ParisTech
INSTITUT DES SCIENCES ET TECHNOLOGIES
PARIS INSTITUTE OF TECHNOLOGY

AgroParisTech
INSTITUT DES SCIENCES ET INDUSTRIES DU VIVANT ET DE L'ENVIRONNEMENT
PARIS INSTITUTE OF TECHNOLOGY FOR LIFE, FOOD AND ENVIRONMENTAL SCIENCES

Ecole Doctorale ABIES
Agriculture
Agriculture
Alimentation
Food
Biologie
Biology
Environnement
Environment
Santé
Health

Doctorat ParisTech

T H È S E

pour obtenir le grade de docteur délivré par

L'Institut des Sciences et Industries du Vivant et de l'Environnement

(AgroParisTech)

Spécialité : FONCIER ET FORESTIÈRE

présentée et soutenue publiquement par

Natcha TULYASUWAN

Le 22 mai 2014

REDD+ ET FONCIER: UNE ÉTUDE DE CAS DE LA THAÏLANDE

Jury

Dr. Alain KARSENTY, Directeur de recherche, CIRAD	Directeur de thèse
Dr. Andrew WARDELL, Directeur de recherche, CIFOR	Examinateur
Dr. Maya LEROY, Enseignant-Chercheur, AgroParisTech-GEEFT	Examinateur
Dr. Andreas NEEF, Professeur, Université d'Auckland	Examinateur
Dr. Jean-Phillipe LEBLOND, Professeur Assistant, Université d'Ottawa	Rapporteur
Dr. Catherine Potvin, Professeur, Université McGill	Rapporteur

ParisTech
INSTITUT DES SCIENCES ET TECHNOLOGIES
PARIS INSTITUTE OF TECHNOLOGY

AgroParisTech
INSTITUT DES SCIENCES ET INDUSTRIES DU VIVANT ET DE L'ENVIRONNEMENT
PARIS INSTITUTE OF TECHNOLOGY FOR LIFE, FOOD AND ENVIRONMENTAL SCIENCES

Ecole Doctorale ABIES
Agriculture
Agriculture
Alimentation
Food
Biologie
Biology
Environnement
Environment
Santé
Health

ParisTech Doctoral

THESIS

A thesis submitted to AgroParisTech in fulfillment of the requirements

for the degree of Doctor of Philosophy

L'Institut des Sciences et Industries du Vivant et de l'Environnement

(AgroParisTech)

Specialization: LAND TENURE AND FORESTRY

Presented and defended publicly by

Natcha TULYASUWAN

22 May 2014

REDD+ AND LAND TENURE: A CASE STUDY OF THAILAND

Jury

Dr. Alain KARSENTY, Director of research, CIRAD	Thesis supervisor
Dr. Andrew WARDELL, Director of research, CIFOR	Examinator
Dr. Maya LEROY, Research Professor, AgroParisTech-GEEFT	Examinator
Dr. Andreas NEEF, Professor, University of Auckland	Examinator
Dr. Jean-Phillipe LEBLOND, Assistant Professor, University of Ottawa	Rapporteur
Dr. Catherine Potvin, Professor, McGill University	Rapporteur

RÉSUMÉ

Cette thèse a pour objectif de fournir une analyse compréhensive des composantes *de jure* et *de facto* de la sécurité foncière des communautés locales en regard du cadre législatif, ainsi qu'une évaluation approfondie de l'interaction entre REDD+ et les accords fonciers actuels. La Thaïlande, pays dans lequel semblent coexister les droits fonciers *de facto* et les propriétés d'état *de jure*, fut sélectionnée comme cas d'étude.

Deux résultats principaux ressortent de cette étude. Tout d'abord, le cadre juridique ne reconnaissant pas le droit à la propriété ancestrale a conduit à différentes situations foncières *de facto* pour les communautés. Certaines communautés jouissent d'une occupation de leurs propriétés foncières *de facto* comparativement plus sécurisée que d'autres. Deuxièmement, il apparaît que le mécanisme REDD+ n'a pas représenté une incitation suffisante pour le gouvernement Thaïlandais à résoudre rapidement ces litiges fonciers. En outre, les risques inhérents à l'insécurité foncière décourage les investissements REDD+, pouvant aller jusqu'au retrait des financements. Ainsi, cette thèse complète la littérature existante sur le mécanisme REDD+ et le foncier sur trois aspects majeurs: (1) cadre légal et foncier, (2) foncier et déforestation et (3) concurrence entre la titularisation du foncier et la mise en place de REDD+.

Les implications politiques tirées de l'étude comprennent des mesures à long terme pour une réforme du régime foncier et à court/moyen terme pour une réévaluation des priorités du gouvernement afin d'assurer la cohérence des politiques vers la mise en œuvre de pilote REDD+ sous forme de paiement pour les services environnementaux (PES) et l'amélioration des structures institutionnelles.

Mots clés: déboisement, réforme du régime foncier, forêt communautaire, paiement pour les services environnementaux, Asie du sud-est

ABSTRACT

This thesis aims to provide a comprehensive analysis of *de jure* and *de facto* tenure security of local communities in relation to domestic legal framework and a thorough assessment of how REDD+ and current tenure arrangement interacts. Thailand, a country where there is an apparent coexistence of *de jure* state property and *de facto* tenure rights, was selected as a case study.

There are two primary findings emerging from the study. Firstly, the legal framework with non-recognized customary tenure led to different *de facto* tenure impacts in different communities. Some communities were found to have their *de facto* tenure comparatively more secure than others. Secondly, REDD+ could not provide sufficient incentive for the government to expedite tenure clarification. Moreover, the embedded risks of tenure insecurity discouraged REDD+ investment and led to withdrawal of the fund. The thesis contributes to the existing literature on REDD+ and tenure in three main aspects: (1) legal framework and tenure, (2) tenure and deforestation and (3) tenure clarification and REDD+ competing agendas.

