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Complex Conditions and Factors Determining the Success of Community Land Deeds: A Case Study of Mae Aow Village, Pasang District, Lamphun Province

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Abstract

Thailand has been facing problems of landlessness, scarcity of land and enclosure of land in forest areas. This has created further problems such as land use conflicts, poverty among smallholder farmers and landless farmers, and ecological degradation. There have been several measures from the government to reallocate some parts of the already destroyed forest to poor villagers, through SPK 4-01. However, farmers still are unable to make decent production and some of them have sold their rights of Land use to outsiders. The most recent measure was the Community Land Title Deed that seemed to be promising and was expected to improve the SPK 4-01 scheme. However, there was skeptical to the effectiveness of this Community Land Deed, and so Mae Aow village was selected as one of the pilot sites to analyze the effectiveness.

This research discovered that the legal aspects of the Community Land Deed were not sufficient. Rather, they needed to have three principles in balance: ecology, equity and sustainable production. The principles must be met as a prerequisite, and then the community would be capable of managing the land and allocating it to the right people accordingly. This research also revealed that land allocation could not guarantee that SPK 4-01 would improve. Judging from the three principles and community management, (1) the ecological aspect was not suitable (2) equity of land allocation was in favor of the rich, and, (3) plots of land were not productive or sustainable. In addition, there would be expectations that this Community Land Deed, for the case study, was more or less similar to SPK 4-01.

Therefore, this research conceptually suggests that the three principles and community management must be further researched, and in practice, the government needs to reconsider the Community Land Deed before launching the program nationwide.

Keywords

Community Land Deed, Geo-Ecosystem Factors, Fairness Factors, Production Systems Factors, Community-based Management

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Introduction

Complexity of political, economic and cultural change during the past 40 years has caused villagers to confront many interconnected problems. One major problem that was specifically linked to other problems of the villagers was land loss. This phenomenon of loss of resources, that were essential to the villagers, was the result of people in and out of the community snatching natural resources including soil, water, and forest land. This caused complex problems in the northern region.

Problems of resource loss were caused by the influence of governmental expansion and the increasing growth of commercial production. Changes of use of the community's resources after altering agriculture production for sale and more intense commercial husbandry, as well as support from the government to originate private property regimes by enforcing land laws in the community are examples of these causes.

Problems regarding land have been ongoing. Previous solutions were to allocate land for people, but after a person had possessed the land for a while, the government would issue a letter of rights to that person. By solving the problem by issuing letters of rights to the people, many households were then in trouble with holding rights to unproductive land and when they did not have land to earn a living they would trespass on new land.

Currently, there is recorded data of around 800,000 people who have utilized public lands with an overall space of 12 million rais. Previously, the public section used concepts that related to community rights as a solution and at present, the government applies such principles under the Community Land Title Deed. The principles of these deeds were to permit people to utilize public land for the purpose of accommodation and agriculture. People could possess and utilize public lands in a community but the land still belonged to the government and the community had to mutually manage the land. The community was responsible for maintaining and preserving natural resources and the environment, preventing trespassing, monitoring the land and following rules and regulations.

Due to the problem of land concentration, people in Mae Aow Village, Pasang District, Lamphun, assembled to possess lands from capitalists and the government. They allocated land totaling 142-0-80 rais for 89 households, giving 1 rai 2 ngan of land to each family and the remainder was used for public benefit. Villagers utilized allocated land for agriculture to earn a living. This caused people to emphasize creating a sustainable land management system. As a group, the community land owners, or land deed holders in the community needed to adapt in order to stabilize the land possession of farmers. These adaptations would be the guidelines to solve land deprivation from agriculturists because apart from the area-level operation that organizes and brings justice at the community-level, such farmers also drove the community's land ownership system to be a policy. They expected that a policy would be accepted and would create criteria related to a solution for

conflicts over land ownership and a solution for land sales of minority farmers in all areas of Thailand.

Hence, to understand such problems, especially the realities in area-based terms, many questions needed to be answered in this study. The first one is related to concepts about how community land deeds, in the context of a local community, should be in logistic terms to create balance toward complexity of all terms. The second question is relevant to community land deeds, and how this project is different from the previous concepts offered to the local community. This study attempted to illustrate all of the processes used for solving problems of land concentration and land resource management in the model of a community land deed. The subject area used was deserted land and the land rights verification was obtained by referring to local authorities. The model of a community land deed to reform the system of land and resource utilization was applied in order to be free from the monopoly of capitalism. These lessons were concrete examples proving that concepts of land reformation, which were proposed in the research, could really be implemented and could result in a positive outcome in local communities and overall society due to the fact that it fairly distributes land. Land deeds should have policies that support said concepts and operations in order to get past the current crisis.

Objectives

1. The objective of this research was to study the new scheme of Community Land Deeds in order to solve the problems regarding land among poor farmers. These deeds contain the principles of (a) fairness in land holdings which would be managed collectively by the community, (b) the pieces of land must be suitable ecologically, and (c) new land holders would be able to utilize the lands for economic and ecological sustainability.

2. To study and analyze the case study in reality, a pilot project was tested. This led to the understanding of the successes or failures of the Community Land Deeds in line with the concepts and principles.

Methodology

The framework for this study consists of 3 major conditions as follows: A1: Ecological condition, that includes factors or physical terms of area, gradients, soil characteristics, depth, water, forest and agricultural crops; A2: land condition including size of land that the farmers occupied and used, proportion of land use, land tenure or ownership, rights of land use, stability of land use; A3: Economic condition is a factor or condition of a

farmer's household in terms of income, economic status, needs of utilization and other products that are related to the 3 conditions.

Scope of Study

This study was carried out to understand conditions and complex factors that determine success of the Community Land Deeds; Case study, Baan Mae Aow, Nakhonjedi, Pasang District, Lamphun Province. Data acquisition for this study consists of secondary data, information from map and aerial photographs, registration records from farmers in the Community Land Deed project. These data were used to make a plan for obtaining population samples and to define the scope of the study from academic documents and relevant research projects. The primary data were collected from field surveying in the cultivation area, and the creation of GIS database, use of questionnaires and in-depth interviews to collect information in the community deed project as well as to collect quantitative data in the plot.

