

The Republic of the Union of Myanmar
Ministry of Natural Resources and Environmental Conservation
Forest Department



**Perceptions of Local Communities on Forest Land Abrogation Process
and its Tenure
(A Case Study in Saing-Ya Reserved Forest, Yedashe Township,
Myanmar)**



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သစ်တောမြေအဖြစ်မှ ပယ်ဖျက်ခြင်းလုပ်ငန်းစဉ်နှင့် မြေအသုံးချပိုင်ခွင့်များအပေါ် ဒေသခံပြည်သူများ၏ သဘောထားအမြင်များ

(ရေတာရှည်မြို့နယ်၊ စိုင်းရသစ်တောကြိုးဝိုင်းအတွင်းတွင် လေ့လာခြင်း)

ဇင်မျိုးထက်*^၁၊ ဒေါက်တာမြသန္တာတိုး^၂ ဦးမျိုးမင်းလတ်^၂
^၁တောအုပ်ကြီး၊ စီမံကိန်းနှင့် စာရင်းအင်းဌာန၊ သစ်တောဦးစီးဌာန၊ နေပြည်တော်
^၂ကထိက၊ သစ်တောနှင့်ပတ်ဝန်းကျင်ဆိုင်ရာတက္ကသိုလ်၊ ရေဆင်း

စာတမ်းအကျဉ်း

မြန်မာနိုင်ငံတွင် သစ်တောမြေများအတွင်း အခြေချဝင်ရောက် စိုက်ပျိုးလုပ်ကိုင်မှုများ ရှိလာခဲ့သည်မှာ ဆယ်စုနှစ်များစွာ ကြာမြင့်ခဲ့ပြီဖြစ်သည်။ (၂၀၁၃)ခုနှစ်တွင် သစ်တောဦးစီးဌာနက သစ်တောမြေအတွင်းရှိ မြေအသုံးချမှုအချို့ကို ဒေသခံပြည်သူများ၏ လူမှုစီးပွားအဆင်ပြေ ဖွံ့ဖြိုးတိုးတက်စေရေးကို ရှေးရှု၍ သစ်တောမြေအဖြစ်မှ ပယ်ဖျက်ပေးခဲ့သည်။ သို့သော်လည်း ပယ်ဖျက်ပေးမထားသော သစ်တောမြေများအတွင်း မြေယာချဲ့ထွင်အသုံးချမှုများ ထပ်မံတွေ့ရှိရကြောင်း လေ့လာရပါသည်။ ဤအခြေအနေတွင် သစ်တောမြေများ ပယ်ဖျက်၍ ဒေသခံများ၏ လူနေမှုဘဝ ဖွံ့ဖြိုးတိုးတက်စေရေး ဆောင်ရွက်ရာ၌ သစ်တောထိန်းသိမ်းကာကွယ်ရေးကို အဟန့်အတားများ ရှိလာစေခဲ့သည်။ ထို့ကြောင့် ဤသုတေသနသည် သစ်တောမြေများ စီမံအုပ်ချုပ်ရာတွင် ဒေသခံ ပြည်သူများ၏ လူမှုစီးပွားဖွံ့ဖြိုးတိုးတက်စေရေးနှင့် သစ်တောထိန်းသိမ်းကာကွယ်ရေးကို ဟန့်ချက်ညီညီ သဟဇာတဖြစ်စေရေး ဆောင်ရွက်နိုင်ရန် မူဝါဒနှင့် အစီအစဉ်များ ဖော်ဆောင်ရာတွင် အထောက်အကူဖြစ်စေမည့် အခြေခံအချက်အလက်များ ရရှိရေးအတွက် ဒေသခံပြည်သူများ၏ သစ်တောမြေအဖြစ်မှ ပယ်ဖျက်ခြင်း လုပ်ငန်းစဉ်အပေါ် မည်သို့မည်ပုံ သိမြင်နားလည်ကြကြောင်းကို အခြေခံ၍ ရှုထောင့်အရပ်ရပ်မှ သုံးသပ်လေ့လာထားပါသည်။ သုတေသန၏ ရလဒ်များအရ သစ်တောမြေအဖြစ်မှ ပယ်ဖျက်ပေးခြင်းသည် ယေဘုယျအားဖြင့် သစ်တောမြေအပေါ် မှီတင်းနေထိုင်ကြသော ဒေသခံ ပြည်သူများအတွက် အကျိုးအမြတ်ဖြစ်ထွန်းမှု အခွင့်အလမ်းများ ရရှိစေကြောင်း သိမြင်ကြပါသည်။ သို့သော်လည်း ဒေသခံအများစုသည် ထပ်မံ၍ မြေယာချဲ့ထွင် အသုံးချလိုသော ဆန္ဒများရှိနေသေးကြောင်း တွေ့ရှိရပြီး ယင်းအချက်သည် ဒေသခံများ၏ နှစ်စဉ်ဝင်ငွေပမာဏနှင့် ထင်ရှားစွာ ဆက်စပ်မှုရှိကြောင်း တွေ့ရှိရသည်။ အဓိကအားဖြင့် နှစ်စဉ်ဝင်ငွေ ပမာဏနည်းသူများသည် မိမိတို့ အသက်မွေးဝမ်းကျောင်းမှု လိုအပ်ချက်များကို ဆက်လက်ဖြည့်ဆည်းနိုင်ရန်အလို့ငှာ မြေယာချဲ့ထွင် အသုံးချလိုသောဆန္ဒ ပိုမိုကြောင်း လေ့လာတွေ့ရှိရပါသည်။ လက်ရှိမြေအသုံးချပိုင်ခွင့်နှင့် ပတ်သက်၍ လယ်ယာမြေ လုပ်ပိုင်ခွင့်ပြုလက်မှတ် ရရှိထားသော ဒေသခံပြည်သူအများစုကသာလျှင် ဤလုပ်ငန်းစဉ်သည် ခိုင်မာ