Policy implications drawn from the study comprise of long-term measures namely comprehensive tenure reform and short to medium-term measures, including re-assessment of government priorities for policy consistency and pilot implementation in form of payment for environmental services (PES) and improvement of REDD+ institutional structure.

Key words: deforestation, tenure reform, community forest, payment for environmental services, Southeast Asia

RÉSUMÉ SUBSTANTIEL

Comme prévu par la décision adoptée par la Conférence des Parties (COP) 1/CP. 16 (III C paragraphe 73), le programme REDD+ sera mis en œuvre en plusieurs phases pour permettre aux pays participants de prendre en compte leurs spécificités et capacités respectives. La plupart de ces pays sont actuellement dans la phase de préparation, qui se concentre principalement sur l'élaboration de stratégies et de politiques nationales, l'acquisition et/ou le renforcement des compétences ainsi que les études de faisabilité. Au cours de cette phase de développement, une évaluation approfondie de la situation foncière locale et des activités pilotes REDD+ à l'échelle subnationale, c'est à dire sur différentes régions recouvrant une partie de l'ensemble du territoire national, pourrait fournir des indications utiles pour aider les pays à évaluer et définir les options les plus appropriées pour leurs futures stratégies REDD+ nationales. Ainsi, comme reconnu par la décision 1/CP. 16 (III C paragraphe 73), une telle approche subnationale, représente une étape clé vers une transition au niveau national. Il est intéressant de noter qu'à l'heure actuelle, la majorité de la bibliographie existante qui traite de l'influence du foncier sur le mécanisme REDD+ identifie la sécurité foncière comme l'un des facteurs centraux déterminant les impacts sociétaux et environnementaux du REDD+.

La notion prépondérante émergeant des études publiées est que, lorsque la sécurité foncière sur les zones de forêt est précaire, le mécanisme REDD+ peut, soit, offrir des opportunités, ou bien, constituer une menace pour les communautés vivant dans ces zones. En effet, dans le premier cas, le mécanisme REDD+ pourrait permettre l'accélération de la mise en place de réformes foncières et ainsi par ce biais, améliorer la sécurité foncière des communautés locales, entre autres avantages. À l'inverse, dans le second cas, en vue de la mise en application du programme REDD+, les communautés pourraient se voir dépossédées de leur terre, exclues et marginalisées, principalement de deux façons. Tout d'abord, la mise en œuvre du programme REDD+ pourrait imposer communautés locales de justifier leur sécurité foncière par des titres de propriété comme condition préalable à leur participation au programme, ce qui serait susceptible d'avoir pour conséquence d'exclure les communautés les plus pauvres. Deuxièmement, une des modalités possibles du mécanisme REDD+ est un accord contractuel pour l'amélioration de la gestion des forêts aux travers de paiements pour des services environnementaux (PSE). Ce type d'accord PSE se réfère à une transaction volontaire d'un service environnemental ou à l'utilisation de terres bien identifiées entre un fournisseur et un acheteur, soumise à la condition que le fournisseur garantisse la réalisation de services environnementaux. Ainsi, l'accord exige que les fournisseurs de services

environnementaux détiennent les droits de propriété, ou au moins les droits d'exclusivité *de facto* sur les terres et les ressources qu'ils s'engagent à protéger ou à gérer de manière durable. Or, certains utilisateurs des terres dans les régions tropicales souffrent de l'insécurité foncière et des droits insuffisants. Il est donc peu probable que ces utilisateurs faisant face à l'insécurité foncière *de facto* soient admissibles à des financements de projets environnementaux tels que pour la séquestration de carbone.

Dans de nombreux cas, les régimes fonciers dans les forêts reste incertains et contestés par des revendications conflictuelles exprimées par le gouvernement et les communautés locales. Aujourd'hui, les gens qui vivent dans les forêts continuent de réclamer un régime foncier coutumier, c'est à dire transmis de manière ancestrale, même si l'état ne reconnait souvent pas ces revendications pour les zones de forêt. Il est donc crucial de comprendre la situation foncière actuelle et comment le mécanisme REDD+ pourrait affecter le régime de la propriété foncière ainsi que la façon dont les lacunes du droit foncier peuvent limiter la mise en œuvre efficace du REDD+. Par conséquent, il apparaît que la question de l'insécurité foncière est susceptible de présenter des risques importants pour la réussite à long terme du programme REDD+ et nécessite donc une attention toute particulière alors que les pays sont en train de développer leur stratégies REDD+ nationales.

Malgré une préoccupation nationale et internationale croissante sur les implications du programme REDD+ sur le foncier des communautés tributaires des forêts, peu d'études scientifiques ont tenté d'évaluer les liens entre les deux, et seulement quelques-unes ont analysé les études pilotes REDD+ en Thaïlande. Cette étude vise à combler ces lacunes en matière de connaissances et est basée sur une étude de cas en Asie du sud-est en mettant l'accent sur la Thaïlande, où coexistent *de jure* propriétés de l'Etat et le régime foncier *de facto*.

Cette étude repose sur deux principales questions de recherche. La première pose la question: « Est-ce qu'à l'heure actuelle, le cadre juridique en l'état, avec les droits coutumiers non reconnus, produit des effets similaires *de facto* pour toutes les communautés? », question basée sur l'hypothèse que les communautés révèlent différents impacts *de facto* en raison de contextes locaux distincts. La deuxième question de recherche demande: « Comment la mise en œuvre du programme REDD+ affecte le foncier *de jure* et *de facto* des communautés locales? » L'hypothèse correspondante est que la mise en œuvre de REDD+ permettrait de renforcer à la fois le droit et le foncier *de jure* et *de facto* des communautés locales. Par conséquent, la présente étude offre une analyse empirique de la situation foncière actuelle en Thaïlande ainsi que des résultats des premières interventions du projet REDD+. Cette étude

tire et discute également un ensemble de données afin d'enrichir le débat en cours sur la relation entre REDD+ et foncier, plus précisément en référence à l'impact du REDD+ sur les régimes fonciers, la réforme foncière et les programmes concurrents au REDD+.