Locational data in the study area includes the coordinates of community deeds, water sources and land use patterns, which were collected by utilizing a Global Positioning System (GPS). I started working by building a relationship with people in the village in order to familiarize myself with them as well as to gain trust from them before using the questionnaires. Several means were used for the preliminary work, including self-introduction, talking about their way of life, transect walking, taking photographs and making a village land use map. In addition, participation in meetings about different issues of the village was conducted. Each activity that I was involved with provided experiences about way of life, knowledge, ritual management and concept of water resources and land, and land use. Opinions about issues that are useful to this study were obtained by taking part in doing activities with members of the community.

Using the above mentioned strategies, data collection was done easily. The scope of this study can be outlined as the following:

1. Data and Sources

Data for this research were collected directly from the farmers who owned Community Land Deeds in Mae Aow village. The information was obtained by field surveying, that includes general condition of the village, ecological aspects, topography, cultivation area and land use types.

2. Research Methods

This study focused on studying conditions and complex factors that define success of the community deeds: Case study: Mae Aow Village, Naknonjedi Sub-district, Pasang District, Lamphun Province using both qualitative and quantitative methods.

3. Population and Samples

The population in this study includes members in Mae Aow Village, Nakhonjedi Sub-district, Pasang District, Lamphun Province. The population sample comprised of all the population that participated in the community deeds project totaling 89 people.

4. Developing Tools

To accumulate data that met the overall objectives of the study developed tools: 1) Interview with community leaders, 2) Focus-group discussions, and 3) Questionnaires from household leaders.

5. Data Checking and Analysis

5.1 To check the quality and reliability of tools is important for a qualitative research method. Thus, it is a priority task to conduct research by using Triangulation from interviews, observations, or by using the same questions from different data sources and informants. Then, the data will be compared before analyzing and making a conclusion.

5.2 Data analysis and interpretation of Statistical Output by

1) Analyzing data by using statistical package to calculate frequency, percentage, mean, and standard deviation. Synthesizing descriptive data was also conducted in relation to the content.

2) Specifying criteria of interpretation for each relevant issue, analyzing data by using statistical package to obtain the result.

The interpretation of arithmetic mean is based on the width of class interval of 0.80 which can be calculated from the following formula:

$$i = \frac{\max - \min}{\max}$$

(Equation 1)

where i = Width of the class interval

max = Highest score in the class interval

min = Lowest Score in the class interval

To define the scores in the questionnaire, the highest score will be 5 and the lowest one will be 1. Therefore, the width range of class interval can be calculated from the following equation:

$$i = \frac{5-1}{5} = 0.80$$

(Equation 2)

So, the interpretation of average is described as follows:

1.00-1.80		Lowest
1.81-2.60		Low
2.61-3.40		Moderate
3.41-4.20		Satisfactory
4.21-5.00		Most Satisfactory
Lowest	is	1
Low	is	2
Moderate	is	3
High	is	4
Highest	is	5

The interpretation of average is compared with the criteria by using basic statistical value of the following scores

Calculate the percentage by the following formula:

$$\text{Percentage of any item} = \frac{\text{Average of that item}}{\text{Full score}} \times 100 \qquad \text{(Equation 3)}$$

(Full score in this study is equal to 5 according to Likert Scales)

The satisfaction criteria can be classified as follows:

Score Ranges	More than 84%	means	Very Satisfactory
	68 – 84%	means	Satisfactory
	52 – 68%	means	Moderate
	36 – 52%	means	Low
	Lower than 36%	means	Lowest

6. Data collection from the study area was conducted by various methods to meet 2 objectives of this research. For example, story-telling, interpretation, legend, events, GIS application, questionnaires, group meetings, interviews and public participation under the conceptual framework and research questions. In order to understand dynamics of related patterns between the community and forest continually as well as to check the Triangulation of data. This is to ensure that phenomena studied are reliable and meaningful. In addition, it helps to look for information that can be added to the original data.

1) Studying basic information from the secondary data such as reports from many sectors, articles, thesis and dissertation to obtain the characteristics of the community.

2) Participant observation by attending and observing community activities such as community planning, forest ordination, meetings and arranging activities at the sub-district level.

3) Studying spatial development together with using Geographic Information Systems (GIS) for making a boundary map of the river basin and dynamics of land use. Thus, it is possible to gather the information of land tenure, land use, land categorization, and distribution of agricultural household plots that can be combined with soil components, mineral fertility, topographic conditions and ground cover.

In terms of applying a GIS tool, it aids s in visualizing the complexity of the connected data in various aspects. Moreover, high quality images in the complex data layers of the study area can be visualized rapidly.

4) Interview, I used informal interview and small group meetings of relevant issues for summarizing the connection of incidents during data accumulation including legend, belief, events and phenomenon from actual operations in the community. In addition, data about forest ecology, land use, economy, production, utilization of forest products and the history of community forest management were derived from interviewing villagers and used as representative of the key informants.

Senior villagers who had memories and experiences of living in the first period and during the transition of old and new generations talked about their experiences in the meetings. The attendees included community leaders, general villagers and youths who wanted to learn about past and ongoing events in their community. They also wanted to know about the community way of life and what situations and changes have taken place in the community.

The data derived from various methods was summarized and analyzed before returning output to the community leaders. These data have influenced the utilization and management of the Community Land Deed and mutually reflected the perspectives that added to the validity of the project.

To obtain the reliability of data, the researcher used various methods, such as questionnaires, interviews, participatory observation, focus groups, unofficial conversations and maps from the informants who provided complete data and checked Triangulation data so that the phenomenon studied could be reliable and meaningful. It was also involved with searching for diversified data needed for the study.