သောမြေယာလုပ်ပိုင်ခွင့် ရရှိသည်ဟု လည်းကောင်း၊ မြေအငြင်းပွားမှုဆိုင်ရာ ပြဿနာများကို ဖြေရှင်းလာနိုင်လိမ့်မည်ဟု လည်းကောင်း၊ မိမိတို့ မြေယာများကို ပိုမိုကောင်းမွန်အောင်စီမံခန့်ခွဲလာနိုင်သည်ဟု လည်းကောင်း ထင်မြင်ကြကြောင်း လေ့လာတွေ့ရှိရပါသည်။ သို့သော် ခိုင်မာသော လုပ်ပိုင်ခွင့်နှင့် ကောင်းမွန်သော မြေယာ စီမံခန့်ခွဲမှုအပေါ် သဘောထားအမြင်များသည် ကျေးရွာအခြေအနေအပေါ် မူတည်၍ ကွဲပြားသွားကြောင်း လေ့လာတွေ့ရှိရပါသည်။ သုတေသန၏ အညွှန်းကိန်းများအရ ဒေသခံများသည် ၎င်းတို့၏ မြေအသုံးချမှုများကို သစ်တောမြေအဖြစ်မှ ပယ်ဖျက်ပေးခြင်းဖြင့် မိမိတို့၏ မြေအသုံးချပိုင်ခွင့်အပေါ် အသိအမှတ်ပြုခြင်းကို လွန်စွာကျေနပ်မှု ရှိကြကြောင်းနှင့် မြေအသုံးချမှုပုံစံအပေါ် မူတည်၍ အသိအမှတ်ပြုပုံ ကွာခြားခြင်းကိုမူ အသင့်အတင့် ကျေနပ်မှုရှိကြကြောင်း ယေဘုယျအားဖြင့် လေ့လာတွေ့ရှိရပါသည်။ နိဂုံးချုပ်အားဖြင့် ဆိုရသော် ဒေသခံများ၏ ပြည့်စုံသော အသက်မွေးဝမ်းကျောင်းမှုနှင့် ကောင်းမွန်သော သစ်တောထိန်းသိမ်းကာကွယ်ရေးကို တစ်ပြိုင်နက် ဖြစ်ထွန်းလာစေရေးအတွက် မည်သို့သောမူဝါဒ၊ မည်သို့သော နည်းစနစ်များဖြင့် ဖော်ဆောင်မည်ဆိုသော အချက်သည် အရေးကြီးပါသည်။ လက်ရှိအခြေအနေတွင် သစ်တောသယံဇာတတန်ဖိုးများ ဆုံးရှုံးခြင်း မရှိစေဘဲ များပြားလှသော သစ်တောမြေအသုံးချ ပြည်သူများကို အမှန်တကယ် အသိအမှတ်ပြုနိုင်ရန်နှင့် ဒေသခံများက သစ်တောမြေများ ထိန်းသိမ်းကာကွယ်ရေးကို အပြန်အလှန် အသိအမှတ်ပြုနိုင်မည့် အလားအလာသည် စိန်ခေါ်မှုတစ်ရပ် အနေနှင့် ကျန်ရှိနေဆဲဖြစ်ကြောင်း လေ့လာတွေ့ရှိရပါသည်။

Perceptions of Local Communities on Forest Land Abrogation Process and its Tenure

(A Case Study in Saing-Ya Reserved Forest, Yedashe Township, Myanmar)

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Abstract

In Myanmar, land demarcated as “forest estates” have been under agricultural cultivation for decades. In 2013, Forest Department (FD) has abrogated some parts of those “forest estates” for enhancing the convenience and development of local communities’ socioeconomic conditions. However, further land expansions in reserved forest (RF) were occurred and found continuing encroachment on not-abrogated areas. In this situation, there were trade-offs relative to rural development and forest conservation. This study, therefore, explored the perceptions of local communities on this process which will assist formulation of policies and programs in managing forest estates in harmony with the balanced community welfare. Mixed method (both quantitative and qualitative) is applied in this study. Descriptive statistics, correlation analysis and chi-square test were used to describe the local perception from different aspects that enable to understand the whole grasp of the situation after land abrogation. Weighted average index was used to determine the acceptability of communities on the process of land abrogation. The respondents’ feelings, expression and perception obtained from focus group discussions were qualitatively described in sentence form so as to acquire better understanding of the quantitative results. The results showed that forest land abrogation have increased the opportunity for communities residing in forests to get considerable benefits. Most of the communities have the willingness for further land expansion and its relation with annual income level was found significant. Low income groups are found more willing for further land expansion to fulfill the requirement in their livelihood. The local communities particularly the certificate holders mostly perceived positive perception on tenure security (PTS), potential land conflict resolvability (PCR), and better land management (PLM) in managing their land sustainably after land abrogation. However, it was found significantly different among villages in terms of their PTS and on PLM. Respondents from the study site were “very satisfied” on the recognition of community land tenure and “somewhat satisfied” on the recognition of different land use types with different land rights by the process of land abrogation. The study concluded that the remaining challenge to reach the potential for delivering both desired livelihood and forest conservation results is how to align policies and instruments, to recognize multiple forest values, resources, and land users.

Keywords: Forest Land, Tenure, Local Communities, Perceptions

1. Introduction

Secure land and resource tenure are essential foundations for the well-being of rural peoples, and for their economic and social development (Springer, 2016). At the same time, nowadays, the role of forests in protecting ecosystems and supporting livelihoods has been widely recognized around the world (FAO, 2012). Increasingly, global and national policies have also recognized that attention to local land and resource tenure is necessary to achieve key goals related to poverty reduction, governance, women's empowerment, ecosystem management and climate change. Moreover, the lack of legal recognition renders communities' land rights largely invisible, increases the vulnerability of their lands to expropriation, and constrains their incentives to make long-term investments in productive capacities and ecosystems (Springer, 2016).

In Myanmar, the process of land abrogation had started in 2013 with the aim of enhancing the convenience and development of local communities' socioeconomic conditions. In the forest estates of Myanmar, land demarcated as "forest estates" have been under agricultural cultivation for decades. Up to the 2012, the MONREC (former MOECAP) did not formally recognize settlements and all kinds of cultivation inside the RFs (Maung, 2015). In 2013, FD made an inventory and collected data during February and then, abrogated some parts of the "forest areas", regarding to forest dwellers residing in the forest and practicing permanent cultivation (Andersen, 2016). FD abrogated "forest areas" where human settlements of more than 50 households to cater for land use change that has occurred over the last decades. And also, some villages that do not more than 50 households are abrogated if these are firmly settled over the last decades. However, further land expansions in reserved forest (RF), were occurred and found continuing encroachment on not-abrogated areas (Htet et. al., 2017). In this situation, conflicts between conservation objectives and the livelihood needs of local communities are intricate and difficult to resolve and yet the success of any conservation effort hinges on their solution (Adam & Eltayeb, 2014). This paper therefore explores the perception of local communities which is a base mark in decision making and in making policy to engage with local communities for land management (Allendorf et. al., 2012; Mengesha & Denoboba, 2015).

According to Wood et al. (2000), perception is an underlying factor of changing in resource use pattern. Forest land management, therefore, should not be separated from the community perception of the process itself. The term perception is also used to mean 'awareness, concern and attitude' (Kikula, 1997). In particular, the theory has been asserted that the representation of the behavior and perception are closely related to each other (Ferguson et al., 2004), so that stem from the perception, large influence on the form of the human relationship with the behavior of the surrounding environment (Ellen, 1993). According to a number of studies, individual perception on land and environment was affected by different characteristics (e.g. gender, education, age, occupation) (Geisler, 2000; Crowley, 2003; Wangui, 2003, Bugri et al, 2007). Kashyap (n.d), also pointed out different people may perceive the same environment differently base on their particular aspects of the situation and so exploring perception of people with different characteristics may inform a grasp of the whole situation. According to Kashyap (n.d), people behave on the basis of perception, then, we can predict their behavior in the changed circumstances by understanding their present perception of the environment. Thus, understanding local communities' perceptions on the process of land abrogation by their particular aspects will assist the formulation of policies and programs in managing forest estates in harmony with the balanced community welfare.

