่ที่ยังไม่ทำ

You have mentioned earlier that these Karen hill tribe are well known as the forest conservation? Could you give us an example of how they contribute to the forest conservation?

Mr. Chaluemchai

มากครับ เพราะไม่มีไม้ก็อยู่ไม่ได้

They contribute a lot because the forest is their home, without the forest they do not have place to live.

เกือบทุกอย่างเลย อย่างที่อยู่อาศัยก็ใช้ไม้จากป่า แต่ในขณะเดียวกัน เราตัดแล้วเราก็ต้องทดแทน

For example, they use woods for building houses but they also return those woods to the forest by planting more trees.

เรามีการแบ่งโซนอย่างชัดเจน

We have clearly divided the areas into zones.

อย่างไรก็ตาม ถ้าไปเดินเมื่อ ถ้าไม่มี ผมไม่ได้ไปไม่สามารถทำสำนวนได้

According to the watershed forest, if the trees are cut down, there is not enough water for agricultural purpose.

Mr. Nattasaet (45.30)
Do you have any plan in the future of what you would do next after finish mapping? Do you consider making another map?

Mr. Chaluemchai

The first priority is let TAO Baan Chan Office create the local legislation for the Tambon.

After that, we will consider to move on to another process.

For instance, if we have 6 rai that can produce approximately 100 buckets of paddy but we can gather only 50 buckets of paddy.

Meaning that the soil quality of that farm is degrading.

In this case, we will have another policy states that if we finish doing the land management, we will ask for support from other organizations.

Because we only need this amount of land, we will not intrude new land.

Would you lend these villagers help that they need or else they just intrude the new land due to this land is not useable.

Mr. Siri (48.00)

Were there any organizations came to help with the land?

Mr. Chaluemchai

There were the Royal Project and the department of land development that offered help to us but the help was insufficient.

Mr. Siri (49.00)

Are there any support on agriculture method?
Yes. The Royal Project.

หลักๆเราปลูกข้าวเกือบ 100% และ รองลงมาเป็นอาชีพเลี้ยงสัตว์ สามก็เป็นพืชผัก
Basically, we grow rice about 100%, then animals farming and vegetables farming.

Most of the time, we send our products to the Royal Project but there are also some buyer offers those products.

Mr. Napat (49.30)
รายได้ของพี่นี้ส่วนมากมาจากเกษตรข้าวใหญ่ไหมครับ
Does most of the income come from selling rice?

Mr. Chaluemchai
ข้าวในส่วนมากเราปลูกไว้กินเอง ถ้าเหลือถึงจะขาย
We mostly grow rice to eat by ourselves but if there is a spare we will sell.

ทุกบ้านจะมียุ้งข้าวเพื่อที่จะเก็บข้าวไว้
Every household will have their own barn for rice storage.

Ms. Chalita (50.30)
ถ้าเกิดไม่มีชาวบ้านอยู่ในป่า พี่คิดว่าจะมีผลกระทบอะไรกับชาวบ้านหรือป่าไหมคะ
If there are no villagers in the forest? What do you see from your perspective towards the forest as well as the villagers?

Mr. Chaluemchai
ก็ดีครับ แต่ไม่รู้จะไปอยู่ไหน
That will be good for the forest, but bad for the villagers because we do not have place to go.

Mr. Napat (51.30)
ในเรื่องของ GIS ที่ได้มาแล้ว ทางหมู่บ้านจะมีการอัปเดตหรือทำใหม่ไหมครับ
About the GIS, are there any updates on GIS map?

Mr. Chaluemchai
ยังนั้นก็ไม่มีครับ
Not yet still.

Dr. Nattapong (52.00)
แล้วถ้ามีการเปลี่ยนแปลงพื้นที่ จะมีการทำใหม่ไหมครับ หรือว่าจะยึดหลักเดิมครับ
If there are any changes of the land use, will there be another map for the changes or there will not be any changes?

Mr. Chaluemchai
เคยมีการพูดกันในที่ประชุม ว่าจะมีการกำหนดในระเบียบข้อบังคับ ว่าใน30ปีเราจะต้องมุ่งมาที่เดิม
Once in the meeting, it was decided to have new regulation in 30 years to go back to the original plan.
We used to have the conversation in the meeting that the next 30 years we will look at the map again.

แต่ ณ วันนี้ยังไม่มีครับ
But there are not any changes in the present.

Mr. Siri (53.00)
แล้วเรื่องของรายได้จากการเกษตร หันมาพูดใหญ่ที่ใหญ่ครับ
How about the income from agriculture? Do you face any problem?

Mr. Chaluemchai
ก็มีๆ ของเรารั่วซึ่งที่ต่อมเข้าวางไกล พอตั้งมั่นจะถึงเรื่องการขนส่งที่ลำบาก ทำให้ราคาไม่แน่นอน
Well yes, the merchant usually claim about the transportation difficulties that may cause uncertainty in pricing.

Mr. Siri (53.30)
แล้วเรื่องของรายได้จากการเกษตร พี่เห็นปัญหาไหมครับ
How about the income from agriculture? Do you face any problem?

Mr. Chaluemchai
ก็มีๆ ของเราพื้นที่ค่อนข้างห่างไกล
We are in between the period of prosperity and hardship, in the process of which way to move to.

มีบางส่วนที่ไปหาหมอเพราะเครียด
there are full of chaos but people in the city already used to it so I guess in the next 4-5 years, these villagers would be able to adapt to the environment.

Ms. Chalita (58.00)
ย้อนกลับไปเรื่องการเกษตรและรายได้
About the income and the agriculture mentioned previously, the agriculture products send to the Royal Project only or another buyer as well?

Mr. Chaluemchai
ถ้าเข้ามามีความเครียด ถ้าไปจากดีก็ต้องไปดี
If he is the member of the Royal Project, he will send the products to the Royal Project of his quota.

Ms. Chalita (58.30)
คือซื้อที่ตนเองจะได้เข้าขั้นภัตถ์ต่อกับชาวบ้าน
So the buyer will come to contact with the villagers?
Mr. Chaluemchai

They are called, “Luk Suan”.

Such as if I received quota from the merchant, I would ask for the villagers’ help to be able to send the product to the merchant.

Mr. Siri (59.30)

Do you have many tourists come to your village?

Mr. Chaluemchai

This is the new Amphoe, so there are quite a lot of tourists.

Therefore, we have a meeting with the village council consulting about how we can increase the income for the villagers.

When tourists come to the village, the villagers do not receive anything beneficial but instead of much more trash.

So we have to organize a group that deal with tourism, in order to deal with the tourists.

For example, if the villagers provide foods for these tourists and take them to the village tour, then the tourists have to pay money to these villagers.

The gathered income will be divided and give 5% for village development.

Dr. Nattapong (1.03.00)

Lastly, do you have any suggestions about this project?

Mr. Chaluemchai

The land management is the best solution for those people who live in the forest.

Because if we do not have an accurate boundary set up, the land will be expanded every day.
วิธีนี้เป็นวิธีที่ดีในการดูแลรักษาป่า โดยอาศัยเครื่องมือ GPS ในเรื่องของการถูกต้องและแม่นยำ
By using GIS, it is a precise and accurate device dealing with land boundary which is the best solution for conserving the forest.
Appendix L: Transcript of Interview with the Kamnan of Baan Wat Chan village

Attendees

- Dr. Nattapong Paiboonvorachat
- Mr. Siri Nittayakasetwat
- Mr. Napat Asawachaisopon
- Ms. Chalita Aphirakaramwong
- Mr. Nattasaet Sirikanerat
- Prof. Fabienne Miller
- Mr. Obiora Ofokansi
- Ms. Caitlin Swalec
- Mr. Alexander Zitoli
- Ms. Brigitte Perera

Date: Monday February 2, 2015

Mr. Siri (1.40)
กรรมการในชุมชนนี้ถูกเลือกขึ้นมาโดยคนในชุมชนอยู่แล้วใช่ไหมครับ

Does the member of the council is chosen from the villagers?

Mr. Kamnan (1.55)
ใช่ ก่อนที่จะตั้งกรรมการประชาคมว่าจะเอาใครเป็นตัวแทน จะเลือกแล้วระลอกแล้วระลอกไปว่าเป็นตัวแทนของแต่ละหมู่บ้าน หมู่บ้านนี้ก็จะมี 10 กว่าคน ความรับผิดชอบก็จะมีแล้วที่สำคัญ เหล่านี้จะประสาน

Yes. Before choosing the members of community committee, 10 representatives of each village will be chosen. Their responsibility is to patrol around the village and participate in the meeting.

Dr. Nattapong (2.35)
แล้วคณะกรรมการมีกี่คน

How many members in the council?

Mr. Kamnan
น่าจะ 12 คน แต่ก็ขึ้นอยู่กับหมู่บ้าน ถ้าหมู่บ้านใหญ่ก็มากกว่า ถ้าเล็กก็เล็กน้อยกว่านั้น แต่ไม่ต่ำกว่า 12 คน

Approximately 12 people per village which depend on the size of the villages but at least 12 people.

Dr. Nattapong (4.20)
ประเภทของป่าต่างๆแบ่งตามรูปแบบอย่างไร หรือแบ่งตามความเหมาะสมของชาวบ้าน ของชุมชน

How to differentiate the types of the forest? Is it differentiated by the suitable of the villagers or the communities?

Mr. Kamnan (5.00)
แบ่งตามที่ชุมชนที่น่าจะ

We differentiated by the community’s agreement.

Mr. Siri (5.20)
ท่านคิดเรื่องการจัดตั้งกรรมการเป็นการป้องกันไม่ให้เกิดขึ้นทรัพย์ที่เรา ท่านคิดความเกิดขึ้นอะไรกับกรรมเป็น

What do you think about the establishment of community committees to prevent theft of our belongings?
You have talked about establishing the council to protect the villagers from the RFD. What do you think about RFD? They do not allow the villagers to use the land?

**Mr. Kamnan (5.35)**

They disagree to allow the villagers to use the land because they would like to conserve the forest. If the villagers use those land, the forest area will be reduced.

Therefore, they will not approve for the villagers to use this land if they know that this area is against the regulation.

**Dr. Nattapong (6.25)**

When you said “the upper level will not allow”, at that time why are you still pushing this project? What do you see any benefits?

**Mr. Kamnan (6.34)**

It is for the public. The government does not live in the area like these villagers do, so they just come to inspect them. But for the villagers, they have to live in this area so that they have to conserve the forest.

**Dr. Nattapong (7.05)**

In short, do you this to conserve the forest right?

**Mr. Kamnan (8.00)**

We live in a sustainable way, we conserve and utilize the forest area. These villagers have conserved the forest since their past generations, especially the watershed forest area.