Data Analysis: Qualitative data was derived from observation, in-depth interviews, focus groups and fieldwork. They were categorized and analyzed for finding the relation of

complex factors, that include ecological condition of the forest, land use, economy, production, community nest that affected forest utilization and management. Then, the data was analyzed and divided into 3 periods: 1) Settlement Period; 2) Community Expansion Period; and, 3) Current Period to measure complexity and dynamism of time dimension.

7. GIS Analysis

1) Data Overlay was conducted by using factor rating from data that were rated according to the specified criteria for every factor.

2) Weighting; as each factor varies according to its significance. In order to derive an accurate analysis, it is necessary to weigh all factors. For example, water source is the most important factor for ecological suitability because water is vital for agricultural production. The secondary most important factors are soil characteristics, slopes, distance from the main water route and road, respectively. Each factor has a weighted score or constant multiplier as 1.0, 0.75, 0.5, 0.25, and 0.1, respectively.

3) Ranging Score: the score from the total cumulative scores of all factors multiplied by the weighting score. The result will be classified into 4 levels as: not suitable, slightly suitable, moderately suitable and very suitable by the calculation of interval scale of each score group.

$$\text{Range of Data} = \frac{\text{(Maximum score – Minimum score)}}{\text{Number of interval}} \qquad \text{(Equation 4)}$$

Therefore, the overall score ranges of 3 conditions can be classified into 3 suitability classes as follows:

Ecological Suitability	**Score Range**
Not suitable	< 5.44
Slightly suitable	>= 5.44 - < 6.58
Moderately suitable	>= 6.58 - < 7.71
Very suitable	>= 7.71

Fairness	**Score Range**
Not suitable	< 4.94
Slightly suitable	>= 4.94 - < 6.13
Moderately suitable	>= 6.13 - < 7.31
Very suitable	>= 7.31

Suitability of Crop Production	**Score Range**
Not suitable	< 2.06
Slightly suitable	>= 2.06 - < 3.13
Moderately suitable	>= 3.13 - < 4.19
Very suitable	>= 4.19

Overall Suitability by Area	**Score Range**
Not suitable	< 15.18
Slightly suitable	>= 15.18 - < 17.30
Moderately suitable	>= 17.30 - < 19.43
Very suitable	>= 19.43

Conceptual framework

All criticized comments reflect that the guideline of community land titles in the settlement and operation level and also the real operating level are not able to find a matching idea due to the lack of a link between them. The first is the right conditions and fairness. Second, the ecological conditions which is the factors or physical conditions of the area, slope, soil characteristics, water depth and water resources, plant community and agricultural crops. The conditions in production are the factors or conditions of land security, the suitability of the bionomics, production of plants and animals, and the perfect combination of economics and economy. Each condition required the inner ones which can be defined as a major framework conditions (A) in the study, there are 3 conditions; A: ecological conditions

which are the physical factors or conditions of the area, slope, soil aspect, depth, water, soil, forests and agricultural crops, B: Factors or conditions of land which means the size of arable land of farmers and stability of land use, the possession or ownership of land, the rights of land and the stability of land use, C: Economic conditions which are the factors or conditions of the income, economic status, household, needs to be exploited and others products.

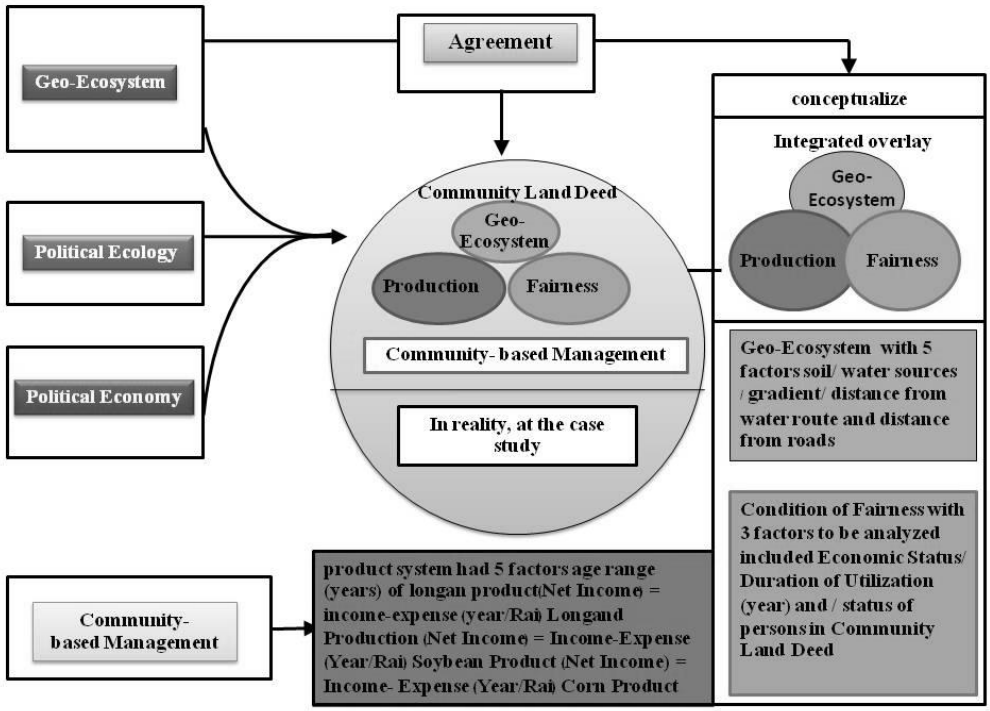

Figure 1 Display of concepts used in the study.

Data Analysis

1) Data superposition, or Factor Rating, according to criteria was overlaid with all factors.

2) Weighting: due to the fact that each factor held different importance, to gain the nearest analysis result, the factors must be given a weight in order to prioritize each factor. For example, studying the suitability of the geo-ecosystem found that factors of water resources was very important as water was essential to agricultural production, next was soil quality, gradient of area, distance from main water route and distance from road respectively. Each factor had its own Weighted Score, or multiple, of 1.0 0.75 0.5 0.25 and 0.1 respectively.