Les données nécessaires pour répondre à ces questions, ont été collectées grâce à des méthodes primaires comprenant des enquêtes de terrain, des discussions de groupe, des entretiens en profondeur et une revue de la bibliographie existante. Neuf à dix participants du même sexe et de la même tranche d'âge étaient rassemblés par groupe de discussion en vue d'améliorer la représentativité des échantillons, avec un total de quatre groupes (39-40 participants) par communauté: hommes de 20-49 ans, femmes de 20-49 ans, hommes de 50-79 et femmes de 50-79. Des enquêtes ont été aussi menées sur les participants aux groupes de discussion. Les entretiens en profondeur ont été conduite auprès d'informateurs clés impliqués dans la mise en œuvre d'un cadre juridique foncier pour soutenir le projet pilote REDD+ dans la zone d'étude. Les personnes interrogées comprenaient des membres du comité des communautés, des responsables gouvernementaux, des organisations non-gouvernementales et les bailleurs de fonds, ce qui a permis de recouper, trianguler et enrichir les données obtenues à partir des communautés.

Un total de quatre communautés a été choisi pour l'étude. D'une part, deux sont réparties dans les régions du nord de la Thaïlande, incluant les communautés Mae Sa Mai et Mae Sa Noi qui ont été sélectionnes en raison de leur occupation de terrains forestiers appartenant juridiquement à l'état, et de leur implication dans un certain nombre de conflits fonciers locaux pour tenter d'améliorer leur sécurité foncière et la probabilité de développement PSE/REDD+ dans la région. D'autre part, deux communautés des régions de l'ouest de la Thaïlande, les communautés Ton Mamuang et Bongti Noi, qui ont été choisies en raison du statut juridique de leur foncier appartenant à l'état et de leur implication dans le projet BCI, considéré comme une des activités pilotes REDD+ de la Thaïlande selon R-PIN 2009.

En ce qui concerne la première question de recherche, les résultats obtenus confirment l'hypothèse de départ, en faisant ressortir deux principaux résultats qui contribuent de deux façons différentes à la connaissance existante sur la sécurité foncière *de facto,* dans un contexte où coexistent les systèmes fonciers statutaires et coutumiers sans liens formels. D'une part, ces résultats indiquent que, chez certaines communautés, le cadre juridique a donné lieu à l'insécurité foncière *de facto* des communautés locales, et, d'autre part, ils montrent aussi qu'un cadre juridique similaire a, au contraire, abouti à la sécurité du foncier *de facto* pour d'autres collectivités. En outre, ces résultats offrent un éclairage sur les raisons

potentielles de ces différents niveaux de sécurité foncière *de facto* observés chez les communautés locales.

Le premier résultat principal attrayant a la première question indique que, dans le passé, les quatre communautés étudiées ont indiqué que leur sécurité foncière *de facto* a été affectée par le cadre juridique, notamment la loi sur les parcs nationaux et la loi sur les réserves forestières nationales. En effet, la désignation des parcs nationaux et des réserves forestières nationales a été déclarée à l'échelle nationale sans aucune consultation publique préalable, dans le cadre de l'effort du gouvernement pour conserver les forêts. Ainsi établis, la plupart des parcs nationaux et des réserves forestières nationales se chevauchent néanmoins largement avec les installations préexistantes de nombreuses communautés locales. Ces deux lois ayant interdit l'occupation et l'utilisation des terres à l'intérieur des aires désignées, ont, par conséquent, rendu illégale l'occupation des terres par les communautés locales. Ainsi, suite à cette superposition des nouvelles institutions officielles sur les arrangements informels préexistants, la sécurité foncière des quatre communautés résidant à l'intérieur des terres forestières appartenant, de fait à l'état, a été contestée et les menaces d'expulsion forcée ont été adressées comme une conséquence du cadre juridique. Ces revendications conflictuelles, faites à la fois par l'état et les collectivités locales, ont conduit à de fréquents affrontements avec un sentiment d'amertume entre les deux parties, allant même dans le passé jusqu'à de violentes représailles par les communautés. Bien que la situation *de facto* du foncier a évolué au fil du temps et que certaines mesures de résolution des conflits ont été mises en œuvre, actuellement, les deux communautés de la région de l'Ouest sont restées généralement sans exclusivité vis-à-vis des autorités et redoutent encore des expulsions forcées. Par ailleurs, les autorités gouvernementales ont commencé à réguler la capacité des communautés à retirer des produits forestiers de la forêt communautaire. Ces résultats apparaissent en accord avec la littérature existante, suggérant les effets négatifs du cadre juridique sur la sécurité foncière *de facto* des communautés locales en Thaïlande à l'heure actuelle.