**Mr. Siri (9.20)**

According to the project, GIS and forest community, even though the old government did not agree with this project but you still push this project, what do you think about this project? Will it be successful after doing this project 6 years already?
Mr. Kamnan (9.55)
วันนี้ในตำบลบ้านชัน มีการสำรวจ แล้วก็มีแผนที่ เราแยกตัวและครอบครัว เราทำที่ไหนกันใคร
Now Tambon Baan Chan do the survey and have the map. So we separate each family by their agriculture area, and villagers who are involved.

ไม่ใช่โฉนด คือการใช้ประโยชน์แต่ละบ้านแต่ละครอบครัว ถ้าเป็นประโยชน์กับชาวบ้าน แต่ไม่คืนภูมิใจ ดีเลย์ไม่ใช่โฉนดหรือวันนิยม.3 แต่เรารู้เรื่องที่กัน
It is not a land deed but it is useful for the villagers, it is make them proud. Eventhough it is not official but we can utilize it.

Mr. Siri (10.55)
แล้วเรื่องจำนวนของป่าไม้ คือตั้งแต่โครงการที่จำนวนป่าไม้เพิ่มขึ้นหรือลดลง ปีนี้ที่จำนวนป่าไม้ กรมป่าไม้ที่จะออกไม่เกิน ต้นปีนี้ที่มีแผนที่ เที่ยงคืนของที่อยู่อาศัย คือตั้งกิจกรรมมาที่ให้กรมป่าไม้เห็นด้วย โครงการที่การที่ให้จำนวนป่าไม้นั้นมีมากขึ้น หรือในแผนที่แผนที่นี้ แน่นอนความมันป่าไม้จะตั้งกิจกรรมนี้ขึ้น ด้วยความถูกต้องของโครงการที่จำนวนป่าไม้ใน ที่มีแผนที่แผนที่เรื่องลดลง คือเราพยายามคิดแบบนี้
The amount of forest area, after this project has started, has it increase or decrease? Because the RFD refuse the hill tribe to stay but if we can show RFD that the forest area actually increase or not decrease, in the future they may approve this project.

Mr. Kamnan (11.45)
จำนวนป่าไม้ไม่น้อยลงเท่าใด อยู่เท่าเดิม นอกจากในแนวเขตที่ที่ทำการป่าไม้ไม่อยากให้เราจัดระเบียบ หมายความว่า ทั้งหมดเป็นของเขา เราต้องอยู่ในบริเวณของเขา
The amount of area did not decrease, it is still the same. Moreover, the RFD did not want us to manage the forest area because all of that forest is owned by the RFD.

แต่การจ้างนั้นไม่เห็นด้วยกับสิทธิ์ในป่าไม้ เพราะว่า ชาวบ้านอูถ่อนทราบ. ป่าไม้ พวกนายคิดว่ากรมป่าไม้นิยม เพราะว่าเราต้องการที่จะมีการจัดระเบียบที่ ที่เราจ้างนั้นที่จะอยู่อย่างนี้
We live in their areas but villagers did not accept that because they lived there before the bill was established. I think we manage the forest better than RFD.

Dr. Nattapong (14.45)
ขอถามสักนิดนึง โครงการที่เริ่มขึ้นมา ชาวบ้านสิญชินพันที่ ความรู้สึกของชาวบ้านคนนี้เป็นอย่างไรบ้างครับ
After the project is finished and villagers are happy with that, after that how do they feel?

Mr. Kamnan (15.11)
ครับ ชาวบ้านสิญชินภูมิใจ คือความแน่นอน คือการเห็นบ้านของทุกในขณะมีคณะกรรมการ เข้ามาที่ต่าง ๆ มากขึ้นรองให้
They feel proud and they have confident because it was confirmed by many officers and committee councils.

Mr. Siri (17.00)
ในอดีตที่เริ่มโครงการครับ อะไรที่เป็นผลบวกที่มากที่สุดในการที่จะตั้งโครงการเกิดขึ้น
In the past, what is the greatest challenge to start this project?
Mr. Kamnan (17.10)
เรื่องความไม่เข้าใจครับ เรื่องไม่เข้าใจที่ว่า เราทำไมโครงการนี้ซื้อมัน ยิ่งประโยชน์ต่อชาวบ้าน
The greatest challenge is about misunderstanding the benefits of this project.

แล้วก็ ที่เราระดับระดับประชาชนที่มีส่วนร่วมความจะเข้าใจกัน มันไม่เกินประมาณสองที่บุคคลสองคน เราจะเรื่องมีข้อดีกัน
แล้วมีการสัญญา คำตัดคุณ และเราเรื่องจะเข้าใจกันทุกคน แล้วพอทุกคนเข้าใจตรงนี้ก็จะมีแผนพิคิย์กันว่า เราถูกที่นั้น ที่นั้นเราจะไม่มีคนมาปะทะ
โครงการไปลูกสุกไม่ได้
The reason that made this project slow in progress because we set up a lot of meeting. We also have to donate money for that too.

Mr. Siri (18.40)
อุปสรรคด้านนโยบาย ทั้งระดับและระดับท้องถิ่น ยกโทษแล้ว
About the policy challenge, is it hard to get approve by Amphoe and Tambon?

Mr. Kamnan (18.50)
เรื่องหมู่บ้าน ตระกูล ตระกูลของเรานำมาประมาณด้านนี้ไม่มีการขัดค้านไม่มีการโต้แย้ง ให้ข้อให้พวกเขา คือที่นั่นเข้าใจของชาวบ้าน
ก็อยู่ในระดับระดับ เราใช้การเป็นในท้องถิ่น จะมีการพอเพียงกิจการท้องถิ่น พวกเขาก็ช่วยเหลือพวกพวกเข้าใจไป
For Amphoe and Tambon, they approve that. When there is a meeting, both of them have a green light because they have good relation with villagers. The Amphoe and Tambon actually help us.

Mr. Siri (19.55)
หมายเหตุนี้เกิดขึ้นที่ไม่เกินข้อตกลงคือกิจการไม่ได้ใช้ในท้องถิ่น
Now the only one who refuses this project is the RFD?

Mr. Kamnan (20.00)
ก็มีการดำเนินตาม ร่างนี้อย่าง บางกลุ่มก็ไม่เข้าใจพื้นที่เพราะเข้าใจว่าไม่มีประโยชน์ ทำไปมันไม่ใช่สนใจ ไม่ใช่เอกสารจากทางราชการ
ไม่ใช่เข้าใจมองแบบนี้ แต่เป็นการฝึกอบรม
It is normal for them, but in minority. They refuse because they did not see the benefits, it is still not an official document.

Dr. Nattapong (20.30)
แบบว่าไม่ได้มีการต่อต้านอะไรใช้ในท้องถิ่น แต่กลุ่มนี้ไม่ได้ถูกต่อต้านผ่านที่ให้ความร่วมมือก็ตาม
They did not resist but just disagree, still they help to do this project.

Dr. Nattapong (26.25)
ในประเด็นที่ได้พูดแล้วไม่ได้ตกลงตกับไม่ตรงก้นท้องถิ่น
In the topic that we have just discussed, is there any information that are different or the same?

Mr. Kamnan (26.40)
ตรงกันครับ
Same

Mr. President (26.45)
Same, Because Mr. Kamnan knows more about the project than me. I am new here and also I am a teacher, I do not know much about this project.

Mr. Siri (26.55)
แล้วอย่างนี้คนชนชั้นชั้นนี้จะเป็นชาวบ้าน คือถูกกฎหมายของชาวบ้าน
Student here are they hill tribes people?

Mr. President (27.05)
ไม่ได้เป็นชาวบ้าน
No they are not.

Mr. Siri (27.20)
แล้วอย่างตอนสอน เด็กเขาเข้าใจเรื่องสำคัญของป่าใชไหมครับ
When you teach, do the students understand about the importance of conserving the forest?

Mr. President (27.35)
มันมีในวิชา มีการสอนเรื่องพวกนี้อยู่แล้ว
There is the subject about this.

Dr. Nattapong (28.20)
อยากสอบถามคุณตอนเริ่มต้นว่า พอตีได้มีเหตุการณ์เกี่ยวกับชาวบ้าน ที่มีชาวบ้านถูกจับ เพราะเราอยู่ในพื้นที่ป่าสงวน ไม่ทราบว่าทางอบต. มีขั้นตอนในการต่อต้าน
I want to ask both of you, there is an incident which some villagers got arrested. What process do council have to help those people?

Mr. Kamnan (28.55)
เมื่อก่อนนี้ชาวบ้านกลัวกรมป่าไม้มาก ตอนนี้ก็ไม่กลัวแล้ว ในการประชุมที่อำเภอ ที่หมู่บ้านใครสร้างก่อนก็แจ้งให้กับคณะกรรมการหมู่บ้าน ที่แจ้งให้กับอำเภอ เข้าทำการป่าไม้ แต่ถ้าสร้างบ้านก็จะอนุโลม ที่นี่ไม่ช่วยแล้วจะไปช่วยที่ไหน กรมป่าไม้ก็ดี อำเภอ ก็ดี ตระบุก็ดี ถ้ากู้คืนผู้กู้ชาวบ้าน ไม่มีการขัดแย้งไม่มีการประท้วง ไม่มีการตีเจ้าหน้าที่ คือทุกส่วนคือเข้าหากันคนข้างติด ยิ่งนั้นคือทัศนคติ
In the past, villagers were afraid of the RFD but now they are fine. In the Amphoe meeting, when the village was established this must be informed to the RFD.

แล้วถ้าขาย ขาย ทำเอา العلي ตีไม่ได้ข่ายเสีย แต่ถ้าขายบ้านเข้าที่อยู่ใหม่ ที่นี่ไม่ข่ายแล้วจะไปข่ายที่ไหน คนบ้านไม่ได้ตี ตระบุมีตี ตระบุก็ดี ถ้ากู้คืนผู้กู้ชาวบ้าน ไม่มีการขัดแย้งไม่มีการประท้วง ไม่มีการตีเจ้าหน้าที่ คือทุกส่วนคือเข้าหากันคนข้างติด ยิ่งนั้นคือทัศนคติ
For the people who sell the area, the council will not help but they will allow the house constructions. Here, we are all helping each other, so there are no conflict, strike and misunderstand with the officers.

แล้วถ้าคนขายไปตัดไม้ไปได้ ไปยังถ้าขายบ้านไม่มีการกระทำผิดก็จะไม่ช่วย ถ้าข้างต้น
For some people who cut down the tree without informing the officer, they will be arrested.

Dr. Nattapong (30:10)
If someone break the rules that created by the council, will be arrested?

Mr. Kamnan

Yes

Ms. Chalita (31.30)

When collecting the data to make the map, are you the one who make it?