Three specific objectives of this study are therefore as follows; (i) to assess the overall perception of local communities on their tenure relations after the process of land abrogation; (ii) to address different perceptions on their characteristics; and (iii) to explore the respondents' satisfaction on the process of land abrogation.

2. Study Area and Research Methodology

2.1. Study Area

Saing-Ya Reserved Forest, situated in Yedashe Township, East-Bago Yoma region, Myanmar was selected as study site. In Saing-Ya Reserved Forest, there are 2,120 Ac (about 3.5%) of abrogated area from the original area of 61,188 Ac. In which, there are 13 abrogated villages (FD, 2017). Out of these 13 abrogated villages from Saing-Ya RF, four villages: 7 Mile, Za Ye Bauk, Min Gyi Khone and Ye Ngan Myaung villages were selected as study sites shown in Figure 1. The study villages were purposively chosen based on the criteria: (i) villages that are abrogated from Saing-Ya Reserved Forest, (ii) villages with land use in not-abrogated area, (iii) villages with different road access.

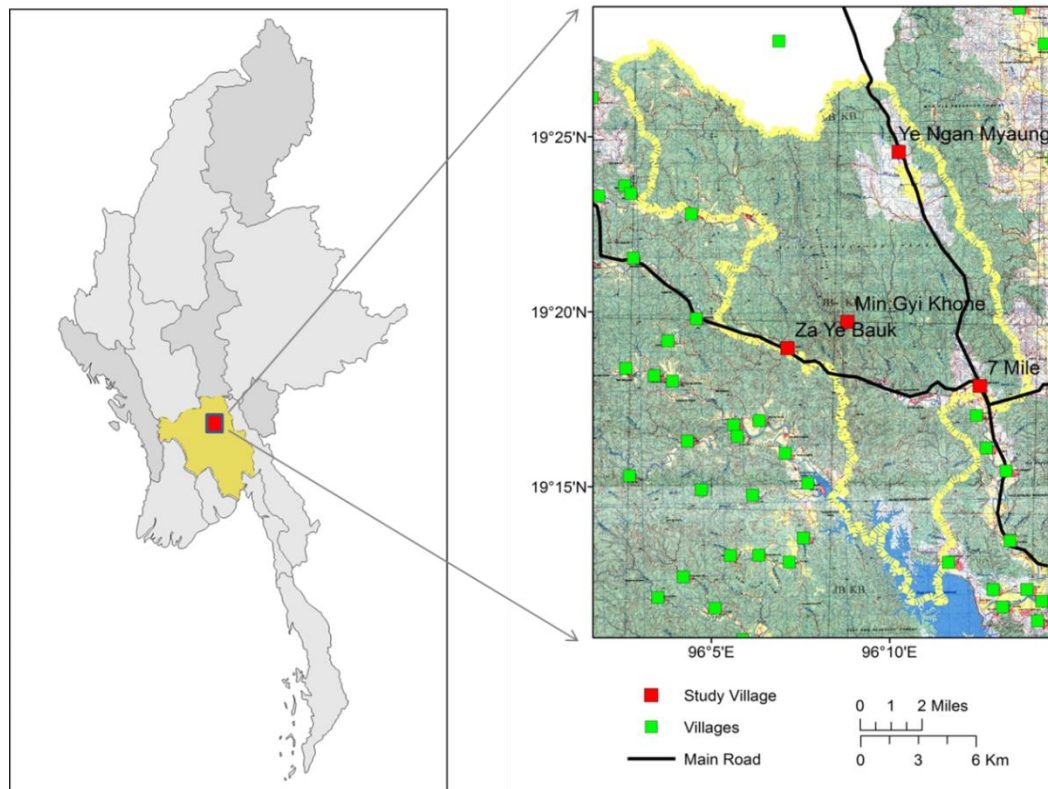


Figure 1 Location map of study area

2.2. Data Collection and Sampling

This study mainly explored the perception of local communities on the situations after the process of land abrogation. Therefore, mixed method of research (both quantitative and qualitative) is applied to explore the perceptions of local community on various aspects and to quantify the numerical data of responses obtained from household survey. There were a total of 241 households in the study area. Sample households were chosen purposively by 30 households (n) in each village. According to Teddlie & Yu (2007), a sample of 30 units is sufficient in purposive sampling. Therefore, a total of 120 households (N) were sampled which covers 50% of total populations. In the questionnaires, before abrogation period is denoted by “before 2013” and after abrogation is denoted by “after 2013” up to the time of field survey- year 2017. The primary data through semi-structured questionnaires as well as focus group discussions (FGD) and the secondary data from various sources were collected for the study.

2.3. Data Processing and Analysis

When analyzing and processing data, Microsoft excels and SPSS 20 version were used. Descriptive statistics, correlation analysis and chi-square test were applied to determine overall perception of communities, to know the relationship of perception with some socioeconomic variables and to analyze how perception is different depending on the characteristics of the respondents. The respondents’ feelings, expression and perception obtained from focus group discussions were qualitatively described in sentence form so as to acquire better understanding of the quantitative results.

Weighted Average Index (WAI) was applied to access the respondents’ satisfaction on the process of land abrogation. Different index values were obtained by multiplying the statement to its corresponding weight and dividing it by the total number of responses by using the weighted average index (WAI) formula, (Miah, 1993). The index was classified into five scales of very satisfied (S1), somewhat satisfied (S2), neutral (neither satisfied nor dissatisfied) (S3), somewhat dissatisfied (S4) and very dissatisfied (S5) with the range of 1, 0.8, 0.6, 0.4 and 0.2 respectively. The WAI was calculated by using the following formula.

WAI = {S1 (1.0) + S2 (0.8) + S3 (0.6) + S4 (0.4) + S5 (0.2)} / N where WAI is weighted average index, such that $0 < \text{WAI} \leq 1$; S1 and S2 are the frequency of responses of very satisfied and somewhat satisfied; S3 is frequency of responses of neutral; S4 and S5 are the frequency of responses of somewhat dissatisfied and very dissatisfied; and N is the total number of respondents.

3. Results

3.1. Perceived social benefits of communities by land abrogation

According to the survey of the respondent’s perception, 79% of respondents perceived benefits on land abrogation. In particular, land abrogation made improved local infrastructure by 20% of respondents, enhanced official land use right by 35% and made feel more secure in tenure by 24% of respondents respectively. But 21% of respondents assumed that land abrogation process was no benefit for them, (Figure 2).