3) Score Ranging: results of the scores included every factor multiple with its weighted scores was leveled in one of four levels, such as not suitable, slightly suitable, moderately suitable and very suitable by calculating the approximate width, or Interval scale, of each score group;

$$\text{Data Range} = \frac{(\text{maximum} - \text{minimum})}{\text{Number of layers}}$$

Therefore, the score range that was used to level the suitability to study the three conditions and overall image was as in Table 1

Table 1 Level Suitability

Suitability Level	Score Range
Geo-Ecosystem	< 5.44 - >= 7.71
Fairness	< 4.94 - >= 7.31
Production	< 2.06 - >= 4.19
Overall Image	< 15.18 - >= 19.43

Results

The result of data analysis

The factor rating and the total sum of all factors were multiplied by the weighted rating for analysis.

1) The results from geo-ecosystem condition analysis

Having analyzed 5 Geo-Ecosystem factors by implementing overlay technique on all of the rated factors data, the researcher found that the community land deeds in Ban Mae Aow area is, at the land parcel level, suitable when considering the geo-ecosystem as shown in Table 2 and Figure 2

Table 2 the result of geo-ecosystem suitability analysis of community land deeds in Ban Mae Aow area at the parcel level

Suitability level	Number of Parcels	Percentage
Very Suitable	5	5.61
Moderately Suitable	10	11.23
Slightly Suitable	41	46.06
Not Suitable	33	37.07
Total	89	100

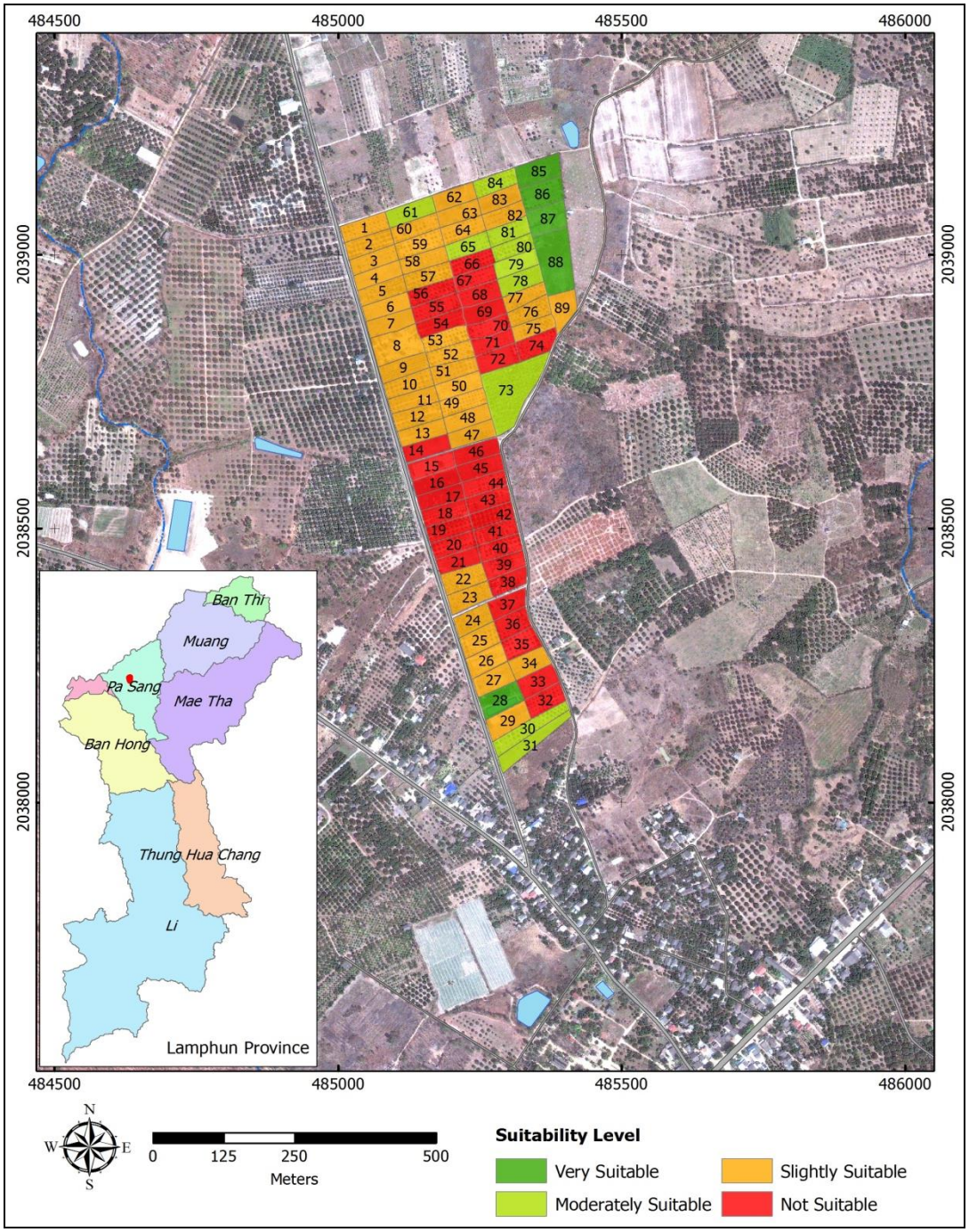

Figure 2 The suitability levels of the parcel in Ban Mae Aow according to geo-ecosystem condition factors

2) The result from the analysis of crop production condition

Having analyzed the 4 factors regarding crop production using overlay technique, the researcher found that the community land deeds in Ban Mae Aow area at the parcel level are suitable when crop production condition has been considered.