Mr. Kamnan (31.40)

There are the representatives which were trained, they will know how to do. These representatives will come from voluntary. We did not get help from government, we help ourselves.

Mr. Siri (32.30)

How confidently do you think if this project will be apply to other villages? Is there any benefit to those people and to the forest all around Thailand?

Mr. Kamnan (33.00)

I have 100% confident that it will be in a positive way. The government and villagers will manage the area and conserved them. It is better than letting the forest being destroyed.

Dr. Nattapong (34.00)

How both of you support this project?

Mr. Kamnan

No one was separated when doing this project, we do it together anywhere.

Mr. Kamnan (36.30)

คือ เราไม่ใช่เคยต้องรู้เรื่องนี้ เราจะต้อง ต้องเรียนก่อน ถ้ารายละเอียดต้องรักษา คือเมื่อสู่ใหญ่บ้าน รวมกันมา 27 ปี คนที่ให้ความรู้ผม รักหนึ่งเลย ผมมีใจที่ 2 ปีกับ 60 ปีแล้ว ในข่าวสารหนึ่งคือจะพิจารณาให้ไฟฟ้าสุทธิ ทั้งที่จะชาวบ้าน ไม่มีการขับไล่ ไม่มีการรุก
We will not stop here; we will continue conserving the forest.

 เพราะผมที่ดีที่สุดแล้ว บังคับถูกกฎหมายที่ดีแล้วไม่เป็นตัวแทนของหมู่บ้าน ไปรับใช้ชาวบ้านด้วยนะครับ นโยบายผมก็ตั้งครับ  ผมจะรักษาการอนุรักษ์ แข็ง condon หมู่บ้าน ผมจะรักษาโดยสิทธิ์ ผมให้คิด I will do my best because I like to help people.

 Mr. Siri (39.10)
คุณกานณ์ครับ สิ่งที่ผมจะทำต่อไปคือ GIS ให้กับ

 What is your future plan on GIS?

 Mr. Kamnan (39.15)
นั่นกันว่าจะขอเป็นเอกสารสิทธิ์อย่างไร จากที่เราเคยทำแผนที่ อีกต่อมาที่จะขอเป็นเอกสารสิทธิ์ แต่ก็รูว่า ประเทศไทยมีกฎหมายครับ กฎหมายมีอีกที่ๆ ที่จะรักษาได้แน่นอน ผมจะรักษาโดยสิทธิ์ I want to make this to be official in the future. But it is very hard to change the law in Thailand.

 Dr. Nattapong (40.45)
นำระบอบการ์ดเขียนจะต้องขึ้นอยู่กับข้อมูลเรื่องของกรมที่ดินแล้วที่ทางรัฐบาล แล้วก็นโยบายใช้ในครับ To get the official rights, does it depends on the data from the department of land use and the government’s policy?

 Mr. Kamnan (40.55)
ในแง่กฎหมาย มันก็คือข้อบัญญัติของป่าสงวน คงไม่ยากถ้าได้รัฐบาล In political perspective, it is conserved forest legislation. It will be easier, if we have a good government.

 Dr. Nattapong (41.15)
แต่ละป่ามีข้อกฎหมายที่ต้องต้องการให้ต้องกับป่าไม้ที่อยู่ก่อนก็ต้องทำขึ้นไป เพื่อให้เราเข้าใจ เกี่ยวกับการทำแบบนี้ก็ต้อง แล้วก็ต้องต่อสู้ขึ้นไป เพื่อให้ได้รัฐบาลที่ดี Have you talk to the government, did they answer why are they rejecting this topic so much? Have you talked about changing the law and how did they respond?

 Mr. Kamnan (41.40)
ท่านที่มีความคาดหวังของเราจากพวกเราไหมครับ What do you expect from us?

 Mr. Kamnan
ถ้ามีโอกาสที่มีอยู่ในพวกเรานั้น แล้วก็ทำงานร่วมกัน ช่วยชาวบ้าน ถ้าเป็นไปได้จะเกิดขึ้นก็ตามมากกว่าที่นี้ ชาวบ้านความเป็นอยู่ย่อมนั้น แล้วก็ช่วยเหลือให้ได้

If you have a chance, please come to visit us again and help people in this area.
Appendix M: Transcript of Interview with Mr. Lom Tanrin, Mae La Oop River Basin Network Member

Attendees

- Mr. Siri Nittayakasetwat
- Mr. Nattasaet Sirikanerat
- Ms. Caitlin Swalec
- Mr. Alexander Zitoli

Date: Tuesday February 3, 2015

Mr. Siri (1.00)

ที่นี่มีตำแหน่งอะไรหรือครับ

What is your position?

Mr. Lom

ในภาพของเครือข่ายก็จะเป็นคณะกรรมการ เครือข่ายลุ่มน้ำแม่ละอุป ในเรื่องการจัดการทรัพยากร

I am a member of the Mae La Oop River Basin Network in managing the natural resources.

Mr. Nattasaet (1.40)

แล้วคุณพี่อยู่ที่นี่มาหรือยังครับ

How long have you been here?

Mr. Lom (1.45)

ก็นานพอสมควร ก็เกิดที่นี่และเดิมเป็นคนแม่ละอุป แต่มาได้ครอบครัวที่แจ่มหลวง เลยย้ายมาอยู่ที่นี่จึงย้ายตรง

I was born here. I am Mae La Oop people but I have family in Chaem Luang.

Mr. Nattasaet (2.10)

แล้วในฐานะที่เป็นคณะกรรมการ คุณพี่มีหน้าที่ทำอะไรบ้างครับ

What is your responsibility as a member of the network?

Mr. Lom (2.20)

ความรับผิดชอบหลักก็คือเหรัญญิก เป็นเหรัญญิกเครือข่ายลุ่มน้ำแม่ละอุป ตั้งแต่ปี 2546 จนถึงปัจจุบัน

I am the treasurer of Mae La Oop River Basin Network since 2003.

Mr. Siri (2.45)

นอกจากบทบาทนั้นของพี่แล้ว เรื่องการจัดการชุมชนป่าไม้ ให้พี่มีส่วนร่วมอย่างใหญ่ในเรื่องนี้ยังครับ

Instead of being a treasurer, what is your participation in the management of the community forest?

Mr. Lom (3.00)

ในหน้าที่นี้ที่ทำให้เครือข่ายลุ่มน้ำแม่ละอุปได้การจัดการทรัพยากร ไม่ว่าทรัพยากรป่าไม้ ทรัพยากรดิน น้ำ ป่า ทั้งหมดครับ

The main responsibility of Mae La Oop River Basin Network is to manage the natural resources.

Mr. Nattasaet (4.30)

นอกจากเครือข่ายลุ่มน้ำแม่ละอุป แล้วยังมีการจัดการทรัพยากรป่าไม้ ที่เป็นทรัพยากรอีกหลายครับ
Other from managing the natural resources, do you have other goals?

Mr. Lom (4.45)
เมื่อการจัดการป่า ทรัพยากรทุกอย่างดีขึ้นแล้ว จะต้องมองในเรื่องของอาชีพ เลยที่จะอยู่ดีกินดี
After we have managed the forest and natural resources, we are looking for sustainable occupation to have better quality of life.

Mr. Siri (5.30)
ตัวอย่างอาชีพที่ชนเผ่าทำค่ะมองในเรื่องอาชีพ เพื่อที่จะอยู่ดีกินดีได้กันข้างต่าง
Do the hill tribe villagers mostly do agriculture for living? Are there any other occupations that support the these people?

Mr. Lom (5.45)
ตอนนี้ก็คือเครือข่ายลุ่มน้ำแม่ละอุปเป็นสมาชิกหนึ่งในมูลนิธิอุทกพัฒนาแล้วมูลนิธิอุทกพัฒนาเน้นในเรื่องน้ำ ระบบน้ำ
At present, Mae La Oop River Basin Network is a member of Utoka Pat Foundation which takes care of water supply system. If the water system is getting better, we are looking for jobs. There is a job that working with the nature. First we started with 7 plots but did not succeed. Then there were only 2 plots left which was adapted to the new theory agriculture, from 2 plots to 3 plots but as an example, taking note of data is needed and have to send every 6 months.

Mr. Siri (8.10)
แล้วเกษตรพื้นฐานคือใช้หลักใด
What method is used in the general agriculture?

Mr. Lom (8.20)
หลักคือสมมติว่าพื้นที่แปลงนึงแต่ก็ขึ้นอยู่กับสภาพพื้นที่อีกทีนะครับ แต่หลักๆจะแบ่งเป็น 30 30 30 10 อันที่เป็น10คืออยู่อาศัยพื้นที่น้อยก็คือ30% พื้นที่เกษตรกรรมและการเลี้ยงสัตว์ ที่น้อยก็คือ30% พื้นที่อยู่อาศัยคือ10% แต่การปรับเปลี่ยนพื้นที่ขึ้นอยู่กับสภาพพื้นที่อีกต่อมากครับ
The theory is if we have one plot, we will divide the land into 30:30:30:10 ratio; 30 for water area, agriculture and animal farming and 10 for resident. The percentages can be changeable depending on the types of the land. But we cannot use that ratio to Amphoe Glayani Vadhana land because there are not enough water supply.

Mr. Siri (9.20)
ก็คือว่า30 เหมาะปลูก30 เหมาะเลี้ยงสัตว์30 เหมาะกับการปรับไร้พ่อที่ที่เหลือ แล้วการที่มีความแบบที่จานมาให้ผลผลิตได้
The ratio is 30 for water supply, 30 for agriculture and 30 for animal farming. From this ratio, is it successful for cultivation?

Mr. Lom (9.40)
เพียงแต่ได้ไม่เกินน้ำจะอยู่ดี แต่ส่วนของมูลนิธิ ผลลัพธ์ที่ได้ก็คืออย่างเดียวกับตอนนี้ เพราะน้ำน้อย ต้องอาศัยน้ำฝน
The ratio is 30 for water supply, 30 for agriculture and 30 for animal farming. From this ratio, is it successful for cultivation?
We have stated a few years ago, growing bananas is the only successful cultivation for me because it does not need much water.

**Mr. Siri (12.20)**

Does your community have any other managements or any policies that are not about agriculture land?

**Mr. Lom (12.35)**

We cannot change anything now because everything is already managed by using GPS such as cultivated area, living area, economic forest, watershed forest and conserved forest.

Now expansion is impossible because the information is clearly identify, even government or private organization can also have access to this data.

**Mr. Siri (13.45)**

How long do you take to finish making the map?

**Mr. Lom (13.50)**

We start making the map in 2011 and we start from the one who understand. Now we expand to the whole Amphoe Galyani Vadhana already but it takes quite a while.