La seconde conclusion principale découlant de la première question de recherche est qu'actuellement, le foncier *de facto* de certaines communautés locales s'est amélioré, même sans progrès significatif du cadre juridique. Malgré le manque de reconnaissance juridique de leur propriété ou de titre d'ayant droit, les résultats de cette analyse montrent que les deux communautés étudiées dans les régions du nord de la Thaïlande, avaient le sentiment général que leurs propriétés foncières étaient garanties. Ces communautés semblent avoir compris et intégrer le fait qu'elles peuvent avoir des droits d'exclusivité contre tout utilisateur incompatible, y compris les autorités de l'état. En outre, la plupart des membres n'ont pas peur

de l'expulsion forcée de leurs installations. De plus, l'implémentation des règles régissant l'accès, l'utilisation et la gestion des forêts communautaires a été initiée et mise en œuvre par les communautés elles-mêmes, plutôt que d'être imposée par les autorités. Ces nouveaux résultats introduisent donc des nuances dans le débat en cours sur la sécurité du foncier des communautés dépendantes des forêts en Thaïlande. En même temps, ces résultats enrichissent le débat international sur la sécurité d'occupation des arrangements fonciers locaux en fournissant des preuves empiriques qui démontrent la présence de sécurité foncière *de facto* des communautés locales, même sans reconnaissance foncière légale. De plus, l'étude propose qu'un contexte local d'action collective forte, de réponse stratégique à l'insécurité foncière et d'assistance de médiateurs locaux, sont autant de facteurs qui façonnent le lien entre les arrangements fonciers locaux et la sécurité foncière *de facto*, dans les cas où le régime foncier coutumier n'est pas reconnu légalement.

Bien que les résultats concernant la deuxième question de recherche ne s'associent pas pour confirmer l'hypothèse correspondante, deux observations majeures en ressortent. Ces observations contribuent à la discussion sur les impacts du mécanisme REDD+ sur le foncier des communautés locales, en fournissant des preuves empiriques qui montrent la capacité limitée du REDD+ à faire progresser l'amélioration foncière, contrairement aux attentes exprimées par certains auteurs dans la littérature. En outre, sur la base de la mise en œuvre de l'expansion du parc national, qui a été répertoriée comme l'une des mesures REDD+ dans le R-PIN 2009, il est souligné que le programme REDD+ pourrait engendrer certains impacts négatifs sur le régime foncier des communautés locales, par le biais d'appropriation de la terre et le retrait des droits fonciers des communautés locales. En outre, l'étude met en évidence un obstacle tout autant ou plus préoccupant à la mise en application REDD+, que sont les programmes gouvernementaux concurrents.

En ce qui concerne la deuxième question de recherche, une première partie des principaux résultats obtenus indiquent que, contrairement à l'hypothèse initialement formulée et à un nombre croissant d'études selon lesquelles la mise en œuvre du mécanisme REDD+ inciterait à une accélération des réformes foncières, les avancées actuelles du projet pilote REDD+ en Thaïlande suggèrent que le mécanisme REDD+ pourrait, en réalité, ne pas être en mesure de fournir des incitations suffisantes, ni pour accélérer les réformes foncières ni pour améliorer la sécurité foncière des communautés locales. Dans les faits, les résultats obtenus révèlent que le foncier *de jure* et la sécurité foncière des deux communautés des régions à l'ouest de la Thaïlande, qui ont toutes deux participé au projet pilote REDD+ ou BCI, n'étaient pas vraiment affectés par le programme REDD+, malgré la demande de ces

communautés d'amélioration de leur sécurité foncière à travers ce projet. Par ailleurs, ces résultats montrent que le gouvernement Thaïlandais ne s'est pas engagé à clarifier sa position sur le régime foncier en vue de la mise en œuvre du mécanisme REDD+. Les conflits fonciers forestiers non résolus et l'exclusion potentielle des communautés locales impliquent un certain nombre de risques tels que le risque de réputation (être perçu comme soutenant des projets aux impacts sociétaux négatifs) et le risque de non permanence (émissions de gaz plus élevées à l'avenir en raison d'activités incompatibles avec les utilisateurs actuels des terres). Par conséquent, les risques d'investissement liés à l'insécurité foncière ont entraîné le retrait des investissements REDD+ et donc empêché la mise en œuvre complète du programme REDD+. Dans ce contexte, l'insécurité foncière qui prévaut dans les terres forestières représente donc un problème qui pourrait mettre en péril le succès à long terme du programme REDD+. Ainsi, ces résultats ne confirment pas l'hypothèse formulée initialement qui affirmait une amélioration de la sécurité foncière grâce au mécanisme REDD+.

La seconde partie des principaux résultats issus de la deuxième question de recherche indique que l'existence même de programmes concurrents aux mécanisme REDD+ pourrait être l'une des causes de l'absence de volonté politique forte de se lancer dans des réformes foncières, afin d'assurer et de pérenniser le succès à long terme du mécanisme REDD+. Ce manque de volonté et d'engagement pour faire progresser la clarification du positionnement politique sur le foncier a été observé au cours des dernières décennies durant lesquelles, le gouvernement Thaïlandais a été réticent à abandonner le contrôle des zones de forêt contenant de nombreuses ressources en bois précieux au profit des communautés locales, et a peu répondu aux demandes populaires initiées depuis les années 1990 appelant à la reconnaissance juridique des droits des communautés à la terre de la forêt. Cela a eu tendance à se poursuivre au cours des années récentes, même avec le développement du programme REDD+. De même, les efforts de lutte contre la déforestation, soutenus dans le cadre du REDD+, sont restés limités comme exemplifié par la justification du choix du site pilote. Cette situation pourrait probablement être expliquée par l'existence de programmes gouvernementaux concurrents. En effet, dans le même temps, un certain nombre de politiques et de priorités fondamentales, voulues par le gouvernement et se rapportant au secteur agricole, sont rentrées directement en concurrence avec la conservation des forêts en Thaïlande. En outre, un certain nombre d'études ont révélé un lien étroit entre la promotion de la culture de rente et la déforestation en Thaïlande au cours des dernières décennies. Par conséquent, en vertu de l'absence de volontés politiques fortes et de l'existence d'ordres du jour gouvernementaux concurrents, la convergence éventuelle de l'ordre du jour et des

politiques gouvernementales pour prévaloir le programme REDD+ semblent peu plausibles en Thaïlande en l'état. Dans ce cas, il est prévisible que les politiques contradictoires existantes ou à venir pourraient aller à l'encontre de l'effort de réduction des émissions des gaz à effet de serre provenant du secteur de la forêt, ou dans le pire des cas, engendrer la conversion des forêts dans des proportions qui pourraient causer l'augmentation des émissions nationales.