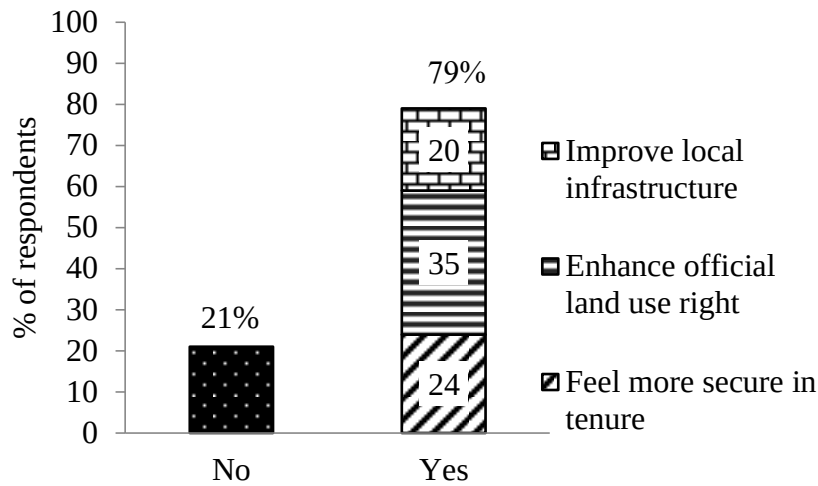


Figure 2 Benefits of land abrogation (N=120)

Box 1 Explanations on benefits of land abrogation in FGD

Our daily life particularly in our welfare becomes convenient because we can work in our fields without being afraid. Previously, we could not live like this because we used to thinking about when we will have to move out. In the future, it is expected to be more convenient (*a participant from ZYB*).

As a main benefit, I think we have got guarantee for our living (*a participant from YNM*).

Before abrogation, our livelihood was not stable and we did not dare to do permanent agriculture. Also, we did not dare to build a big house. After abrogation, we could live in a good house. These are the positive difference between before and after land abrogation (*a participant from MGK*).

From the explanation in FGD, it was also found land abrogation enhanced community welfare and improved infrastructure and made feel more secure for communities, mentioned in Box 1.

3.2. Willingness of land expansion after land abrogation

Overall, 72% of respondents are found willing for land expansion after land abrogation, as shown in figure 3. The main reason was because of livelihood difficulty of most households until now. When making comparison of willingness between different annual income groups and different land holding groups, 79% of respondents whose annual income is lower than 2 million kyats were willing for land expansion, whereas 57% of respondents whose annual income between 2-4 million kyats and 56% of respondents whose more than 4million kyats were willing for land expansion. Therefore, it was found willingness of land expansion became less among higher income groups and larger land holders.

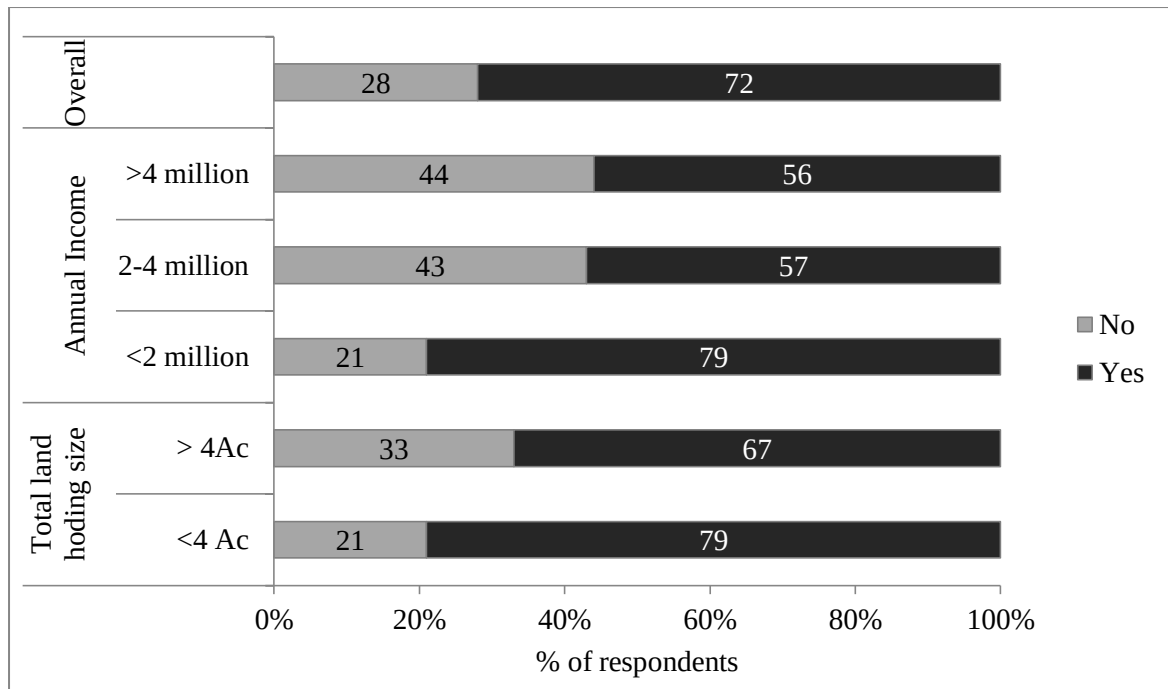


Figure 3 Willingness of land expansion (N=120)

Moreover, this study revealed the relation of willingness with different annual income levels and different total land holding size of respondents. It also searched whether it had significance correlation with annual income level or not and also, with total land holding size or not, mentioned in Table 1.

Table 1 Correlation of income level and land holding size with willingness of land expansion (N=120)

Correlations of the household's willingness for future land expansion	Pearson correlation	P value
1. With annual income level	-.213	.021*
2. With total land holding size	.143	.128

* Correlation is significant at the 0.05 level

The statistical results showed that household's annual income level and their willingness for future land expansion had a significant correlation at 0.05 level. The reason was because low income level respondents were found more willing for future land expansion than middle and high income level respondents. However, total land holding size did not show any significant correlation with their willingness for future land expansion. The reason was because the willingness of both smaller and larger land holders was not obviously different.

3.3. Perception on land tenure security after abrogation (PTS)

According to Boudreaux & Sacks (2009), "tenure" refers to the status of individuals or groups in relationship to property. Land tenure security is, therefore, an element of property rights: the right to remain on one's land and make use of and profit from that land.

Perception on land tenure security in the study site became a critical observable factor after land abrogation because the villagers could enjoy various rights to remain on and use their land within the legal framework after abrogation.

Overall perception on land tenure security

Nearly half of the respondents thought their land was completely secure now whereas nearly one-third of respondents thought somewhat secure but expect some issues because of their worry to be rescinded their land by the government in the later. But, 29% assumed their land was not secure until now because most of the respondents have no evidence for their official land tenure rights, shown in figure 4.

Box 2 Respondent's opinion on tenure security in FGD

Currently, our land tenure is secure, so we are now freely utilizing our land. But how could we do if the policy is changed in the later (*a participant from ZYB*).

Housing compound is secure, but cultivated plots are not, because they are still under RF area. So, how we can say is that we are cultivating on these plots but we feel that do not own them (*a participant from MGK*).

According to communities' opinion in FGD, their expected issue was found as worrying about to change current policy in the later, mentioned in Box 2.

Variation of perception on land tenure security with different socioeconomic characteristics

This study also checked whether the perception on tenure security is different depending on some characteristics. As per Chi-square test, the results showed that perception on tenure security was significantly different depending on certificate holding or not, male or female, and among different villages, mentioned in Table 2. The reasons were because most certificate holders thought "completely secure", most female thought "completely secure" and 7mile and ZYB village thought more "completely secure" than other villages.