**Mr. Siri (14.55)**

When you start working on the map, do the villages understand and want the map?

**Mr. Lom (15.05)**

Some group of villagers was educated but some group was still afraid that their land will be changed to the National Park.

Moreover, university, RTF and Hydro and Agro Informatics Institute and support in instrument and officer for mapping.
You said that some villagers were afraid of making a map but when one of them start to do, other also start mapping?

**Mr. Lom (16.35)**

ก็ค่อยๆเพิ่มขึ้นครับ เมื่อเห็นผลประโยชน์ในตรงนี้ ผู้ที่มีแต่เริ่มจะมีข้อมูล แต่เมื่อเห็นผลประโยชน์ในตรงนี้ เขาจะเริ่มจะมีข้อมูล ผู้ที่มีแต่เริ่มจะมีข้อมูล แต่เมื่อเห็นผลประโยชน์ในตรงนี้ เขาจะเริ่มจะมีข้อมูล.

เมื่อได้แผนที่ ที่แสดงถึงประโยชน์ที่จะเกิดขึ้นเมื่อทำแผนที่ ผู้ที่ได้แผนที่จะเห็นประโยชน์ในการทำแผนที่ ผู้ที่ได้แผนที่จะเห็นประโยชน์ในการทำแผนที่.

Mr. Siri (18.50)

ส านักงานทรัพยากรนี้คือที่เป็นของอุทกพัฒน์ใช่ไหมครับ

**Is the office of natural resources owned by the Utokapat Foundation?**

**Mr. Lom (19.10)**

ยูทกพัฒน์นั้นก็คือมูลนิธิของหลวง

Utokapat Foundation has Her Royal Highness Princess Maha Chakri Sirindhorn as the president so Utokapat Foundation is the Royal foundation.

**Mr. Nattasaet (19.35)**

แล้วที่อาสาสมัครที่จะเป็นคนริเริ่มที่จะทำครับ

**Why do you volunteer to work on this?**

**Mr. Lom (19.45)**

ก่อนที่จะรวมตัวกันมาให้เครือข่ายพัฒนา ต้องมีปัญหาที่ส่งผลกระทบในเรื่องทรัพยากร ไม่ว่าจะเป็นทรัพยากรน้ำ.

Before we unite together, there was many problem that impact natural resource especially water resource.
เมื่อไม้พวกนี้ถูกทำลายเยอะ ๆ หลังจากนั้น ที่ดินมาก็คือน้ำลด ไม่พอในการท่านา ถ้ามีความต้องร้อน ที่มีการทะเลาะวิวาทกัน ด้วยการทะเลาะวิวาทกัน จนถึงได้ปรุงการขุดดินต่อมา จนได้เป็นภูเขาขึ้นมา เจ้าสุจริตเรื่อง

If the trees are cut down, the less water we get. Selling bark is very famous in that period so villagers cut the bark out from the trees, after 2 years the tree died. Therefore, this affects the water supply. So, we create the meeting to talk about this situation and expand the meeting into the network.

Mr. Siri (21.35)
แล้วตอนที่รวมตัวเป็นสมาชิกเครือข่าย ยากไหมครับ

How long do they take to create the network?

Mr. Lom (21.45)
ยากครับ กว่าจะทำให้แต่ละหมู่บ้านมาคุยกัน ตอนแรกภูเขาที่เคยแกนนำหมู่บ้าน แล้วพูดกับผู้ใหญ่บ้านเอกโด่งกันและยอมรับกันได้ ก็ถึงกับเป็นภูมิที่มีจุดเกิดที่นั้น

It is very difficult to have all the members from each village. At first, we only talk to the Phuyai Baan, if he understands then he will tell in the village’s meeting.

เมื่อความคิดตรงกัน เราถึงจะเป็นเครือข่าย ปี 2546 แล้วมีปัญหาเรื่องการทะเลาะกัน จนมีการจัดจัดในที่ที่ต้องตั้งเป็นเครือข่าย.

If all have the same ideas then we form the network. The network was completely formed in 2003.

Mr. Siri (24.30)
ตอนนั้นที่พี่บอกว่ามีการขูดเปลือกไม้เพื่อไปขาย กว่าจะทำให้ภูเขาเหมือนเดิมเป็นภูมิที่ยาก

Before that you said that villagers striped the bark for sell, does it take a long time for the forest to regenerate?

Mr. Lom (24.45)
ก็ยากครับ กว่าจะปลูกใหม่ต้องมีการปลูกใหม่ต้องมีการทำเปลือกไม้ไม่ต่างกัน

Very difficult indeed and it took a while. But we did not replant all the trees, we just stop striping the bark.

แล้วต้องดูแลเรื่องไฟด้วย ต้องทำแนวกันไฟด้วย ทุกปี

We also make fire protection line every year.

เมื่อปีนี้ที่ตรวจพบต้นดับได้ ไม่ทันจะออกมาพบกับภูเขา ถ้าร่างไม่เข้าไปทำ_SI

If we do not striping the bark again, the forest will regenerate by itself.

แต่เรื่องไฟนี้ ต้องอธิบาย ถ้าไม่ได้ต้นดับ 2-3 ปีไม่ไหมได้ทำอะไรก็ยังคงอยู่

However, the fire is the main aspect. If there is forest fire, it will destroy everything.

หลังจากนั้นขึ้น ทางราบก็ไหลเนื่องมาจากมูลดูดขึ้น จึงมีการจัดการน้ำ การดูแลป่า ทางราบ ทางรัฐบาลต่างๆหลากหลายรูปแบบ ต้องศึกษาดูอธิบายเกี่ยวกับป่า

After the RTF came and educated us about water and forest management, such as “Fai Cha Lor Nham.”
Fai Cha Lor Nham = similar to a Fai that slow the water current.

**Mr. Siri (26.05)**

How often is wild fire occurred before fire protection line was made?

**Mr. Lom (26.15)**

Very often in the past. Sometimes villagers went to set the fire in order to search for wild products.

But we did not know who did it. So, we did fire protection line to protect the forest just in case.

Afterward, we had talk about the situation within the village committee, and things starting to get better. Now a day, this does not usually happen.

However, when we want to clear our area for agriculture, we have to burn particular area first and build the fire protection line around that area.

**Mr. Nattasaet (28.30)**

What is your contribution on GPS map?

**Mr. Lom (28.50)**

At that time we have not corperated with Utokpat foundation yet, but we had spoken to the institution of water resource and agriculture.

**Mr. Siri (30.05)**

Did the RTF came and taught you about how to use GPS?

**Mr. Lom (30.15)**

At that time we have not been taught about how to use the GPS. Instead, we studied from Water resources institute.
The closest officer is from Raks Thai foundation and they have the experience so that we use Raks Thai officers to teach us.

At that time, the volunteer that walked with GPS device. Also Mr.Pichit and I mostly gather field data.

For academic point of view, I can not do it, we need RFD officer to do it.

When we were at the field surveying, we started walking around the whole village boundary first then we walked inside to each individuals’ area. While we were surveying, the owners of the land and beside land had to come as well so that there would not be any conflict afterward.

**Mr. Nattasaet (32.20)**

**What is the process of using GPS?**

**Mr. Lom (32.30)**

We have to set up the meeting first to understand about the GPS, whether it is good or not.

**Mr. Siri (32.40)**

**How many days does Raks Thai teach the villagers?**

**Mr. Lom (32.45)**

Mae La Oop has advantage over others because Raks Thai officer has wife in Mae La Oop so that it is easier to have the meeting.

**Mr. Lom (33.25)**

Before we walk, we have to ask the elders first because they know all the boundaries so we could be able to plan and draw a map for the survey.

We walked around to check the area and the boundary.
We also need the approval from them for each area before we start the process.

**Mr. Nattasaet (37.00)**  
แล้วตั้งแผนที่จังหวัดบัติ ธนาที่มีรับ  

**How long does it took to obtain one map?**

**Mr. Lom (37.25)**  
ถ้ามีการทั่วที่ช่วยจั่งธงถึงการหานแผนที่ออกมาเป็นแผน   
We started from understanding the map making process.

บางที่ใช้เวลาหนึ่ง บางที่ใช้เวลาครึ่งไม่ยิ่งกว่า เราจะไม่ไปบังคับเขา  
In some place, it took a year. Some took half a year to obtain the map of the entire village.

ที่เสียเวลาคือชาวบ้านบางกลุ่มไม่ยอมทำ เราจะไม่ไปบังคับเขา  
We were slow down mostly because villagers did not want to make the maps on their area. However, we did not forced them to make the maps.

**Mr. Nattasaet (38.50)**  
แล้วปัญหาเนี่ย นอกจากที่ชาวบ้านบางกลุ่มที่กลัว มีอะไรบ้างที่เป็นอุปสรรคในแผนที่  

**Despite villagers that are afraid to make maps, what are some other difficulties?**

**Mr. Lom (39.05)**  
เพราะขั้นตอน แยกบ้านแต่ละบ้านที่ มีมีความไม่เหมือนกัน ในการทำแผนที่ตรงนี้ ทางหน่วยงาน องค์กรปกครองส่วนท้องถิ่น ในอัฒจันทน์  
One difficulty is that the higher government officer (Amphoe) kept pushing us to complete the map on the entire village on time but there were still many villagers who did not want to make the maps.

**Mr. Siri (39.45)**  
อันนี้บังคับโดยทางอำเภอใช่ไหมครับ  

**The Amphoe kept pushing you?**

**Mr. Lom**  
ใช่ แจ้งที่ประชุมทุกครั้งๆ แต่บางที่บางกลุ่มไม่ค่อยสนใจเท่าไร  
Yes. We announced every week to keep everything on schedule, but some Phuyai Baans did not care much.

**Make that clear. ทองมีข้อตกลงจากราชวิถีที่ไม่จะ แม้วิปญญาไม่ต้องมาบอกเรา เราไม่เข้าใจ**  
Thus, the Amphoe Chief officer announced that “if you do not do the map, do not come to us for help when you have problem.”

**สุดท้ายทุกที่ก็ยอมรับ แต่ตอนนี้เสร็จเรียบร้อยแล้วทุกที่ แล้วสามเส้าถึงสองที่**  
Finally, everyone accepted the map making process, and everything was done.

**Mr. Siri (41.20)**
ที่พี่พูดถึงกรมป่าไม้เนี่ย เคยมีปัญหากับกรมป่าไม้ไหมครับ

Have you ever have problem with the RFD?

Mr. Lom (41.25)
ไม่ค่อยมี กรมป่าไม้ไม่ลงพื้นที่ด้วยซ้ำ เมื่อทำตรงนี้แล้วยอมกับว่า เราเป็นหูเป็นตาให้กรมป่าไม้ด้วยซ้ำ งานของเขาก็จะเบาลง เพราะว่าชุมชนเราดีกัน
Not a lot of problem. The RFD do not even bother to come to the local areas. After we did the map and the forest management program, it is like we are helping RFD managing the forest at the same time.