Sur la base des résultats et des discussions présentées, un certain nombre d'implications politiques, et de suggestions clés pour la création de conditions propices à l'établissement du programme REDD+ ont été tirées de cette étude. L'analyse du cas de la Thaïlande met en évidence qu'un régime foncier clair et sécurisé est une condition nécessaire à la réussite à long terme du projet REDD+ pour une gestion durable des forêts et l'amélioration des moyens d'existence des communautés. Cependant, des réformes foncières sans application effective de la part de l'exécutif pourraient engendrer des risques pour la réussite future de la mise en œuvre du programme REDD+, tout en exacerbant les inégalités actuelles pour l'appropriation des terres et des futurs bénéfices REDD+. Essentiellement, l'absence en vigueur d'une forte volonté politique implique que la réforme légale du régime foncier serait susceptible d'être lente, coûteuse et pourrait ne pas offrir les résultats attendus sur la sécurité foncière des communautés locales. Il advient ainsi, qu'offrir des mandats fonciers exécutoires pour les communautés locales pourrait être une mesure à long terme. Dans le court et moyen terme, le programme REDD+ nécessite des mesures immédiates pour permettre sa mise en œuvre rapide tout en faisant face aux pressions économiques en compétition, qui souhaitent la conversion des terres forestières pour d'autres productions agricoles et qui menacent de supplanter les incitations financières offertes par REDD+. Les mesures potentielles à court et à moyen terme comprennent:

Tout d'abord, les politiques nationales et le cadre juridique existants ainsi que les priorités du gouvernement pourraient être évalués par rapport à leur cohérence avec les objectifs du programme REDD+. Cela englobe les politiques dans tous les secteurs pertinents de la déforestation, tels que l'agriculture, l'exploitation minière, la foresterie et le développement des infrastructures. Par conséquent, les politiques avec des incitations contre productives, des lacunes juridiques ou des priorités conflictuelles, qui auraient des répercussions sur la déforestation et l'accès à la propriété des communautés locales dépendantes des forêts, doivent être identifiés. En réponse, des mesures provisoires correspondantes pourraient être établies pour stopper le développement non durable ou les arrangements fonciers instables, le temps que les priorités du gouvernement soient réévaluées.

Même si des changements juridiques de fond et des réformes foncières abouties sont nécessaires à long terme, l'identification, à court terme, de l'incohérence et de la mise en œuvre de mesures politiques provisoires pourraient également réduire la déforestation galopante et faciliter le développement du mécanisme REDD+ dans le cadre juridique existant.

Deuxièmement, en raison de la double absence de clarté sur le statut foncier *de jure* de l'occupation des zones de forêt par les communautés locales et sur la propriété des quotas de carbone, les programmes pilotes REDD+ pourraient être menés en tant que projets PSE dans un premier temps, ceci dans le but de se développer à long terme en un régime national PSE. L'utilisation des attributs PSE et des activités de compensation plutôt que des mandats carbones, non seulement, permettrait d'éviter la bureaucratie fastidieuse du carbone liée à la mesure, la vérification, la validation et la vente du carbone, mais aussi, les communautés locales bénéficiant déjà d'une gestion *de facto* suffisante et de droits exclusifs sur leurs propriétés, pourraient être inclues et bénéficier du PSE, sans attendre une clarification sur la propriété de carbone qui risquerait de les exclure en tant que bénéficiaires. Nos résultats suggèrent que les deux communautés du nord étudiées semblent avoir une gestion *de facto* et des droits exclusifs, et donc, être en mesure de s'engager dans un projet de protection des forêts à long terme, même sans la reconnaissance formelle de leur foncier par les autorités. D'après nos observations, ces communautés possèdent les attributs suivants:

- Une capacité de conservation de la forêt éprouvée. Par exemple, la création et la gestion par les communautés locales d'activités de reboisement et de conservation des forêts avec l'apport de preuves régulières de résultats positifs pour les forêts.
- Une action collective forte. Par exemple, l'application rigoureuse des règles communautaires régissant la gestion de la forêt.
- Des droits de gestion et des droits exclusifs *de facto*. Par exemple, la jouissance de l'autonomie et de la responsabilité principale dans le maintien et la gestion de la forêt communautaire, avec exclusivité vis-à-vis de tous les autres utilisateurs des terres incompatibles, y compris les autorités de l'État.
- Bonnes relations avec les autorités. Par exemple, l'établissement d'une relation de collaboration et de confiance mutuelle entre la communauté et les autorités locales pour la gestion forestière et l'application des lois.

Les communautés possédant les attributs requis ne devraient pas être négligées comme participants potentiels à la mise en place du projet REDD+, malgré le contexte actuel de non

clarification du régime foncier. Leurs efforts de conservation et de bonnes pratiques de gestion durable des forêts devraient être encouragés et être éligibles en tant qu'activités REDD+. En revanche, les communautés sans les attributs prescrits, obtiendraient certainement moins de succès dans un engagement au programme REDD+ ou à un accord contractuel pour la conservation des forêts à long terme, tant que l'officialisation de leur régime coutumier n'est pas réalisé. Une action collective faible et le manque de capacité éprouvée pour la conservation des forêts de la part de telles communautés, jettent ainsi des doutes quant à savoir si elles sont véritablement capables d'engager des activités de conservation des forêts. Il en résulte que, sans le droit *de facto* minimum d'exclure ou de gérer, la pérennité des activités de protection de la forêt à long terme pourrait ne pas être assurée. L'existence même de conflits en cours avec les autorités, exacerbés par le manque de confiance mutuelle, empêche les communautés de conclure un accord contractuel avec le gouvernement, en particulier le type d'accord prévoyant des récompenses après l'achèvement d'un projet plutôt qu'avant le démarrage d'un projet.