3.4. Perception on potential land conflict resolvability after abrogation (PCR)

Land conflict is not an avoidable factor among land users. According to Wehrmann (2005), land conflict is a social fact in which at least two parties are involved, the root of which are different interests over the property rights on land, the rights to use land, to manage land, to transfer it and to have the right to compensation. Therefore, this study explored perception of local communities on their resolvability in regard with potential land conflict issues after land abrogation.

Overall perception on potential land conflict resolvability

The current perception about land conflict resolvability is an interesting factor indicating as a social benefit of land abrogation. The results showed that nearly one third of the respondents (28%) said "we can resolve with anyone". But, a majority of respondents (53%) said "we can resolve, but not everyone" while some respondents thought "cannot resolve" until now, Figure 5.

Box 3 Respondent's opinion on conflict resolvability

We can resolve if the conflict appeared among villagers because even the government had recognized our land tenure. But, if the conflict is appeared between us and the government, we could do nothing, (*a participant from ZYB*).

According to the opinion of respondent in FGD, it was found that they can resolve if conflict appeared, though, they are still worrying about to appear the conflict with government organizations, mentioned in Box 3.

Variation of perception on potential land conflict resolvability with different socioeconomic characteristics

When checked using Chi-square test, to know whether the perception on potential land conflict resolvability is different depending on some characteristics, the results showed that it was different depending on certificate holding or not and depending on age class, mentioned in Table 3. Certificate holding influenced perception because certificate holders said more resolvable. Age class influenced perception because respondents whose age was more than 50 years said more resolvable.

3.5. Perception on land management status after land abrogation (PLM)

Land management status of local communities became an interesting factor after their land uses were recognized, and after some villagers received land use certificates. Therefore, as an impact after land abrogation, this study explored whether they could use their land effectively or not. The three variables; 1) better in management 2) no change and 3) worse in management were used to explore management status of land by communities after land abrogation.

Overall perception on land management status

As per majority of respondents (65%), they could not able to manage their land better than before because most of them did not have certificate and could not access any credit from the government. Then, they could cultivate and manage their land as usual as before. But, one-third of respondents could better and effectively manage their land after land abrogation. The main reason was because of the credit access to make more inputs. A few respondents (3%) said their land management became worse after land abrogation because of poor soil nutrient (Figure 6).

Box 4 Respondent's expression on land management after abrogation

After our village was abrogated, we are not encroachers anymore. Then, we can make more concentration on our cultivation. Besides we could utilize and manage our land more effectively (*a participant from YNM.*)

According to the expression in FGD, land management after abrogation was mostly no change for communities, but they have attachment on their existing lands and planned for their effective future land use after abrogation, mentioned in Box 4.

Variation of perception on land management status with different socioeconomic characteristics

This study also checked whether the perception on land management is different depending on some characteristics. As per Chi-square test, the results showed that perception on land management was different depending on certificate holding status, main occupation type, among different villages, and different kinds of ownership and different total land holding size, mentioned in Table 4. The reasons are because certificate holders and only cultivators could better manage after abrogation. MGK village did not change in their land management mostly. It is clear there is no change in land

management status for those who have no lowland paddy field or upland field. Land holders whose own less than 4 Ac said no change mostly.

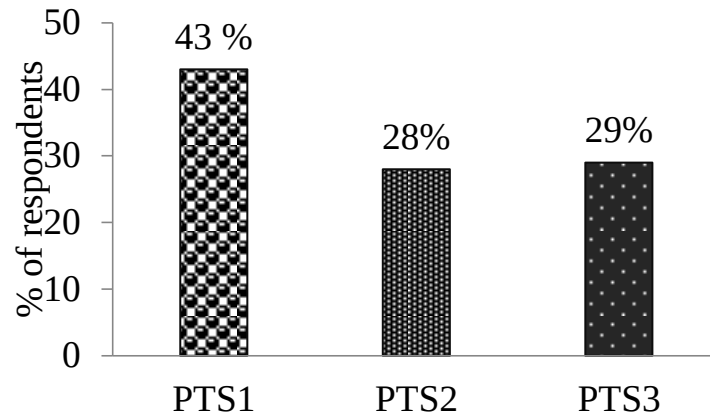


Figure 4 Perception on land tenure security (N=120), PTS1 = yes, completely secure, PTS2 = somewhat secure but expect some issues, PTS3= no secure

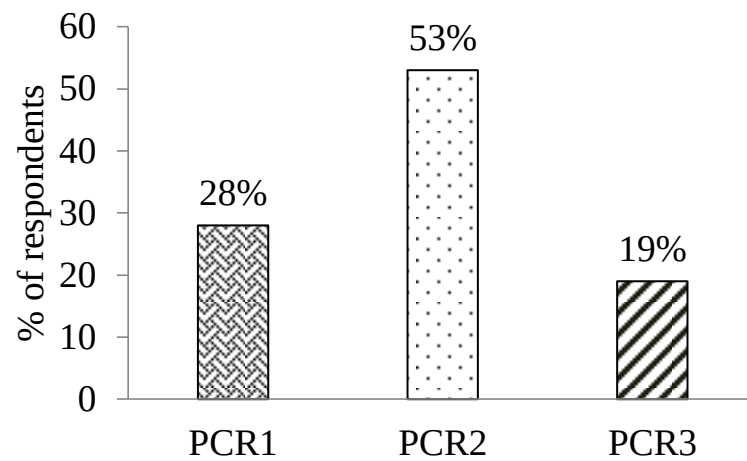


Figure 5 Perception on potential land conflict resolvability (N=120), PCR1: yes, anyone PCR2: yes, but not everyone, PCR3: cannot resolve.

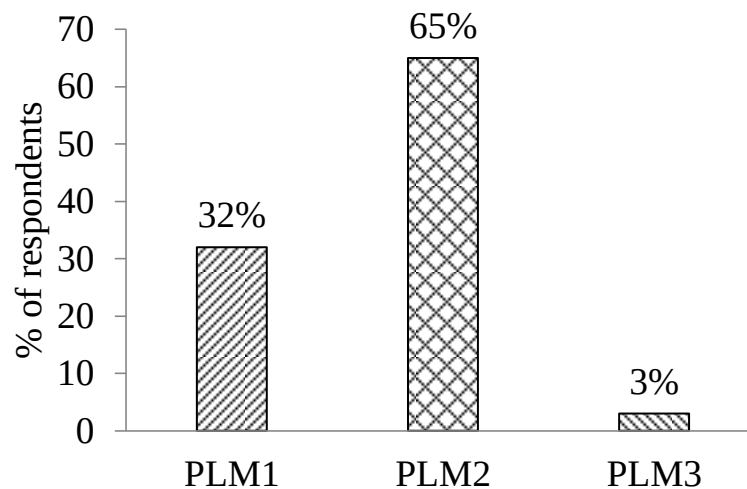


Figure 6 Perception on land management status (N=120), PLM1: better manage, PLM2: no change, PLM3: worse manage