Mr. Siri (43.40)
ตอนนี้ข้อตกลงของหมู่บ้านนี้ไปถึงไหนแล้วครับ ของตำบลแจ่มหลวงนี้ไปถึงไหนแล้วครับ
Currently, how much the Tambon’s agreement is being in progress so far?

Mr. Lom (43.55)
ที่ประชุมวันนี้ถือว่า ประชุมพิจารณาว่าข้อบัญญัติของตำบล ถือว่ายอมกับว่าเป็น 3ตำบล ที่จะทำในลักษณะเดียวกัน
There is a meeting held today. This meeting will discuss on drafting local legislation. There are 3 Tambons in Amphoe Galyani Vadhana in which the legislations are similar.

Mr. Nattasaet (44.30)
หลังจากที่ตั้งข้อบัญญัติเสร็จแล้ว ต้องทำอะไรต่อไหมครับ
What would be the next plan, if the local legislation is approved by the Amphoe?

Mr. Lom (44.40)
หลังจากนี้ยังไม่ได้วางแผน แต่ถ้าผู้ที่มีความรู้ความสามารถ ถ้าอ่านแผนที่ได้ก็คือ สมมติว่าเราจะไปสร้างฝายที่ลำห้วยไหน ตรงไหนก็ตามแต่จะรู้ได้ทันที
We need to restore the forest, and the watershed by building “Fai Cha Lor Nham.”

Mr. Nattasaet (47.50)
หลังจากที่ถือว่าข้อบัญญัติเสร็จแล้ว ต้องทำอะไรต่อไหมครับ
Refering to the map previously, other from the boundaries of each area, what else can the map be used for.

Mr. Lom (48.00)
ประโยชน์ก็คือ การวางแผนงานแต่ละอย่าง ถ้าได้ตรงนี้เนี่ยจะช่วยอ่านแผน เหมือนกับแผนที่แผนที่อยู่ในที่อยู่
It can be used for construction planning since everything is located on the map already.
A person, who has been trained, has experience with maps and can easily pinpoint the location of “Fai Cha Lor Nham”.

**Mr. Siri (50.45)**

Mr. Siri, who has been trained, has experience with maps and can easily pinpoint the location of “Fai Cha Lor Nham”.

**Mr. Lom (50.50)**

Mr. Lom, who has been trained, has experience with maps and can easily pinpoint the location of “Fai Cha Lor Nham”.

**Returning to the forest management. Are there any indigenous knowledges or practices that can be applied to the forest management?**

**Mr. Lom (50.50)**

Mr. Lom, who has been trained, has experience with maps and can easily pinpoint the location of “Fai Cha Lor Nham”.

Yes, we have. We can combine indigenous knowledges and sciences together.

In the old day, Karen hill tribe, when a child is born, he or she must have a tree. So we will put his or her umbilical cord inside a container and hang it on the tree.

This implies that the tree belongs to the child.

The tree is bounded to that child, and the tree will be untouchable by any one.

If the tree is destroyed that child will be doom.

In the past, we considered that “one person must protect one tree”.

But nowadays, children are born in hospital. Thus, there are no tree for the newly born children to be hanged their umbilical cords.

However, we can adapt to this change. We sell shirts in exchange for protecting a tree for that person. We would arrange this by putting signs of customer’s name on trees.

**Mr. Nattasaet (53.50)**

Mr. Nattasaet, who has been trained, has experience with maps and can easily pinpoint the location of “Fai Cha Lor Nham”.

Is there any more way to conserve the forest?

**Mr. Lom (53.55)**

Mr. Lom, who has been trained, has experience with maps and can easily pinpoint the location of “Fai Cha Lor Nham”.
In the past, children obeyed the elders. If the elders told them not to do something, they would not dare to do. For example, the elders said to them that do not cut down trees because it was not good, they would not cut.

They usually cut down trees 10-20 meters away from the watershed area because it will preserved the area. Nowadays, the children do not obey the elders anymore because they think that have more knowledge.

Mr. Lom (57.55)
"Some hope the forest is in good condition. If they see these animals, it means that the place is in good condition whether in very dry season."

Mr. Nattasaet (1.01.00)
"From your nearly successful project, do you have any suggestion to other villages that just start doing this project?"

Mr. Lom (1.01.10)
"First, having a good will is very important; they must really want to do it in order to be successful.

Second, children must have conscious mind on conservation and know about the situation so that these children can help this generation in the future."

Mr. Siri (1.02.05)
"If schools have water development and forest management courses, do you think this would be benefit to those children?"

Mr. Lom (1.02.20)
"I think it would help, eventhough now they do not have this course at school but we have the campus."
Mr. Siri (1.02.45)
 เพราะว่าเด็กส่วนใหญ่ก็จะอยู่ในโรงเรียน คิดว่ากลุ่มเด็กหรือวิถีการเข้าเพิ่ม คิดว่ามันพอหรือยังครับ สำหรับเด็กรุ่นใหม่

Children are mostly at school, do you think it enough for children to take this course or participate in the campus?

Mr. Lom (1.03.04)
 ก็คือต้องคัดเลือกนักเรียนแต่ละรุ่น ต้องยกหน่อยให้เข้าตามระดับ ม. 1-ม.3 ต้องละกันนักเรียน อีก ม.3 จนไปจนบุญเบนที่จะซื้อ แล้วที่กัดรุ่นน้อง แล้วก็จะให้ขึ้นฟอสซิลแล้วก็จะได้สุ่มแก้ไข ใช้ในช่วงวันหยุดหรือวันหยุดส口袋ส์เพื่อสิ่งที่ถูกต้องหรือวันที่นักเรียนมีโทษ

We have to select the leader from these children. The campus will be held in summer or in the weekend. Their parents will bring their children to learn more about “Fai” and also how to construct “Fai”. They have to pay only for their foods and drinks.

Mr. Siri (1.04.05)
 ถ้าเกิดเด็กทุกคนสามารถไปเข้าได้เริ่มต้นการเรียนรู้ทุกคน คิดว่าจะมีผลดีขึ้นในเรื่องการที่เด็กทุกคนจะมีความรู้ด้านนี้ แล้วก็จะมีจิตสำนึกว่า ควรรักษาป่า

If all children are able to go to the campus, do you think the children will have the knowledge of conserving the forest?

Mr. Lom (1.04.30)
 ผมว่าดีขึ้น

I think it will get better.

Mr. Siri (1.06.55)
 ในอนาคตมีแผนอะไรที่จะพัฒนาหรือเพิ่มเติมที่การทำให้สถานที่นี้ใหญ่ขึ้น หรือว่าไม่ได้มีแผนอะไร

In the future, do you have plans for developing the agricultural and residential area?

Mr. Lom (1.07.15)
 แต่เราต้องใช้หลักของทำเลนี้เช่นกันที่เรื่องของชีวิตที่คือบางที่ไม่ขึ้นอย่างที่เราเห็นอยู่ในด้านอื่น แล้วก็ต้องใช้หลักของในการชีวิตที่คือเศรษฐกิจพอเพียง สิ่งที่ต้องการทำก็คือการพัฒนาที่อยู่อาศัยอย่างพอเพียง การมีความพอเพียงที่อยู่อาศัยอย่างพอเพียง ได้ต้องทำอย่างนี้หรือไม่

We have to use His Majesty the King’s theory called sustainable economic to help those villagers who not have permanent jobs.

Mr. Siri (1.08.45)
 ซึ่งถ้าเรื่องการท่องเที่ยว มีนักท่องเที่ยวมาเข้านิเวศน์มากขึ้น

Do the tourists come here often?

Mr. Lom (1.08.50)
 ไม่ค่อยมีนักท่องเที่ยวในนี้ ที่มาของนักท่องเที่ยวจะเป็นนักศึกษาหรือว่าหน่วยงานของรัฐจะมีการพัฒนา

Not often. Mostly the students or the organization come here to do research.
Mr. Nattasaet (1.12.10)
ที่มีบ มีปูในทะเล ปูปลาต้องรับ ได้มีการจดบันทึกข้อมูลอะไรที่เกี่ยวกับทรัพยากรน้ำ จงจำนำเกี่ยวกับความยุ่งยาก

Have you taken notes about frog, crab or fish, for example, their population?

Mr. Lom (1.12.40)
ให้อาวุธเก็บข้อมูล เรื่องสัตว์ ที่เข้าใหม่ไปถึงเรื่องนี้ ฮัสร์

We let the juvenile collecting the data about Fai which will link to animals and water.

Mr. Nattasaet (1.14.40)
เรื่องแนวกั้นไฟได้มีการจดบันทึกไหมครับ คือทำใหม่ทุกปีหรือว่าทำที่เดิมให้ดีขึ้น

Do you also take note or draw the fire protection line? Do you have to make the new map or just update the map?

Mr. Lom (1.14.55)
แนวกันไฟจะทำซ้ำที่เดิมทุกปี เพราะว่าที่นั้นเป็นพื้นที่ป่าอนุรักษ์หรือป่าที่เกี่ยวข้องกันไม่ได้ที่มีไฟเข้ามา ถ้าทำเพิ่มก็ต้องลงในแผนที่

We will build the fire protection line every year because it is the conserved forest or the watershed forest so that we have to protect forest from fire.

Mr. Nattasaet (1.16.00)
มีการจัดหาทรัพย์

Do they have “Ching Phao”?

Mr. Lom
ไม่ค่อยมีครับ แต่มีอันนี้ การดูแลป่าและแปลง แปลงจะครอบครัว คือจะมีงบสนับสนุน ให้ชาวบ้านดูแลแปลงของตนเอง

Not really have. The landowner or the family has to take care of their own areas. Moreover, we have budget for them to use for taking care their land areas.

Mr. Nattasaet (1.18.00)
มีการรักษาทรัพยากรไม้

Do you have any expectations from us?

Mr. Lom (1.18.10)
ผมมีข้อเสนอให้ทุกปีนี้ ทุบแปลงที่มีรังไม่ไหวในฤดูแล้งมาทรัพยากร ไม่ว่าจะมีเวลา จะจะมีการจัดการกับพื้นที่ แก้ไขปัญหาการขุดบ่อโดยไม่ได้รู้มีการขุดบ่อ

I want all villages to take care of resources not only the forest. The Utokapat member care about water management because now we have the global warming problem, we can see that the amount of water decreases rapidly this year.

Mr. Siri (1.19.40)
อยากให้ทางการเข้ามามีส่วนเกี่ยวข้องเสียกี่อย่างกว่า

Do you want the government to construct water supply for the villages?