Table 3 The result from suitability level analysis on community land deeds in Ban Mae Aow according to crop production factors

Suitability level	Number of Parcels	Percentage
Very Suitable	13	14.60
Moderately Suitable	20	22.47
Slightly Suitable	16	17.97
Not Suitable	40	44.94
Total	89	100

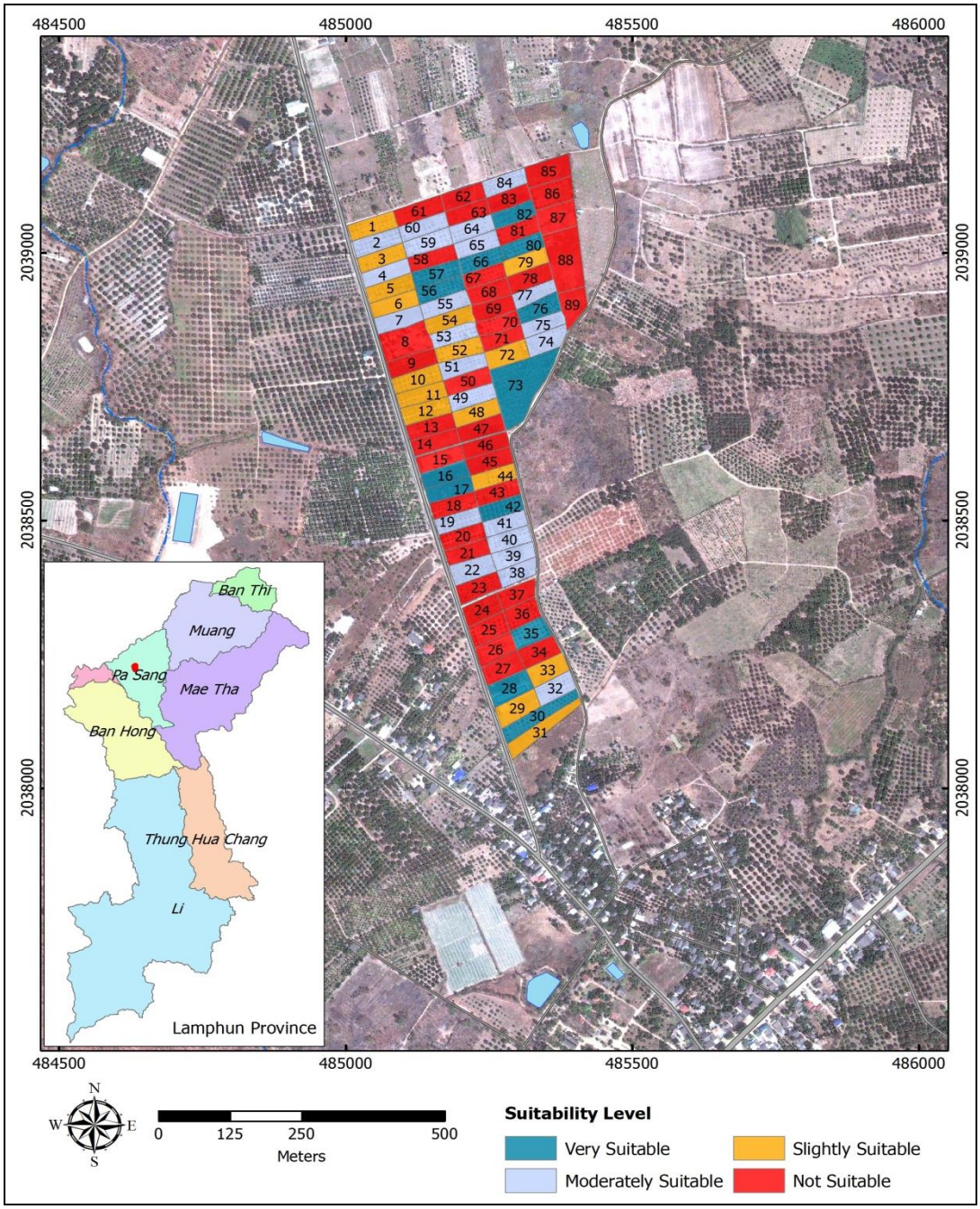

Figure 3 The suitability levels of the community land deeds in Ban Mae Aow area when considering crop production condition factor

3) The result of the analysis on fairness condition

From the result of the analysis of 4 fairness factors through overlay technique, it is revealed that the community deeds in Ban Mae Aow, at the parcel level, are suitable as shown in table 4 and Figure 4

Table 4 The result from suitability level analysis on community land deeds in Ban Mae Aow when considering fairness factors

Suitability level	Number of Parcels	Percentage
Very Suitable	76	85.39
Moderate Suitable	6	6.74
Slightly Suitable	6	6.74
Not suitable	1	1.12
Total	89	100