Table 2 Variation of perception on tenure security depending on some characteristics
(N=120)

Characteristics/Variables			Perception on tenure security			χ ²	df	P
			(% of respondents)					
			PTS1	PTS2	PTS3			
I.	Knowledge on land rights	1. Known	43	37	20	3.579	2	.167
		2. Unknown	42	24	34			
II.	Certificate holding	1. Certificate holder	73	7	20	7.085	2	.029*
		2. Non certificate	38	31	30			
III.	Gender	1. Male	33	37	30	12.755	2	.002**
		2. Female	64	8	28			
IV.	Age class	1. 18-35	26	29	45	9.183	4	.057
		2. 36-50	49	33	19			
		3. >50	51	23	26			
V.	Main occupation	1. Cultivator	43	32	25	3.952	6	.683
		2. Wage labour	39	26	35			
		3. Bamboo seller	33	11	56			
		4. Shopkeeper	62	13	25			
VI.	Annual income level	1. <2000000 Ks	44	30	26	4.355	4	.360
		2. 2000000-4000000 Ks	33	30	37			
		3. >4000000 Ks	67	11	22			
VII.	Education level	1. Illiteracy	35	24	41	4.225	8	.836
		2. Monastery	41	32	27			
		3. Primary	40	30	30			
		4. Middle	73	7	20			
VIII.	Different kinds of ownership	1. No lowland or upland	46	18	36	7.887	6	.247
		2. Lowland owner	60	40	0			
		3. Upland owner	35	30	35			
		4. Both owned	41	31	28			
IX.	Total land holding size	1. <4 Ac	39	28	33	.981	2	.632
		2. >4 Ac	46	29	25			
X.	Among villages	1. 7mile	62	17	21	17.401	6	.008**
		2. ZYB	59	14	28			
		3. MGK	23	37	40			
		4. YNM	28	45	27			

* Significant at 0.05 level, ** significant at 0.01 level. PTS1: yes, completely secure, PTS2: somewhat secure but expect some issues, PTS3: no secure.

Table 3 Variation of perception on potential land conflict resolvability depending on some characteristics (N=120)

Characteristics/Variables			Perception on potential land conflict resolvability (% of respondents)			χ ²	df	P
			PCR1	PCR2	PCR3			
I.	Knowledge on land rights	1. Known	33	54	13	1.879	2	.391
		2. Unknown	25	53	22			
II.	Certificate holding	1. Certificate holder	67	20	13	13.206	2	.001**
		2. Non certificate	22	58	20			
III.	Gender	1. Male	25	53	22	1.325	2	.516
		2. Female	33	53	14			
IV.	Age class	1. 18-35	20	43	37	13.171	4	.010*
		2. 36-50	24	64	12			
		3. >50	41	49	11			
V.	Main occupation	1. Cultivator	32	49	19	5.460	6	.486
		2. Wage labour	24	55	21			
		3. Bamboo seller	45	33	22			
		4. Shopkeeper	25	75	0			
VI.	Annual income level	1. <2000000 Ks	32	51	17	5.089	4	.278
		2. 2000000-4000000 Ks	14	64	22			
		3. >4000000 Ks	33	34	33			
VII.	Education level	1. Illiteracy	6	59	35	13.716	8	.089
		2. Monastery	23	73	4			
		3. Primary	34	42	24			
		4. Middle	29	57	14			
VIII.	Different kinds of ownership	1. No lowland or upland	17	69	14	6.241	6	.397
		2. Lowland owner	33	56	11			
		3. Upland owner	40	35	25			
		4. Both owned	30	50	20			
IX.	Total land holding size	1. <4 Ac	23	55	22	2.586	2	.274
		2. >4 Ac	35	50	15			
X.	Among villages	1. 7mile	44	48	8	10.483	6	.106
		2. ZYB	31	55	14			
		3. MGK	23	47	30			
		4. YNM	14	62	24			

* Significant at 0.05 level, ** significant at 0.01 level. PCR1: yes, anyone, PCR2: yes but not everyone, PCR3: cannot resolve.

Table 4 Variation of perception on land management depending on some characteristics (N=120)

Characteristics/Variables			Perception on land management (% of respondents)			χ^2	df	P
			PLM1	PLM2	PLM3			
I.	Knowledge on land rights	1. Known	40	57	3	1.960	2	.375
		2. Unknown	28	68	4			
II.	Certificate holding	1. Certificate holder	87	13	0	23.988	2	.000***
		2. Non certificate	24	72	4			
III.	Gender	1. Male	33	63	4	.312	2	.855
		2. Female	31	67	2			
IV.	Age class	1. 18-35	25	72	3	4.223	4	.377
		2. 36-50	27	71	2			
		3. >50	40	53	7			
V.	Main occupation	1. Cultivator	47	50	3	15.810	6	.015*
		2. Wage labour	13	84	3			
		3. Bamboo seller	11	67	22			
		4. Shopkeeper	25	75	0			
VI.	Annual income level	1. <2000000 Ks	29	68	2	2.789	4	.594
		2. 2000000-4000000 Ks	38	59	3			
		3. >4000000 Ks	33	56	11			
VII.	Education level	1. Illiteracy	11	83	6	5.875	8	.661
		2. Monastery	30	65	4			
		3. Primary	36	60	4			
		4. Middle	41	59	0			
VIII.	Different kinds of ownership	1. No lowland or upland	11	87	2	14.300	6	.026*
		2. Lowland owner	50	50	0			
		3. Upland owner	40	60	0			
		4. Both owned	40	54	6			
IX.	Total land holding size	1. <4 Ac	24	75	1	8.814	2	.012*
		2. >4 Ac	45	49	6			
X.	Among villages	1. 7mile	47	50	3	16.985	6	.009**
		2. ZYB	27	73	0			
		3. MGK	7	87	6			
		4. YNM	47	50	3			

* Significant at 0.05 level, ** significant at 0.01 level, *** significant at 0.001 level.
PLM1: better in management, PLM2: no change, PLM3: worse in management.

3.6. Satisfaction of local communities on the recognition of communities' land tenure

Land abrogation is the recognition of local communities residing in forests and they also believe on the process as the recognition of their land tenure by the government. In this situation, how much they believe or their acceptability on the process was assessed by their satisfaction level as per weighted average index.

Overall satisfaction level on the recognition of communities' land tenure

Respondents from the study site had different satisfaction levels ranging mostly from neutral to very satisfied level, (Table 5).

Table 5 Degree of satisfaction on the recognition of communities' land tenure

Degree of satisfaction on recognition of land tenure	Respondents (N=120)	
	Percentage	Frequency
Very satisfied (S1)	29.2	35
Somewhat satisfied (S2)	49.2	59
Neutral (S3)	20.0	24
Somewhat dissatisfied (S4)	1.7	2
Very dissatisfied (S5)	0.0	0
WAI = {S1 (1) + S2 (0.8) + S3 (0.6) + S4 (0.4) + S5 (0.2)} / N = 0.81		

Interpretation of index value: very satisfied = 0.80 – 1.00, somewhat satisfied = 0.60 – 0.80, neutral = 0.40 – 0.60, somewhat dissatisfied = 0.20 – 0.40, very dissatisfied = 0.00 – 0.20.