Mr. Lom (1.19.50)
ถ้ามาจากทางการคงยากหน่อย อยากให้ทุกคนร่วมมือกันทั้งฝ่ายกล้วยกล้วย

It is difficult for the government to come and support. Therefore, we want other organizations to help us.

Mr. Siri (1.21.30)
พี่มีความมั่นใจในโครงการทั้งเรื่อง GIS แล้วก็เรื่องการจัดการทรัพยากรน้ำไม่ได้ที่ว่าทำไมโค้ทำภูมิที่ไหน

How confident do you have in this GIS project and resources and forest management, do you think that this project can be used in other part of Thailand?

Mr. Lom (1.21.55)
ตอนนี้กลุ่มที่เข้าในโครงการมูลนิธิอุทกพัฒน์ ทางเจ้าหน้าที่ได้เข้ามารับเรื่องแผนที่และการใช้ GPS ทุกพื้นที่ทุกชุมชนที่เข้าไปในโครงการอุทกพัฒน์นี้

Everyone in Utokapat foundation must know the map and know how to use GPS. I think it can be used in many areas.
Appendix N: Summary of Interview with Mr. Vijid, Mae La Oop River Basin Network Member

Attendees

- Mr. Napat Asawachaisopon
- Mr. Nattasaet Sirikanerat

- Mr. Obiora Ofokansi
- Ms. Brigitte Perera

Date: Tuesday February 3, 2015

**How long have you lived in this village?**
I was born here. I am 40 years old now.

**What do you do for work?**
I am the member of the Mae La Oop basin Network. This network has 4 villages. We work in groups and take care of soil, water and forest quality. We also set up the meetings for villagers to understand about the argument and exchange the information with the adult about the land boundaries. When the meeting is not specified yet but we will have the meeting frequently.

**Why you have to manage the land?**
Because we live in the conserved forest area. If we do not manage the forest land, the forest will disappear eventually. Therefore, we have to create the rules to make people afraid of the consequence from destroying the forest and prevent people from invading the forest area. By doing this, we must have conservation with Raks Thai before setting up rules and creating a map for the 4 meeting in 4 different villages.

**Why did you volunteer to help collect GIS data?**
I volunteer to help collected GIS data because if I do not volunteer, there would be less people participate in collecting the data.

**What do you do about GIS/GPS?**
I am the person who walks with the GPS which is my main duty. According to the GIS mapping, we must have at least 10 volunteers from each villages among 4 villages which also include the landowners to collect the GIS data. Actually, we need about 20 volunteers who know how to use GPS and each village because maybe someday some people are not free but have to tell before the survey day.

From surveying the villages’ boundaries, we will get 4 papers of 4 villages. We will check those map papers not interfering beside lands. Then, we will print the whole map of Tambon. If there is overlapping of lands, it needs to be rechecked again. By getting this individual area (plot), every plot has to be survey by walking so that we will get each map paper. The owners should go whenever there is a survey of their land or beside land.

**Can you describe the process for collecting GPS data?**
2 people are needed for 1 GPS instrument; one will press the buttons and another will take note of the recorded the data. We use 10 GPS instruments at a time for survey the land boundaries.

If one person has 20 individual plots, he will get 20 map papers. Then these papers have to be rechecked again. If it shows that some interferes beside land but the owner said that it his
land area. Therefore this situation will be considered by the committee. Those people in the committee that can approve the land boundary of each individual plots are:

1. The Phuyai Baan
2. The vice of Phuyai Baan
3. TAO
4. Elders of the village
5. The feminine group
6. The religion leader

From the village map, it shows the area of the land (in rai), different types of land in the area such as garden and rice field, forest and also the sign of these people:

1. Kamnan
2. The president of TAO
3. The community forest officers
4. The representative of province
5. Consult organization; CCT and Raks Thai
6. Land advisor
7. The president of the Water Basin Network

In addition, the owner has to pay 100 baht for the map. 100 baht separate into two sections; 50 baht for documents and another 50 baht for those 20 volunteers, GPS battery, paper and pen.

**Where do you get the GPS instrument from?**
We borrow the GPS from Consult organization and Hydro and Agro Informatics Institute (HAI)

**How has GIS improved your forest management techniques? How does GIS data affect how you manage the forest?**
There are three Amphoe that are working on the GIS mapping which are Amphoe Galyani Vadhana, Amphoe Mae Chaem and Amphoe Aom Goi. Amphoe Galyani Vadhana is the most successful by creating and using the GIS map.

We solve the invading the forest, smog, and land boundary problem by creating the map. In the past, if the landowner wants to burn their field they burn so there is a problem. The beside land will be affected because their crop field is burnt too. The map will help the confliction of the landowners. Moreover, they will manage their land because of most are mountain areas, it’s difficult to grow rice so they by doing the rotational agriculture every 8 points in the area and the map also divide the forest area into zones.

Recently, the province has announced the policy to solve problem affecting the forest which are:
1. Smog
2. Invasion
3. Drug(Opium)
4. Non-Thai citizenship

Advantages by having a map:
1. It is easier to collect taxes
2. Do not have to go to the field when there is a problem
3. It is helpful for land management
4. Less conflict between landowner

**What are the occupations of the villagers?**
Some people work at government office and public company. Some people work at home doing animal farming and planting crops.

**What is your expectation from this project?**
I want the villagers to have the rights to own their land, I would not want to see any villagers get arrested and I am willing to improve this place for tourism purpose.

“We do what we can but if the government announces that they are living in the conserved area, so it is the end for us. We cannot do anything.”
Appendix P: Summary of Interview with Mr. Leme Sinmitrapab, Mae La Oop River Basin Network Member

Attendees

- Mr. Napat Asawachaisopon
- Mr. Nattasaet Sirikanerat
- Mr. Obiora Ofokansi
- Ms. Brigitte Perera

Date: Tuesday February 3, 2015

What is your name?
Leme Sinmitrapab

Where are you living?
Live in Chaem Luang

What is your occupation?
Water shared network to prevent invasion and improve the forest.

When do you start?
I start doing this since 2009.

What do your organizations do?
Manage the budget in Baan Chan, Mae Daet and Chaem Luang

All written rules of legislation come from everybody.

How often do you meet with villagers?
He will meet the villager almost every day.

What do you do for your job?
He is doing the meeting about “Fai” and doing activities.

Sometimes he let the secretary doing it.

He cooperates with the leader, the committee and the villagers in the areas.

What is the benefit of the map?
The map helps to create the fire protection line.
**What do you do to conserve the forest?**
If you cut down 1 tree you have to plant it 10 more.

Build the fire protection line

Plant the tree in unhealthy forest

Before we burn the forest, we have to build the fire protection line around it first.

**What do suggest for the village that going to do this project?**
What would be the advice for some village would want to start this project?

**What do you request us to help?**
There must be an announcement for the right to use the land for agriculture and residence area.

There is a regulation stated that if you want to claim or have the right to that area, that area must be “Lon Tien”.

**What is your future plan?**
Every watershed area must come together and exchange some idea. They should have rotation of duty in order to gain new experience on handling with problems in multiple aspects.

The government should declare regulation that if some village could transform the unhealthy to healthy forest, they should be able to gain right to do agriculture on that land. In case the land turns out to be worsen, that land should be confiscated.

Lastly, I would like to leave the message to you about if you see another village that is also located in the conserved forest area. You should listen to both side and use fair judgmental in order to save those villages from being kick out the forest.
Appendix Q: Transcript of Interview with Mr. Thayakorn Gaechue, a Village GPS User

Attendees

- Mr. Siri Nittayakasetwat
- Mr. Nattasaet Sirikanerat
- Ms. Caitlin Swalec
- Mr. Alexander Zitoli

Date: Tuesday February 3, 2015

Mr. Siri (00.50)
พี่เคยจับเครื่องมือทำแผนที่ไหมครับ
Have you ever use the map making device?

Mr. Thayakorn
เคยครับๆ เคยจับเครื่องมือ GPS
Yes, I have use GPS.

Mr. Nattasaet
พี่เคยทำแผนที่โครงการนี้ในด้านไหนบ้างครับ
In which way have you done about mapping in this project?

Mr. Thayakorn
เป็นคนวาดและเดินทำแผนที่เลยครับ
I am the person who draw the map.

Mr. Siri
ตอนนั้นใครมาสอนวิธีการทำแผนที่ครับ
Who taught you how to draw the map or procedure of mapping?

Mr. Thayakorn
พี่เกียรติศักดิ์เป็นคนสอน
Mr. Kiattisak was the one who taught me.

Mr. Siri
In your opinion, do you think GPS device is difficult to use?

Mr. Thayakorn
ไม่ยากๆ
No. It’s not difficult.

Mr. Siri
How long did it take you to be able to use the device?
Mr. Thayakorn
ไม่นานๆ ประมาณชั่วโมงนึง
Not so long, just about an hour.

เพราะว่าผมไปกับเขาเนอะ
Because I went with Mr. Kiattisak and he taught me along the way.

ท่าไปด้วย สอนไปด้วย
Teaching and doing the same time.

Mr. Siri (2.00)
ตอนที่มีรายแปลงแล้วให้ใหม่ครับ
Now do you have an individual land plot map?

Now do you have an individual land plot map?

Mr. Thayakorn
ครับ
Yes.

Mr. Siri
แลัวหลั้งจากที่พี่ได้แผนที่รายแปลงมา ที่มีความรู้สึกอย่างไรบ้างครับ
After you got the individual map, how do you feel?

Mr. Thayakorn
ตอนแรกเขตเราก็ยังไม่แน่ใจนะครับ
At first, we were not sure about the boundaries eventhough we are relatives.

ถ้าเราวัดเสร็จแล้ว เราจะรู้ด้วยว่าเป็นเจ้าของแล้ว เพราะเราลัดวงจรแล้ว ใครก็รู้ ชาวบ้านก็รู้
After we use GPS to define our boundaries, the villagers will know whom the boundary belongs to.

Mr. Siri (4.00)
พี่รู้สึกภูมิใจไหมครับ
Do you feel proud with the map obtained?

Mr. Thayakorn
ภูมิใจๆ ก็เรารู้ว่าเจ้าของที่ที่ของเรา
Yes. We could clearly identify our boundaries.

Mr. Nattasaet (4.30)
ที่ี่ใช้พื้นที่ของพื้นที่อะไรบ้างครับ
What do you use your land for?

Mr. Thayakorn
Mr. Nattasaet
คำว่าการวัดพื้นที่ของพี่ท่านมาก็ไม่เห็นปัญหา หมายถึงตอนเดินวัดพื้นที่ของพี่ครับ
How long did it take for collecting the GPS data on the boundaries? I meant during the walking process with the GPS?