Idéalement, l'acquisition du titre de propriété communautaire, englobant à la fois la zone de forêt communautaire et les parcelles agricoles individuelles de chacun des membres de la communauté, conformément au règlement du Cabinet du Premier ministre régissant les titres de propriété communautaires, pourrait être accorde en tant que récompenses à l'achèvement d'une activité REDD+. Ce genre de récompense en nature devrait être développée parce que les paiements PSE seuls peuvent ne pas être suffisants pour inciter à l'utilisation des sols. Le document officiel, fournissant à la communauté les droits d'utilisation et de gestion sur la forêt communautaire et les terres agricoles, pourrait être révoqué si la forêt communautaire n'était pas bien entretenue ou si un membre de la communauté vendait les terres agricoles à des partis externes. En parallèle, ceci implique la modification de plusieurs lois contradictoires afin de rendre ce concept réalisable. Les activités liées au REDD+ pourraient alors être considérées comme des activités de reboisement ou d'entretien de la forêt et être menées en collaboration avec les autorités locales, qui seraient alors en charge de transférer le paiement et les responsabilités de mise en œuvre aux communautés locales, en conformité avec les législation portant sur les parcs nationaux et sur les réserves naturelles.

Troisièmement, en ce qui concerne le groupe de travail REDD+, tel que décrit par la R-PP soumis au FCPF en 2013, il semble déjà avoir un positionnement multi-ministériel et multisectoriel. Toutefois, plusieurs améliorations pourraient être apportées. L'ajout de membres ministériels supplémentaires, ayant une pertinence avec la déforestation et donc avec les enjeux du programme REDD+, comme le département de l'irrigation Royale

(construction de barrages), le département des industries primaires et des Mines (mines) et de l'Autorité du Tourisme de Thaïlande (tourisme), pourraient être inclus. De même, le secteur privé, incluant les principaux acteurs des industries agro-alimentaires, de l'énergie et de l'industrie du papier, devrait également être parties prenantes, à condition, étant donné que leurs rôles dans le groupe de travail REDD+ pourraient être bien définis. Plutôt que d'être un organisme distinct, le groupe de travail REDD+ devrait faire partie du Comité national sur le changement climatique afin de participer à l'élaboration du plan de politique national de lutte contre le changement climatique, et veiller à ce que ce plan soit cohérent au programme REDD+. En outre, le Comité, est présidé par le Premier ministre pourrait faire bénéficier le Groupe de travail REDD+ d'une autorité solide face aux politiques ou cadres juridiques contradictoires. De même, une coordination étroite entre le Groupe de travail REDD+ et l'unité gérant l'inventaire des gaz à effet de serre, devrait être mise en place afin de s'assurer que l'inventaire de ces gaz soit bien achevé dans les délais impartis. Pour cela, les instruments juridiques avec des marges de flexibilité comme les protocoles d'accord, les contrats ou accords officiels, pourraient être envisagés. Idéalement, l'équipe de l'inventaire des gaz à effet de serre, de l'agriculture, de la foresterie et autres secteurs utilisant des terres, devrait avoir des postes permanents pour s'assurer que les compétences techniques et la mémoire institutionnelle ne soient pas perdues, et, d'autres parts qu'il existe une continuité dans les cycles d'inventaire des gaz à effet de serre.

LIST OF ABBREVIATIONS

ADB	Asian Development Bank
ALRO	Agricultural Land Reform Office
BAAC	Bank for Agriculture and Agricultural Cooperatives
BCI	Biodiversity Corridor Initiative
COP	Conference of the Parties
CSO	Civil Society Organization
DNP	Department of National Parks, Wildlife and Plant Conservation
FAO	Food and Agriculture Organization of the United Nations
FCPF	Forest Carbon Partnership Facility
FIO	Forest Industry Organization
FORRU	Forest Restoration Research Unit
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
GMS	Greater Mekong Sub-region
GoT	Government of Thailand
GPS	Global Positioning System
Ha	Hectare
ITTO	International Tropical Timber Organization
LEAF	USAID Lowering Emissions from Asia's Forest Programme
LTPR	Land Tenure and Property rights Assessment Tool
MNRE	Ministry of Natural Resources and Environment
NESDP	National Economic and Social Development Plan
NGO	Non-government Organization
NP	National Park
NFR	National Forest Reserve
ONEP	Office of Natural Resources and Environmental Policy and Plan
ORIO	Facility for Infrastructure Development of the Netherlands
PTT	Petroleum Authority of Thailand
RaTA	Rapid Land Tenure Assessment
RECOFTC	Regional Center for People and Forest
RED	Reducing Emissions from Deforestation

REDD	Reducing Emissions from Deforestation and Degradation
RFD	Royal Forestry Department
RoSLC	Resolution on Solution to Land Conflicts in forest area
RoWC	Resolution on Watershed Classification
R-PIN	Readiness Plan Idea Note
R-PP	REDD Readiness Plan
SPK	Sor Por Kor
STK	Sor Tor Kor
TAO	Tambon Administration Organization
TCJ	Thai Climate Justice
THB	Thai Baht
UNDRIPs	United Nations Declaration on the Rights of Indigenous Peoples
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
WB	World Bank
WS	Wildlife Sanctuaries
WWF	World Wildlife Fund

ACKNOWLEDGEMENT

I am indebted to many people for taking their time to work with me on my PhD and thereby making it one of the most pleasurable and memorable experiences in my life. Without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of this long but fulfilling journey of my PhD, this thesis would not have been possible.