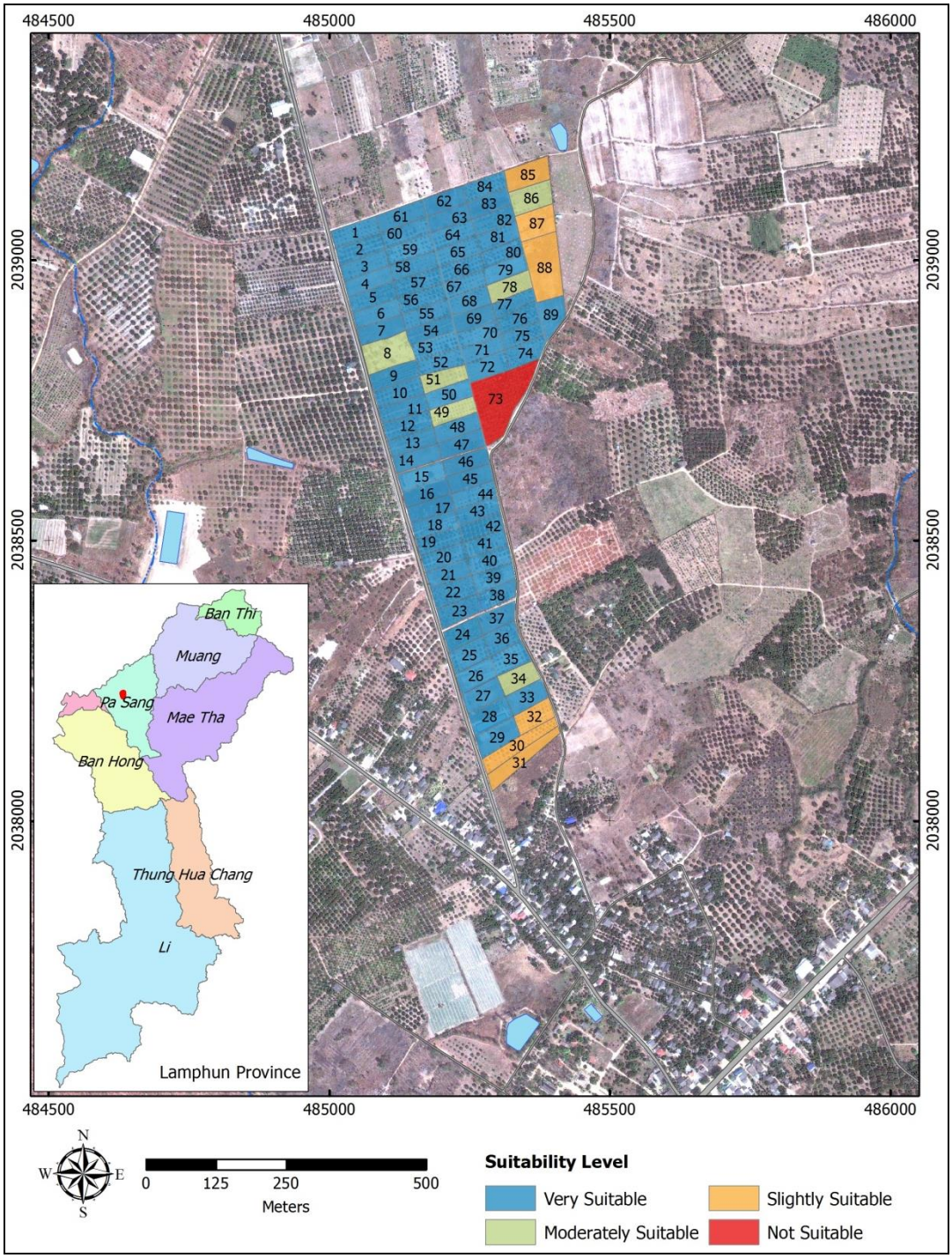

Figure 4 The suitability levels of community deed in Ban Mae Aow when considering fairness factors

5.) The overall suitability from the 3 conditions of the community land deeds

The layer of information was analyzed through GIS by conducting spatial analysis. This was conducted by using the weighting overlay analysis equipment and each factor was assigned the significance as shown in Table 5 and Figure 5

Table 5 The overall suitability from the 3 conditions of the community land deeds

Suitability level	**Number of Parcels**	**Percentage**
Very Suitable	1	1.12
Moderately Suitable	19	21.34
Slightly Suitable	39	43.82
Not Suitable	30	33.70
Total	89	100