Mr. Thayakorn
ไม่นานๆ เพราะพื้นที่นั้นไม่กว้างทั่วไป เอ๊ะใช้อาจไม่นาน
Not so long because my area is not that big.

Mr. Nattasaet (5.30)
หลักๆ ที่ปลูกอะไรบ้างครับ
What do you mainly grow?

Mr. Thayakorn
ผมปลูกถั่วแดง ข้าว
I grow red beans and rice.

Mr. Siri (6.00)
ถั่วแดงกับข้าวมันเป็นสินค้าของโครงการหลวงใช่ไหมครับ
Red beans and rice are products that have been supported by the R Royal Project or not?

Mr. Thayakorn
เปล่าๆ ผมปลูกเอง ขายเอง
No, I grow it myself as well as selling it.

Mr. Nattasaet
แสดงว่าทำได้เยอะสิครับ
So that means you get a lot of income.

Mr. Thayakorn
ก็ทำได้เยอะ แต่ปีนี้ราคารวมก็ยังดี
Yes, but this year the price drops.

ขาดทุนไปเยอะเหมือนกัน เพราะเขาไม่รับประกันราคา
I have been loss on investment too because the buyers do not have the guarantee on price of the products.

Mr. Siri
ที่พี่บอกว่าขายพืชผลแล้วขาดทุน มีทางการไหนเข้ามาช่วยหรือเก็บราคาหรือรับซื้อสินค้า หรือ มีนโยบายอะไรเกี่ยวกับ
When you mentioned loss on investment, are there any agencies that came to support or buy your agricultural products? Or are there any policy supported?
Mr. Thayakorn ไม่ค่อยมี Not really.

ความรู้สึกของผมคือไม่มี ถึงแม้ว่าจะมีเกษตรอ าเภอก็ไม่ค่อยมาให้ความช่วยเหลือ In my opinion, I think no one have really come to support nor any policy from the Thai government.

แม้แต่ข้าวโพด ทั้งๆที่หมู่บ้านอื่นเขาเข้ามาช่วยเหลือ รัฐบาลก็ช่วย แต่แถวนี้ยังไม่ค่อยมี When there were problem of growing corn, other village lend their hand to help as well as the government but it does not reach to Amphoe Galyani Vadhana.

Mr. Siri (10.00)

เพื่อนผมถามว่า การที่พี่ได้แผนที่แปลงมา พี่รู้สึกปลอดภัย หรือ มีสิทธิเท่ากับคนไทยทั่วไปไหมครับ When you obtain the individual land plot map, do you feel more secure or do you have feel you have equally right compare to other Thai people in general?

Mr. Thayakorn รู้สึกไม่ปลอดภัย ถึงแม้ว่าจะมีแผนที่แล้ว

I felt insecure even though I have the map.

เพราะไม่ใช่ทางการ มันไม่ใช่ น.ส.3 (**หนังสือรับรองการท าประโยชน์) น.ส.4

Because it’s not official by **นส.3 ณ.4

อันนี้มันแค่รู้ภายในหมู่บ้าน ภายในเครือญาติว่านี่คือที่ของเรา

In this case, it is just acknowledging the villagers or relatives.

แต่ถ้าสิทธิทางราชการมันยังไม่ได้ เพราะมันเป็นพื้นที่เขตป่า

But it does not approve by the government yet because it’s in the conserved forest area.

Mr. Thayakorn (11.40)

สมมติว่าเราปลูกข้าวโพด แต่ที่ของเราไม่ใช่น.

For instance, if we plant corn but the area we are in are not yet approve by agricultural certificate no.3 so we do not receive any funding from the government.

Mr. Siri

ก็ยังไม่ได้รับผล แต่ที่ของเราไม่ใช่น.

Is the government also help but it still not reach this area?

Mr. Thayakorn

ถึงแม้ว่าที่นี้เป็นพื้นที่ป่า แต่ไม่ใช่น.

They said that the forest area still does not receive Agricultural certificate no.3 yet.
Mr. Nattasaet (15.00)
แล้วตอนนี้ปัญหาเรื่องการจัดการพื้นที่ของการทำไร่เรื่องไร่บังคับ
What seems to be the problem about land management?

Mr. Thayakorn
หลังจากได้แผนที่แล้วตอนนี้ปัญหาไม่มี
After obtaining the map, there are no more the problem about land management.

Mr. Nattasaet
แล้วก่อนที่จะได้แผนที่มีปัญหาอะไรบ้างครับ
Before the map was made, were there any problems?

Mr. Thayakorn
ก็มีปัญหา หมู่บ้านจะทำไร่ แต่เขายังไม่รู้เขต เขาอาศัยเข้าไปในที่คนอื่น
Yes, but when the villager wants to do farming but they do not know their boundaries and they intrude other’s territory.

Mr. Nattasaet (16.00)
ก็มีบ้าง หมู่บ้านจะทำไร่ แต่เขายังไม่รู้เขต เขาอาศัยเข้าไปในที่คนอื่น
The others in this case are you referring to the villagers?

Mr. Thayakorn
ก็มีปัญหา เช่น หมู่บ้านจะทำไร่ แต่เขายังไม่รู้เขต เขาอาศัยเข้าไปในที่คนอื่น
Yes.

Mr. Siri (17.30)
พี่รู้สึกอย่างไรในตอนแรกที่ทางมูลนิธิรักษ์ไทยจะเข้ามาทำแผนที่บ้านของพี่
What is your first impression when you heard that RTF will come in and create a map of your boundary?

Mr. Thayakorn
มันเป็นของใหม่ พี่จะเข้ามาวัดพื้นที่ เพราะเป็นมูลนิธิแรกที่เข้ามา
It is new here, they came in and demarcated the area because they were the first NGO to come in and do the measurement.

แต่ก็จะมีกรมพัฒนาที่ดินเดินด้วยนะ แต่เขาไม่ได้วัดนะ เขาจะทำในส่วนที่เรามีอยู่แล้ว
And the department of land development also came in the village but did not collect any data. They just worked with the information that we already have.

Mr. Siri (18.30)
แล้วตอนแรกที่ทางมูลนิธิไทยจะเข้ามาทำแผนที่ พี่ยินยอมให้ RTF เข้ามาทำแผนที่บ้านหรือเปล่า หรือว่าพี่ยังกลัวกลัว
At first when RTF will came in and made the map, did you give them permission to do the map or you were afraid?
Mr. Thayakorn
ตอนแรกก็ยังกล้าๆกลัวๆอยู่ เพราะยังไม่เข้าใจว่าทำไปทำไม
At first I was quite afraid because I do not know the purpose of them coming in.

Mr. Siri
แล้วสุดท้าย ทำไมพี่ยังยอมให้เขามาวัดพื้นที่ครับ
Why you finially decided to give them the permission?

Mr. Thayakorn
ก็เห็นเพื่อนๆทำ ก็เลยทำบาง
I saw my friends did it, so I decided to give it a try.

แต่เรารู้แต่แรกแล้วว่ายังไม่ได้พื.3 พื.4 นะ
But we know from the first place that we would not get the Agricultural certificate no.3 or no.4.

เรารู้ว่ามันยังไม่ใช่ของจริงๆ แต่มันเป็นบันไดขั้นแรกที่ช่วยได้
We knew that it is not the official document but it could be a first step that might be resolve this situation.

Mr. Siri & Mr. Nattasaet (21.30)
พี่มีความคาดหวังกับโครงการพัฒนาชุมชนป่าไม้และโครงการทำแผนที่ในด้านใดบ้างครับ
What is your expectation on the Community Forestry Development Project and GIS mapping project? In what way? How it would be beneficial to you and the forest?

แล้วกับพวกผมด้วยครับว่าพวกผมจะช่วยอะไรพี่ได้
What’s you expect from us?

Mr. Thayakorn
ความหวังกับทุกอย่าง
I expect everythings.

ในเรื่องของที่ดิน ถ้าได้มีการวางแผนที่แน่นอนแล้ว หวังว่าทางรัฐบาลจะเข้ามาต่อยอดโครงการดินนี้
In the case of the land, if there is a defined map, we hope that the government will consider to further develop this project.

Mr. Siri
What do you mean about land?

Mr. Thayakorn
Agricultural certificate no.2 and no.3.

Mr. Siri (23.00)
เคยมีประเด็นว่าทางรัฐอาจสามารถให้สิทธิ์ต่างกับพื้นที่ใดได้ แต่ไม่สามารถให้สิทธิ์ในการครอบครองได้ พี่เข้าใจถึงเรื่องตรงนี้ไหมครับ

There used to be a subject mentioned that government could be able to give the permission to use the area but could not obtain ownership of the land? Do you have a clear understanding on this?

Mr. Thayakorn

เข้าใจครับ

Yes. I do.

ถือว่ารัฐบาลจะไม่ให้พวกเราทำสวนแล้วใช่ไหม

Is this means the government would not allow us to do farming anymore right?

Mr. Siri

อันนี้ผมก็ไม่รู้เหมือนกันครับ พวกคนที่อยู่ข้างทางที่รัฐบาลค่อนข้างจะเป็นตัวกลางทางเจ้าของกับรัฐบาล

I have no answer to this question as well but we are trying to help the most we could do as a medium between the government and the villagers.

Mr. Thayakorn

ครับๆ เป็นสื่อกลางให้พวกเรา

Yes, please be the medium for us.

Mr. Siri

เพราะบางที่เขาอาจจะไม่เข้าใจว่า นี่เป็นวิถีชีวิตของพวกพี่จริงๆ และผมก็สามารถช่วยทำความเข้าใจกับเขาได้

Because sometimes they might misunderstand your way of life and we would be able to create an understanding with the government.

Mr. Siri (23.30)

ถ้าหมู่บ้านอื่นจะรับแนวการทำแผนที่หรือการบริหารจัดการพื้นที่ไปได้ไม่ไป พี่มีอะไรจะฝากไปยังพวกพี่ขาวเรื่องปลายนั้นหรือไม่

If other villages wish to have the maps for their own? What might be your suggestion?