First and foremost, I would like to express my heartfelt gratitude to my supervisor, Dr. Alain Karsenty and my co-supervisor, Dr. Laurène Feintrenie. I could not have asked for better role models. Thank you for helping to shape and guide the direction of the work with your instructive comments. It has been a great honor and a real pleasure to work with you. I truly appreciate your continuous support, patience as well as encouragement.

Furthermore, I would like to thank my thesis committee members and examiners, Dr. Andrew Wardell, Dr. Mayay Leroy, Prof. Andreas Neef, Assoc. Prof. Jean-Phillipe Leblond and Prof. Catherine Potvin, for their thoughtful and detailed comments and for many motivating discussions.

Additionally, I have been very privileged to get to know and to collaborate with many other great people who became friends over the past years. I am grateful for Dr. Chayan Vaddhanaphuti of Chiang Mai University, Dr. David Ganz and Jeremy Broadhead of Lowering Emissions in Asia's Forests Program and Dr. Stephen Elliot of Forest Restoration Research Unit for their insightful information and local contacts that were helpful for my fieldwork in Northern Thailand. I would like to express my deep appreciation to Dr. Matieu Henry for his constructive comments and support throughout my PhD journey. To my CIRAD colleagues, long enjoyable discussions particularly Symphorien Ongolo, Gabriella Simonet and Sébastien Desbureaux that have improved my work and inspired many new research directions. I would also like to thank all other friends who have encouraged me throughout the entire PhD process.

The work on this thesis was supported by the French Government through the Bourse du Gouvernement Français scholarship, by CIRAD as my hosting institution in France and by Chiang Mai University as my hosting institution during my field study in Thailand. I would like to sincerely thank these organizations for their generous support.

I would not have come this far and contemplated this road if not for my parents, Malinee and Preecha, my sister, Neeruch and my grandma, Surahong, who instilled within me

a love of creative pursuits, science and language, all of which finds a place in this thesis. I am grateful for their infinite and unconditional love, dedication and support throughout every step in my life. Last but not least, I would like to thank Franck, my best friend, soul mate and husband, for his love, encouragement and support when I needed it the most. Thank you for bearing with me the brunt of frustrations, for sharing with me the joy of success and for always providing me with confidence for all the years that we have shared together. I owe my every achievement to my beloved family and husband.

This thesis is dedicated to my dearest parents,

my sister, my grandmother and my beloved husband.

TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION **1**
1.1. Brief introduction **1**
1.2. Definition **3**
1.2.1. Land tenure 3
1.2.2. Tenure security 5
1.2.3. REDD+ 6
1.3. Problem statement **8**
1.3.1. Local concerns over REDD+ 8
1.3.2. Literature on REDD+ and tenure linkage 10
1.3.3. Literature on tenure security in Thailand 12
1.4. Research objective, questions and scope **15**
1.4.1. Research objective 15
1.4.2. Research question 16
1.4.3. Research scope 17
1.5. Thesis structure **18**
CHAPTER 2 METHODOLOGY **19**
2.1. Study area **19**
2.1.1. Mae Sa Mai and Mae Sa Noi communities 19
2.1.2. Ton Mamuang and Bongti Noi communities 22
2.2. Sampling method **24**
2.2.1. Quota sampling 24
2.2.2. Purposive sampling 25
2.3. Data collection **26**
2.3.1. Survey 27
2.3.2. Focus group discussion 28
2.3.3. Semi-structured in-depth interview 30
2.3.4. Literature review 30
2.4. Analytical framework **31**
2.4.1. Assessment tool 32
2.4.2. Proposed analytical framework 34
CHAPTER 3 THAILAND, FORESTS AND REDD+ **36**

3.1. Country background **36**
3.2. History of forest politics **37**
3.2.1. Forest politics during the colonial era 37
3.2.2. Path dependency on struggle for rights to forest 39
3.3. Forest trends **40**
3.4. Drivers of deforestation and forest degradation **43**
3.4.1. Land conversion for agricultural production 43
3.4.2. Infrastructure development and mining 48
3.4.3. Illegal logging and forest product gathering 49
3.4.4. Uncontrolled forest fire 50
3.5. REDD+ in Thailand **50**
3.5.1. Significance of REDD+ 51
3.5.2. Progress of REDD+ 52
CHAPTER 4 LEGAL FRAMEWORK RELATED TO TENURE **56**
4.1. Laws on forest land and resources tenure **56**
4.1.1. Land law 56
4.1.2. Forest law 57
4.1.3. Forest land conflict resolution mechanism 61
4.1.4. Community forest 63
4.2. Summary **64**
CHAPTER 5 DE FACTO TENURE IMPACT OF LEGAL FRAMEWORK **67**
5.1. Past tenure situation **67**
5.1.1. Past tenure conflicts 67
5.1.2. Past efforts to solve tenure problem 69
5.2. Present tenure situation of Mae Sa Mai community **71**
5.3. Present tenure situation of Mae Sa Noi community **77**
5.4. Pressing concern and tenure preference **83**
5.4.1. Pressing concern 83
5.4.2. Tenure preference 85
5.5. Summary **85**
CHAPTER 6 DE FACTO TENURE IMPACT OF REDD+ **89**
6.1. Overview of pilot project activities **89**
6.1.1. BCI as REDD+ pilot 89