About 29.2% of respondents were “very satisfied”, whereas half of respondents (49.2%) were “somewhat satisfied” on recognition of their land tenure. About 20% of respondents were “neutral” and a very small amount of respondents (1.7%) were somewhat dissatisfied on the recognition of community land tenure by the process of land abrogation. As per Weight Average Index (WAI), respondents from the study site were “very satisfied” on the process of land abrogation dealing with the recognition of communities' land tenure.

From the respondents' expressions in FGD, it was found they were acceptable and thankful to government because of recognizing their land tenure but they were worrying about the future policy change, see Box 5.

Box 5 Respondents' expression on land tenure recognition in FGD

FD had recognized local communities' land use as possible as they can by abrogating their forest land. Although they cannot fully recognize each people, we could understand it, because they have to work for many people. So, we all satisfy their recognition on our land tenure to stay in this village (*a participant from 7mile village*).

If our village was not abrogated from RF, it would be for us to out-migrate other areas as soon as they did not allow to be stayed in RF. So, we are very thankful to the government for recognizing our land tenure, with the abrogation of land. Then, we could plan for our future land use (*a participant from ZYB village*).

Within the period of this government, we have the right to use our land safely because they have recognized our tenure. However, this policy can be changed after the period of this government. But we could not do anything for it because land is the absolute state-owned (*a participant from ZYB village*).

Variation of satisfaction on the recognition of communities' land tenure among different villages

When comparing the satisfaction level of the four villages, it was found no significantly different in their satisfaction on recognition of their land tenure by the process of land abrogation, indicating at very satisfied level in 7ml, ZYB, YNM and somewhat satisfied level in MGK village (Table 6).

Table 6 Variation of satisfaction on the recognition of communities' land tenure among different villages (n=30)

Village name	Degree of satisfaction on recognition of land tenure					WAI	χ^2	df	P
	S1	S2	S3	S4	S5				
7ml	10	18	2	0	0	0.85	13.325	9	.148
ZYB	7	17	6	0	0	0.81			
MGK	8	11	9	2	0	0.77			
YNM	10	13	7	0	0	0.86			

Interpretation of index value: very satisfied = 0.80 – 1.00, somewhat satisfied = 0.60 – 0.80, neutral = 0.40 – 0.60, somewhat dissatisfied = 0.20 – 0.40, very dissatisfied = 0.00 – 0.20. S1 = frequency of responses of very satisfied, S2 = frequency of responses of somewhat satisfied, S3 = frequency of responses of neutral, S4 = frequency of responses of somewhat dissatisfied, S5 = frequency of responses of very dissatisfied.

3.7. Satisfaction of local communities on the recognition of different land use types with different land rights

Recognizing different land uses with different rights became a conditional factor after land abrogation for local communities who are different land users. According to my study, lowland paddy field users received land use certificate, but upland field users were not. Then, with the purpose to know the community acceptability or satisfaction level, respondents were asked about this with the scale ranging from 1 to 5, where 1= very satisfied, 2=somewhat satisfied, 3= neutral, 4 = somewhat dissatisfied and 5= very dissatisfied.

Overall satisfaction level on the recognition of different land use types with different land rights

The results showed that most respondents (44.2%) were neutral about differing land rights while 30% were somewhat dissatisfied and 13.3% were very dissatisfied. But, totally 12.2% were satisfied about differing land rights (very satisfied 5.8% and somewhat satisfied 6.7%, respectively), shown in Table 7. As per Weight Average Index (WAI), respondents from the study site were “somewhat satisfied” on the recognition of different land uses with different rights after the process of land abrogation.

Table 7 Degree of satisfaction on differing land rights

Degree of satisfaction on differing land rights	Respondents (N=120)	
	Percentage	Frequency
Very satisfied (S1)	5.8	7
Somewhat satisfied (S2)	6.7	8
Neutral (S3)	44.2	53
Somewhat dissatisfied (S4)	30.0	36
Very dissatisfied (S5)	13.3	16
WAI = {S1 (1) + S2 (0.8) + S3 (0.6) + S4 (0.4) + S5 (0.2)} / N = 0.68		

Interpretation of index value: very satisfied = 0.80 – 1.00, somewhat satisfied = 0.60 – 0.80, neutral = 0.40 – 0.60, somewhat dissatisfied = 0.20 – 0.40, very dissatisfied = 0.00 – 0.20.

Box 6 Respondents' opinions on differing land rights

We can accept the condition of differing rights among different land uses because the government considered based on different conditions for different land uses (*a participant from 7mile village*).

I can accept this condition because lowland paddy field is first priority for my livelihood. “Ya” is not as much important as lowland paddy field for me (*a participant from ZYB village*).

I do not want to accept this condition, but I could not say that I do not accept it as land is state-owned, anyway (*a participant from MGK village*).

I can accept this condition as lowland paddy field and “ya” are not the same category in the law (*a participant from YNM village*).

From the explanation in FGD, most were found acceptable differing rights. Some did not want to accept but they accepted with understanding that land is state-owned, mentioned in Box 6.

Variation of satisfaction on the recognition of different land use types with different land rights among different villages

It was found significantly different in the satisfaction on differing land rights by the process of land abrogation in the four villages. That's why the communities of MGK village made responses "neutral" frequently. Though, the index of all the four villages indicates "somewhat satisfied" (Table 8).

Table 8 Variation of satisfaction on the recognition of different land use types with different land rights among different villages (n=30)

Village name	Degree of satisfaction on differing land rights					WAI	χ^2	df	P
	S1	S2	S3	S4	S5				
7ml	8	11	10	1	0	0.77	21.624	12	.042*
ZYB	2	11	14	0	3	0.66			
MGK	2	4	19	3	2	0.61			
YNM	4	10	10	4	2	0.67			

Interpretation of index value: very satisfied = 0.80 – 1.00, somewhat satisfied = 0.60 – 0.80, neutral = 0.40 – 0.60, somewhat dissatisfied = 0.20 – 0.40, very dissatisfied = 0.00 – 0.20. S1 = frequency of responses of very satisfied, S2 = frequency of responses of somewhat satisfied, S3 = frequency of responses of neutral, S4 = frequency of responses of somewhat dissatisfied, S5 = frequency of responses of very dissatisfied. * significant at 0.05 level.

4. Discussions

4.1. Perceived benefits, requirements and policy instruments

Most of local communities perceived considerable benefits after the process of land abrogation, in particular, improved local infrastructure, enhanced official land use rights and made feel more secure in community land tenure. But 72% respondents are still willing for land expansion. The possible root causes might be 1) as population grows and the size of land remains static, people in these areas continued to have access to land informally for their livelihood and 2) because of lacking awareness of policy regulations at the time of abrogation from RF. Pellegrini & Dasgupta (2009) also pointed out that neglecting forestry and provisions for forest management in the land reform process might result in a failure. Therefore, there was found a need of further considerations from the perspective of policy makers to mitigate these undesirable conditions. In such situation, revising by lesson learning from these preliminary results and reconstructing the further additional policy making is recommended such as involving policy regulation at the time of "abrogation of villages from permanent forest estates" for sustainable land use in the forest estates, for mitigating unnecessary outcomes, for mitigating (willingness of) land expansion and for the sustainable benefits of communities in the long term.