Mr. Thayakorn

ผมว่าควรให้ชาวบ้านที่นั้นมาพูดกับชาวบ้านในอำเภอการจัดการพื้นที่ที่เป็นไปได้ไป เพื่อให้วิ่งจะทำไปยังพวกผู้ช่วยเรื่องปลายนี้

I think that the villagers could come and talk with us and the field officers in Amphoe Galyani Vadhana.
Appendix R: English Translation of Tambon Chaem Luang GIS Map

1) **Title:** Land Use Map of Tambon Chaem Luang, Amphoe Galyani Vadhana, Chiang Mai Province
2) Symbols (by column)

Column 1

- Star- Observation Tower
- Green House- Mission Center
- Red House- Village Hall
- Blue Columns- Church
- Red Columns- Temple
- Green Circle w/Crosshairs- Shrine of Baan Sao Daeng Village

Column 2

- Red Circle- Mountain Summit
- Blue Diamond- Source of Natural Spring
- Plane- Airport
- Flag Building- School
- Gray Box- Highland Agricultural Research Station at Baan Sao Daeng
- Gray Dotted Line- Road

Column 3

- Blue Dotted Line- Waterway
- Black Line- Main Contour Line
- Purple Box- Community Boundary
- Yellow Box- Boundary of AGV

3) Land Use Types (by column):

![Land Use Types Diagram]
### Column 1- Buildings Area
- Road
- Temple
- Residential Area

### Column 2- Agricultural Area
- Paddy Field
- Horticulture
- Permanent Farming
- Rotational Farming
- Individual Plot
- Highland Agricultural Research Station

### Column 3- Forest Area
- Conserved Forest
- Watershed Forest
- Rehabilitation Forest (Restoration Forest)
- Cemetery (Spiritual Forest)
- Wildlife Conservation
- Economic Forest
- General Forest Area
- Water Source

### 4) Land Use in Tambon Chaem Luang, Amphoe Galyani Vadhana, Chiang Mai Province

Table Headings *by columns* are: Number; Type of Land Use (with the three categories listed in the brackets); Area (Rai); Percentage of the Area.

The entries are listed according to the same order stated in Box 3. Each category is listed with its own heading row and the total row (with no number in Column 1) at the end of its section. The very last line sums for all of the categories – the total area in Tambon Chaem Leung.

### 5) Sponsors:
- Hydro and Agro Informatics Institute (HAII), Raks Thai Foundation, Mae La Oop River Basin Network
1) **Title:** Land Use Map of Baan Mae La Oop, Village 3, Tambon Chaem Luang, Amphoe Galyani Vadhana, Chiang Mai Province

![GIS Map of Baan Mae La Oop Village](image)

**Figure 4-3:** GIS Map of Baan Mae La Oop Village
2) Symbols:

- Red Cross - Health Station
- Flag Building - School
- Road - Gray Dotted Line
- Waterway - Blue Dotted Line
- Minor Contour Line - Pink Line
- Major Contour Line - Black Line
- City Boundaries - Yellow Box

3) Land Use Types (with percentage of total village area):

- **Residential Area** - .53%
- **Agricultural Area** - 11.86%
  - Individual Plot 11.86%
  - Paddy Field
- **Forest Area** - 85.4%
  - Conserved Forest - 1.14%
  - Watershed Forest - 23.01%
  - Cemetery - .23%
  - Umbilical Forest - .17%
  - Economic Forest - 9.25%
  - General Forest - 51.6%
- **Total** - 97.79%

4) List of the Owners for Individual Plots of Land: Chart showing: Plot Code, Name of Land Owner, Primary purpose of land use, Area (in Rai)

5) Community Rules for Land Use: See Appendix M for a full translation of this section

6) Signatures Section:

Village Executives:

- Mr. Wijit Phanagriangrai, Village Headman of Village 3
- Mr. Misujee Suriyachaipan, Kamnan of Tambon Chaem Luang
- Mr. Srikaew Kirirangsi, Chief Executive of Chaem Luang TAO

Involved Parties:

- Mr. Chattanat Thiankaaw, Chief District Office of AGN
- Mr. Chayapon Ruenkam, Head of the Forest Prevention and Reservation Unit Chiang Mai 17 (Wat Chan)
- Mr. Jaidsada Gaewchok, Head of the Watershed Management Unit of Khun Mae Chaem
- (……………..), Representative from Chiang Mai Province Agencies
Consulting Organization:
- General Surin Pikunthong, Chair of Community Organizations Development Institute (CODI)
- Dr. Royol Jitdorn, Director of Hydro and Agro Informatics Institute (HAII)
- Mr. Promboon Panidpak, Executive Director of Raks Thai Foundation (RTF)
- Mr. Poonsin Srisangkom, Coordinator of Global Environment Facility (GEF)
- Mr. Isaa Panakriangkrai, President of Mae La Oop River Basin Network

8) Sponsors: Raks Thai Foundation, Hydro and Agro Informatics Institute (HAII), Mae La Oop River Basin Network
Appendix T: Translation of Community Regulations from Figure 4-3

Regulation of Village 3 Baan Mae La Oop, Tambon Chaem Luang, Amphoe Galyani Vadhana, Chiang Mai Province
The Demarcation of Forest Area Project *via* Community Participation

Section 3: Conservation of Forest, Water Sources, and Rivers
1. The citizens in this village and other villages who earn their livings in Village 3 must help conserve the forest and water sources which are under the responsibility of the village. Cutting trees and destroying the forest in the Watershed 1A and 1B areas are strictly forbidden. Should you require the use of timbers, permission must be obtained from the Village Committee.
2. Do not cut trees or destroy the forests which are in the watershed area.
3. Do not set fire to the forest because it will damage the forest.
4. Do not catch fish, crabs, or tree frogs in the watershed area.
5. Lumbering out of the village is forbidden with no exceptional cases.
6. If a member of the village wishes to build a house or other buildings, they must inform the Village Committee by completing the provided form.
7. Use only the timbers from the permitted area, i.e. the economic forest.
8. Cutting trees or clearing the area to make a new agricultural area, and fishing in the brooks or the areas which provide the water supply.
9. People who want to cut down trees at the borders of the fields must inform the owner of the lands.

Those who break the rule will be fined between 500 and 5,000 Baht per person by the Village Committee with the help of the community.

Section 10: Land Trading to Non-villagers and Land Lease to Business Investors
- Trading the land to non-villagers is strictly prohibited, with no exceptional cases.
- Investors are not allowed to rent a plot of land and/or do a business in the area.
- If you must sell the land to outsiders, an approval must be granted from the Village Committee and the community.

Section 12: Occupation in Village 3
1. Outsiders and people from other villages who currently earn their livings in Village 3 are not allowed to expand or invade in any case, nor clear-cut the borders of the fields for more than 30 meters. You will receive a warning for the first time of violation. If you break the law again, you will lose the right to use this land.
2. The outsiders who currently do not own an area in the village are not allowed to invade a new area in any case.
3. People from other villages are not allowed to return to the deserted areas which they claim to inherit from their ancestors.
4. People from Village 3 who wish to expand their areas (the rotational fields must be less than 10 years) must inform and get an approval from the Village Committee to avoid any possible conflicts.

5. Outsiders are prohibited to release their pets into the areas under the responsibility of Village 3.

(In case of the violation, a fine between 500 and 5,000 Baht per person will be collected by the Village Committee and the community.)

**Section 13: Collection of Firewood**

1. Do not sell firewood to outsiders.
2. Only collect firewood from the economic forest.
3. Only collect large (or seen as appropriate) pieces of firewood.

(If you refuse to obey or break the law, you will be fined between 500 and 5,000 Baht per person by the Village Committee and the community.)
Appendix U: Individual Land Plot Document

Figure 4-5: Individual Land Plot Document 0001-01
1) **Title:** Land Use Document

2) **Code:** Issue number 1  
   Plot Number 0001  
   Plot ID 0001-01

3) **Location:** Baan Kiuw Pong, Baan Mhai Pattana, Village 2, Tambon Chaem Luang, Amphoe Galyani Vadhana, Chiang Mai Province

4) **Land Owner:**  
   Name *Mrs. Guri Charnyutkiree*  
   Date of Birth .......... Age ...... Years  
   Status Married  
   Occupation ................................  
   National ID 3-5003-00291-67-1

5) **Current Address:**  
   No. 6, Village 2, Tambon Chaem Luang, Amphoe Galyani Vadhana, Chiang Mai Province  
   Borders:  
   North *next to ?? ’s plot*  
   South *next to ?? ’s plot*  
   East *next to road*  
   West *next to forest*

6) **Area:** 1 Rai 2 Ngan 52 Square Wa (equal to 1.81 Rai)  
   Land use *Home*

7) **Map:**  
   Coordinates at the centre of the plot: *X 423491 Y 2105487*  
   Sketch of the Plot  
   Scale 1:4000

8) **Signatures:**  
   - Mrs. Guri Charnyutkiree, Land Owner  
   - Mr. Leme Sinmitrapab, Village Headman of Village 2  
   - Mr. Mopor Khunkunkeereer, Assistant Village Headman of Village 2  
   - Mr. Thurapol Sitkongtang, Leader of Heekhor  
   - Mr. Pana Pattanapraiwan, Senior Citizen  
   - Mr. Gampon Ritnarakarn, Senior Citizen

9) **Statement at Bottom of Page:**  
   No buy, no sell and no rent of this land for our children and the next generation.
Glossary

Amphoe (district) – a local administrative organization unit that forms the second administrative subdivision of Thailand

Baan Chan – a Tambon in Amphoe Galyani Vadhana

Baan Huai Khiat Haeng – a village in Tambon Chaem Luang

Baan Hui Hom – a village in Tambon Chaem Luang

Baan Sao Daeng – a village in Tambon Chaem Luang

Chaem Luang – a Tambon in Amphoe Galyani Vadhana

Church of Christ in Thailand (CCT) – an NGO dedicated to social development within hill tribe communities in Northern Thailand

Galyani Vadhana – an Amphoe in Chiang Mai Province

Geographic Information System (GIS) – a computerized data management system used to capture, store, manage, retrieve, analyze, and display geospatial information

GISTDA (Geo-Informatics and Space Technology Development Agency) – A public organization that creates the GIS maps from GPS data

Global Positioning Systems (GPS) – a technology that can collect geospatial data

Kamnan – a sub-district headman, a representative for all administrative villages within a Tambon

Mae Daet – a Tambon in Amphoe Galyani Vadhana

Mae La Oop River Basin Network – a local organization responsible for managing water systems and waterways in Amphoe Galyani Vadhana

Ministry of Interior (MOI) – the ministry responsible for managing land and supervising local administrative organizations

Ministry of Natural Resources and Environment (MNRE) – the ministry responsible for management of natural resources and environment in Thailand

Phuyai Baan – a village headman

Province – a local administrative organization unit that forms the first administrative subdivision of Thailand

Raks Thai Foundation (RTF) – an NGO dedicated to social development within disadvantaged communities in Thailand

Royal Forest Department (RFD) – a department within the MNRE responsible for the enforcing and promoting the conservation, protection, and maintenance of forests in Thailand

Tambon (sub-district) – a local administrative organization unit that forms the third administrative subdivision of Thailand

Tambon Administrative Organization (TAO) – a governing council for a Tambon consisting of representatives from villages within a Tambon and a directly elected president

Baan Wat Chan – a village in Tambon Baan Chan