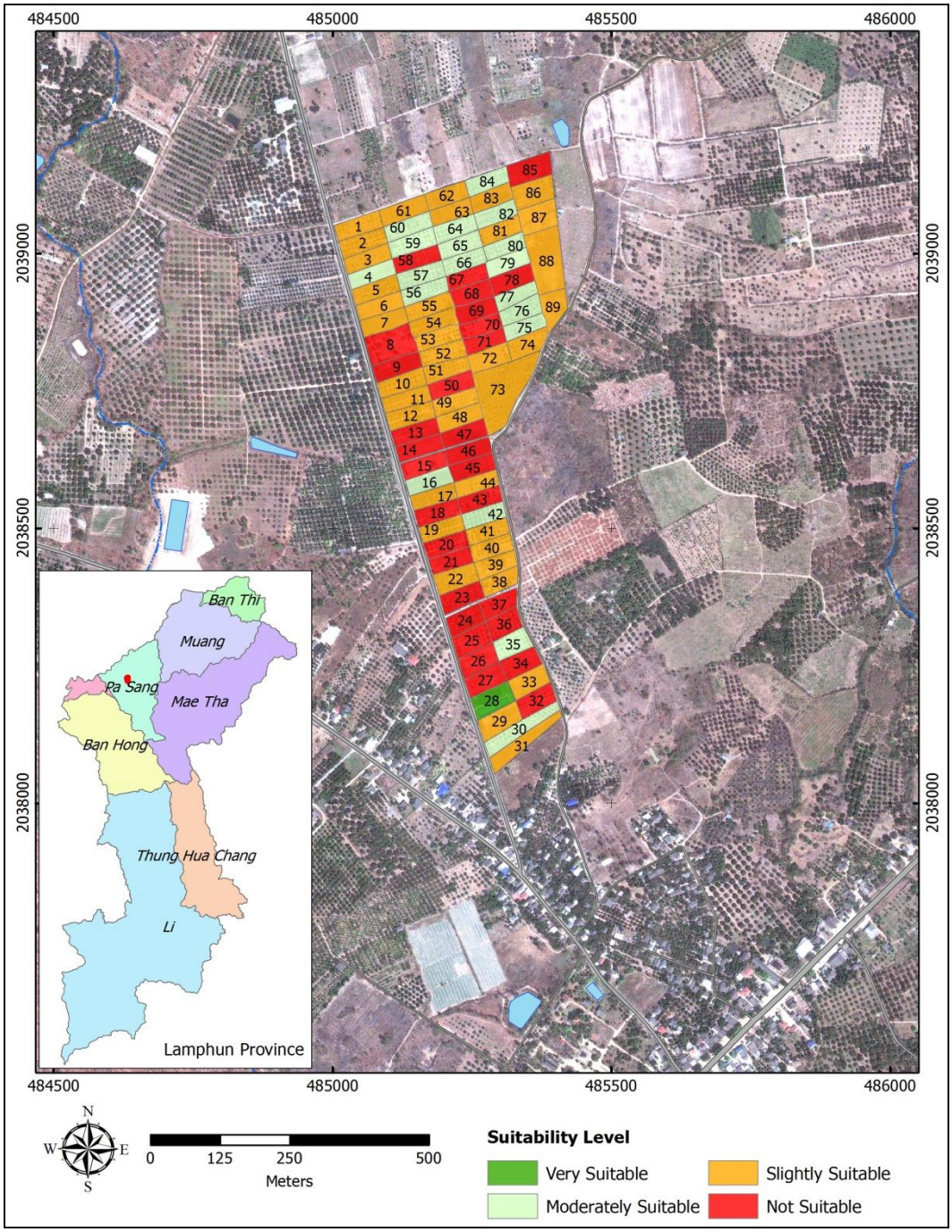

Figure 5 The level of suitability of community land deeds at parcel level in Ban Mae Aow from 3 conditional factors

Discussion

It is revealed, from the study, that the community land deeds in Ban Mae Aow are located in an unsuitable area in comparison with the GIS map that showed the suitability levels from the 3 conditions. Moreover, this is even reassured when considering the detail of the factors analyzed. The first major factor was related to geo-ecosystem which was rated slightly suitable at 46.06 percent. This illustrated that the community land deeds in Ban Mae Aow are not suitable regarding 5 related factors: 1) soil types, 2) water resources, 3) gradient, 4) distance from water resources, and 5) distance from roads. The second factor concerns crop production which was found to be unsuitable for the community land deeds at 44.94 percent. This was determined by analyzing the following factors: 1) age range (years) of longan products, 2) net profit of logans, 3) net profit of soy beans, and 4) net profit of corn. Each factor was rated and weighed. The final major factor was fairness which was very suitable at 85.39 percent. The rating and the weighted rating varied from one to another factor. Moreover, it has been found that there is only a very small gap in land occupancy between the wealthy and the poor.

From the stated factors which were used in the study to find the suitable area of community land deeds through qualitative database application and geographic information system, the study revealed that the actual operation on community land deed management can be categorized into 4 suitability levels based on the 3 conditions of the community land deeds as followed.

1) Very suitable area: 1 plot (1.12 percent of the community deed lands)

2) Moderately suitable: 19 plots (21.34 percent of the community deed lands)

3) Slightly suitable: 39 plots (43.82 percent of the community deed lands)

4) Not suitable: 30 plot s (1.12 percent of the community deed lands)

Upon overlaying the geo-ecological conditions, the crop production condition, and fairness condition, it has been found that the community land deeds in Ban Mae Aow are rated slightly suitable. Each condition has a complex interaction between the factors and the conditions which caused the community land deeds to be slightly suitable. The study also illustrated that the factors which have an effect on suitability of community land deeds are geo-ecology and crop production. Each of the factors has the following effects:

The geo-ecosystem condition was one of the factors affecting the suitability of the community land deeds. It has been found from the study that community lands contain loose soil with sand. In addition, water resources have a profound influence on crop production. In the area where there is no irrigation available and little gradient, the problems have an impact on the origination of different types of soil which affect the crop choices in the production system, the retention of water in soil and the capability of water in permeating through the

ground surface. Access to these lands has been found to be inconvenient because there are some landlocked with area only partially adjacent to main roads.

Crop production is one of the factors affecting the suitability of the Community Land Deed. Looking at the age range of longan products, their net profit, net profit of soy bean products, and net profit of corn products in these lands, the profits are low due to the age range of crops that are not so high yielding and the low prices monoculture crops.

Conclusion

The knowledge base for environmental management in Thailand is limited and mono-dimensional. It is not enough to explain the complexity of the ecology, social relationships and various managements. This is the reason why we always find failures and conflicts in environmental management. Dimensional management integration does not only monitor the environment, but also covers the economy and society. The concept of managing the land with the "Gap" and obstacles like technical knowledge prevents connective thought and does not inclusively reflect the practical operation of the community in managing the land within the "Community Land Deed" system.

According to the study result, the villagers of Mae Aow succeed in helping each other to adjust themselves to capitalism. This indicates that the community has the potential on social relationship, which can be reintroduced under the key condition – the conflict with mobilizing the resource. The community relies on the principle of authority on managing the resource that depends on community relationship and the government, which the principle is reintroduced by the cultural context and social change. Thus, the community sees the connection of the problem which is not viewed as a single or isolate problem, but it also recognizes resource management problems, debt, change on way of life and crop production methods. Then it realizes that the decrease of resources in the community is caused by the change in community values which focus on producing and selling to earn a lot of revenue. This value lowers the thought of cherishing the resources.

In Mae Aow village, the committee and the villagers receive 2,400 square meters of land equally. The principles of land management are as follows; first, selling or purchasing land is prohibited. If necessary, the land owner must get an approval from the committee. The committee will consider providing the land to the villager who does not own any land. Second, if a villager fails to abide by the first rule, the land will be seized to the public state. Third, in case the villager does not mobilize the land, they shall return the land to the public state.

The complication of adjustment under the factors and the context of social change and economy directly affect the change in the community. Community Land Deed management is based on the impulsion from various complicated factors. 'Community Land

Deed' is a land management system which the villagers try to operate. The purpose of this initiation is to fulfill the needs of fairness, sustainability and efficiency. The question of this study is what should be the concept of the Community Land Deed which is suitable and harmonizes with the local community context logically and appropriately. Another question is whether the practical operation in connection with the Community Land Deeds is correspondent with or different from the concept which is suitable for the local community context and why. The logical proofs with dynamics are as follows;