4.2. Land use perceptions and tenure related factors

Willingness of future land expansion was significantly related with only annual income level, but total land holding size was not significantly related with it. Low income respondents were found more willing to make land expansion while higher income respondents were not as willing as lower respondents. This finding is supported to the

study of Masozera (2002) made in Rwanda that reported rural poverty (low income level) will exacerbate the need for access to natural resources in reserved forests. The finding of this study pointed that land expansion may be reduced if they enhanced higher income opportunities. And then, enhancing local communities' income contribution such as policy measures that aim at increasing agriculture income and generating other employment opportunities should be more emphasized for their sustainable livelihood and for mitigation of further land expansion. FAO (2016) also recommended that where the expansion of small-scale subsistence farming, the deployment of policy instruments such as policy instruments to improve farming practices and promote agroforestry, in the wider context of rural development, livelihood diversification and poverty alleviation programs should be considered.

In the study of Hull et al. (2016), if there is trust in the system of land administration and management, perceptions of tenure security are high. In my study, with regard to perception on tenure security after land abrogation, nearly half of respondents thought their tenure was secure now because their lands are not the parts of RF anymore. The expected issues occurred dealing with land tenure are worrying about to change the current policy in the later and worrying about to be rescinded their parts of land which had not been abrogated. According to Dahal et al. (2011), along with tenure security, regulatory framework, governance systems, and supportive institutions are critical for successfully achieving the optimum objectives of forest management. To engage forest-dependent peoples in sustainably managing forests around the region, recognition of customary rights and issuing strong legal bases to ensure tenure security for community are fundamental (Dahal et al., 2011). Perception on tenure security was significantly different depending on certificate holding or not, male or female, and among different villages. The reasons are because most certificate holders thought completely secure, most female thought completely secure and 7mile and ZYB village thought more completely secure than other villages. One study that examined gender differentiated perceptions of tenure security in a wetland in Bangladesh by Ahmed et al. (2008) was found. Their study found evidence that female perceive their rights as less secure than male's and it was opposite to my study. In their study, female did not have the equal rights as do as males and they were vulnerable in most tenure issues. In my study, there was not found any serious gender inequality issues and female were found more likely to believe in land abrogation process, therefore, female perceived more secure in tenure in my study.

In dealing with perception on potential land conflict resolvability, 28% of respondents perceived the ability to resolve potential land conflict because of their awareness that government had recognized their land tenure. Though, 53% thought they can resolve, but they expected some issues. They are worrying to become conflict with the government in the later. Perception on potential land conflict resolvability was found significantly different depending on certificate holding or not and depending on age class. Certificate holders and older respondents thought they are more able to resolve potential land conflict. Therefore, conducive environment should be organized with older persons within communities to be facilitation whenever local land conflicts appear. Existence of conflict resolution mechanisms is one of indicators used to measure land tenure security (European Union, 2004).

Regarding to perception on land management status after land abrogation, majority of respondents (65%) said that they could not manage their land in terms of both labor and materials more effective than before because most of them did not have any more favorable income opportunities, and they are still under former subsistence farming

as usual. Better management was found among certificate holders. This finding is supported to the earlier study which reported that greater tenure security can enhance land related investments, (Besley, 1995; Besley & Ghatak, 2010). Kelly (2014), also found that landowners with documentation were significantly more likely to invest in their land than those without documents. It is natural that without secured rights, they do not feel emotional attachment to the land they cultivate, do not invest in land development and will not use inputs efficiently. Effective land use conditions were found only among most certificate holders. This study implied that perception on tenure security is highly likely to affect farmer incentives to invest in their lands. Therefore, how the land tenure and subsequent land management of all forest residing communities could be improved remains as a question. Rather, it is needed to make more attention by all communities for their sustainable and effective land management because it can enhance better livelihood contributions is needless to say.

Specifically, PTS, PCR, PLM were found mainly determined by the status of certificate holding (legal tenure right access) rather than other socioeconomic factors. In other words, tenure related perceptions and effective land management of communities are found mainly determined by the status of legal tenure right. Currently, tenure issues are still remaining as a challenge for most communities. In this context, how the secure tenure of communities in abrogated areas should be enhanced remaining as a question. According to the current legal framework regarding VFV Law (2012) and Farmland Law (2012), the probable conditions for communities in abrogated areas are; asking for permission of utilizing VFV lands and then, asking for permission of converting VFV lands into farmlands when that use of land is stable and then applying for the land use certificate (form 7). Communities in not-abrogated areas have the right to establish CF for their legal tenure right according to CFI (2016). Although the legal framework is existed, currently, it was found that most of the communities (except some of the respondents) could not be able to hold such tenure rights officially.

In examining satisfaction levels, respondents from the study site were “very satisfied” on the recognition of community land tenure and “somewhat satisfied” on the recognition of different land use types with different land rights by the process of land abrogation. A respondent from the study site said “as the government recognized our land use, we have to take the responsibility in conserving the country natural resources.” Anyhow, apart from satisfying the government recognition for the communities land use, all communities should have the positive perception and behavior in conserving the forest estates, too, as a local common responsibility. In order to be truly and effective recognition of both our communities and our forest estates, the governing bodies should also reflect the interests of all stakeholders.

4.3. Comparison among villages

There was found significant differences among the four villages, regarding with perception on tenure security and perception on their land management because 7mile and ZYB village thought more completely secure than other villages regarding with land tenure. In MGK, there were found very low percentage of respondents that said “better in management” and very high percentage said “did not change in land management”. But, perception on potential land conflict resolvability and satisfaction on recognition of land tenure was not found significant differences among different villages. In the satisfaction on the recognition of different land use types with different land rights, the communities of MGK village made responses “neutral” frequently than other villages.

5. Conclusion

In this study, the difference in perception on the situations of land abrogation was determined by ten characteristics such as 1) knowledge on land rights, 2) certificate holding status, 3) gender, 4) age class, 5) main occupation, 6) annual income level, 7) education level, 8) total land holding size, 9) kinds of ownership and 10) among different villages. The results showed that forest land abrogation has increased the opportunity for communities residing in forests to get a considerable benefit. But, land expansions (especially upland field) were found assumed as their requirement for their livelihood convenience. Tenure security, potential land conflict resolvability, and better land management are the positive factors after land abrogation in managing their land sustainably. But, currently, these have not reached their potential for delivering either desired livelihood or forest conservation results. The potential was found only for some respondents, especially certificate holders. The challenge is how to align policies and instruments, to recognize multiple forest values, resources, and land users. Anyhow, these initial explorations about communities' perception on the situations of land abrogation may be used as base mark for the sustainable management of land and forest estates, too.

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