First, the dynamic that leads to land management, Community Land Deed, in Mae Aow is based on the process of engaging first generation villagers in commerce. There is a fine line between sufficiency and deficiency. Most of the households are unable to sufficiently produce crops to make a living and are unable to make enough revenue. This is the reason why the villagers need to find a way, basically focusing on their living, managing resources and pushing the community to new crop production. The power-based relationships in the earlier years were an overlap between the authority of the high-class and the government who were extending their authority. The high-class exercises their authority when they adapt themselves to the economy by laying their claim to the land. They also use their authority to earn revenue. The government's authority is in the form of raising poll taxes or wages, using labor and laying claim to the forest. The government's purpose for extending their authority is to withdraw the former authority structure of the high-class in the North who laid claim to the resources. Although the extending of the government' s power starts to emerge the community to a new structure, the power in creating personal titles and public titles over the land is sometimes lessened. The government's power is still specific and unsteady, because the government earns profits from agricultural activities. The factors of land management during this stage depend mainly on the social factors within the community. In the study area, the development of the community was based on the relationship with the government and a close relationship with the market. The villagers are still far from sufficiency. They need to engage in commerce, work and trade in order to make a living. This situation with a thin line between sufficiency and deficiency forces villagers to find a solution. This also brings in the commercial plantation.

Second, the study shows that there are two levels of claim when the villagers mobilize their personal land and lay claim to their land. The first level is when villagers possess rights and enforce their rights in the community. The second level is when villagers raise the first level to another level by using Community Rights in order to negotiate with the government. Villagers also raise support from society. This second level of claim is a debate about the Community Rights (approved by the community) and the Legal Right (approved by the government). The result of this debate shows that the government is still able to possess more space of thought about the legal rights approved by the government than the villagers

in the society. This is because the Community Rights and land management by the community or explanation in the form of land reforming presented by the villagers and the experts are not considered a powerful discourse. They cannot challenge or open a new space of thought and society in order to withdraw the thought or discourse initiated by the government in the long term.

Thus, the Community Land Deed needs to integrate sustainable political ecology and economy to suit the economy and new land management. The Community Land Deed shall have the following affects; (1) the community manages all the land which is similar to the 'Community land' (2) the land allocation should be based on fairness otherwise the community will lose the ability to control it (3) the land must have a Geo-ecosystem which supports crop production that is suitable for the society and economy. The community shall take part in managing the soil and water or improving the ecology (4) both the government and the community must help each other in creating a method for increasing crop production, quality of the product and efficiency of the production Unit for the allocated land. This will be a sustainable production. The appropriated land management will lead to successful land reform. The earlier knowledge which is the basic land management policy, Community Land Deed, leads to the specific conclusion that all concepts are the same issue and to an isolated operation. Then the joint conclusion is created from the analysis that comes from the logic. The new explanation about the land management, "Community Land Deed" which is suitable for the local community context is also created. The new explanation states that the landscape must be included in the Community Land Deed because each community has different levels of ability to support. Other things that need to be included in the Community Land Deed are fairness, production process and resource management by the community.

Third, we will study the factors, conditions and practical operation context in connection with the Community Land Deed from the reasonable new explanation by adapting the quality-based data from the Geomatics. The result of the operation of Community Land Deed at Mae Aow with the overlapped condition of the Geo-ecosystem, production and fairness shows that the Community Land Deed at Mae Aow is slightly appropriate. Each factor has complex interactions which affects the appropriate level of the Community Land Deed. This significantly indicates that if a factor is not suitable, any factor in the conditions will affect the appropriate level of the whole Community Land Deed.

The Community Land Deed is only a concept. In practice, if the operator is not aware of the natural factors and attitude of the government, it is difficult to succeed in sustainably managing the land. The government handles everything with a standard. It views things in the same way. This attitude of the government is also applied to people in the society. For example, the government thinks that ethics who lived in the high land are a minority with different culture. The government makes things simple to manage. The specific

characteristic of the Geo-ecosystem or specific characteristic of the landscape is always a key condition which develops other specific characteristics including conditions and complex factors which define the success of the Community Land Deed which is suitable for the present context.

There is lots of discussion about men living in the forest. The discussion leads to research about the Community Land Deed, also known as Community Land Titling according to experts. The Community Land Deed is a non-written agreement among the villagers about the public land titling. Not only in Thailand, but also Sweden and Norway in Europe, the Natives in Australia or the Indians also consider the concept of Community Land Titling or custom rules which accept public titling (Ganjanapan, 1989; Ganjanapan & Khaosaat, 1995; Santasombhat, 1993; Wittayapak, 1995). However, the agreement does not only state the general terms, but also the right of using the forest and other resources. The villagers need to protect those resources. The outstanding characteristic of the concept of the Community Land Tilting is the heart of the Community Land Deed. The Community Land Titling cannot be in the same context because there is a lot of forest left but the society context is changed conditionally.

If we adapt this decent concept into practice in the present, it will be a different context. The Community Land Deed is a good concept, but if we operate it without caution, it will never succeed. This study shows that the Community Land Deed will succeed in practice if operators follow the Laws of thoughts below;

Community Land Deed = Factors (Geo-Ecosystem + Fairness + Crop Production) +Community-based Management

Where: **GF** = is measured in terms of factors such as soil, water sources, gradient, distance from water route and distance from roads.
FF = is measured in terms of factors such as the size of the allocated land, economic status, the time period the land is used (years), status of the people in community deeds.
CF = is measured in terms of factors such as Crop Production.

In the laws of thought consisting of Geo-Ecosystem, Fairness and Crop Production factors, there is not a factor that is more important than any other. The three factors are equally important. If the community is able to manage the three factors and propel with the community management, it would be the best new concept of land management. The Community Land Deed has significance in the form of policy. The proof of this study indicates that if the law of the Community Land Deed is issued without the factors according to the new explanation, there will be a chance that the land management in the form of Community Land Deed becomes a land deed, which is traded like a failure with the Agricultural Land Reform

Office 4-01 policy. The key factors are the economy and the farmer's attitude regarding land titling which is different from the government. The farmers also experience weak law enforcement. This is a factor that makes some farmers break the Agriculture Land Reform Act B.E. 2518. This factor causing the breaking of the act creates opposition between the laws and the practice in the society.

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