6.1.2. REDD+ activities performed 91
6.2. Tenure insecurity as obstacle to REDD+ 93
6.3. Past tenure situation 94
6.3.1. Past tenure conflicts 94
6.3.2. Past efforts to solve tenure problem 96
6.4. Present tenure situation of Ton Mamuang community 97
6.5. Present tenure situation of Bongti Noi community 103
6.6. Pressing concern and tenure preference 110
6.6.1. Pressing concern 110
6.6.2. Tenure preference 112
6.7. Summary 113
CHAPTER 7 DISCUSSION 115
7.1. Legal framework and tenure 115
7.1.1. Tenure of local communities in Thailand 115
7.1.2. De facto tenure security without titles 117
7.2. Tenure security and deforestation 120
7.2.1. Confirmation of Angelsen theory 120
7.2.2. Additional layer of tenure types 122
7.2.3. Self-constraint behavior of local community members 123
7.3. Tenure clarification and competing agenda 124
7.3.1. Tenure insecurity impact on REDD+ 125
7.3.2. Tenure reform 125
7.3.3. Competing agenda 127
CHAPTER 8 POLICY IMPLICATIONS AND CONCLUSION 131
8.1. Policy implications 131
8.2. Conclusion 136
8.2.1. Summary of findings 137
8.2.2. Research limitations 141
8.2.3. Suggestions for future research 142
CHAPTER 9 REFERENCES 144
CHAPTER 10 APPENDICES 162

LIST OF FIGURES

Figure 1 Map of Mae Sa Mai and Mae Sa Noi communities 20
Figure 2 Map of Ton Mamuang and Bongti Noi communities 23
Figure 3 Land Tenure and Property Rights (LTPR) Tool 33
Figure 4 Rapid Land Tenure Assessment (RaTA) Tool 34
Figure 5 Proposed analytical framework for the thesis 35
Figure 6 Forest area in Thailand during 1961-2008 41
Figure 7 Forest area, forest reserve area and protected area in Thailand during 1960-2010 43
Figure 8 Cultivation area of maize and soybean in Thailand during 1950-1990 45
Figure 9 Agricultural area and forest are of Thailand during 1961-2011 46
Figure 10 Cultivation area of palm oil during 1985-2009 47
Figure 11 Forest fire area during 1992-2013 50
Figure 12 Institutional arrangements for climate change policy-making 53
Figure 13 Access and withdrawal rights of Mae Sa Mai community 72
Figure 14 Management rights of Mae Sa Mai community 73
Figure 15 Exclusion rights of Mae Sa Mai community 74
Figure 16 Alienation rights of Mae Sa Mai community 75
Figure 17 Fear of eviction or withdrawal of rights to community forest of Mae Sa Mai community 76
Figure 18 Legal recognition of community forest of Mae Sa Mai community 77
Figure 19 Access and withdrawal rights of Mae Sa Noi community 78
Figure 20 Management rights of Mae Sa Noi community 79
Figure 21 Exclusion rights of Mae Sa Noi community 80
Figure 22 Alienation rights of Mae Sa Noi community 81
Figure 23 Fear of eviction or withdrawal of rights to community forest of Mae Sa Noi community 82
Figure 24 Legal recognition of community forest of Mae Sa Noi community 83
Figure 25 Pressing concern of Mae Sa Mai community 84
Figure 26 Pressing concern of Mae Sa Noi community 84
Figure 27 Tenure impacts analysis of Mae Sa Mai and Mae Sa Noi communities 88
Figure 28 Access and withdrawal rights of Ton Mamuang community 99

Figure 29 Management rights of Ton Mamuang community 100
Figure 30 Exclusion rights of Ton Mamuang community 101
Figure 31 Alienation rights of Ton Mamuang community 101
Figure 32 Fear of eviction or withdrawal of rights to community forest of Ton Mamuang community 102
Figure 33 Legal recognition of community forest of Ton Mamuang community 103
Figure 34 Access and withdrawal rights of Bongti Noi community 105
Figure 35 Management rights of Bongti Noi community 106
Figure 36 Exclusion rights of Bongti Noi community 107
Figure 37 Alienation rights of Bongti Noi community 108
Figure 38 Fear of eviction or withdrawal of rights to community forest of Bongti Noi community 109
Figure 39 Legal recognition of community forest of Bongti Noi community 109
Figure 40 Pressing concern of Ton Mamuang community 111
Figure 41 Pressing concern of Bongti Noi community 111
Figure 42 Tenure impacts analysis of Ton Mamuang and Bongti Noi communities 114
Figure 43 Proposed REDD+/PES model in Thailand 135

LIST OF TABLES

Table 1 Bundle of rights 4
Table 2 Tenure security criteria 6
Table 3 Composition of the REDD+ Task force Committee 53
Table 4 Watershed classification and area 60

LIST OF APPENDICES

Appendix 1 List of questions for Mae Sa Mai and Mae Sa Noi communities 162
Appendix 2 List of questions for Ton Mamuang and Bongti Noi communities 163
Appendix 3 List of questions regarding REDD+ implementation for NGOs, donor organizations and government authorities 165
Appendix 4 List of questions regarding REDD+ implementation for project developers and local key informants 166
Appendix 5 List of interviewees regarding REDD+ implementation 167
Appendix 6 List of questions regarding tenure-related legal framework implementation for local NGOs and local government authorities 167
Appendix 7 List of interviewees regarding tenure-related legal framework implementation 168
Appendix 8 Response of Mae Sa Mai community 169
Appendix 9 Response of Mae Sa Noi community 170
Appendix 10 Response of Ton Mamuang community 171
Appendix 11 Response of Bongti Noi community 172

CHAPTER 1 INTRODUCTION

This introductory chapter gives a brief outline of the research subject and problem. It also defines the key terms frequently used in the thesis. After reviewing the current body of literature related to tenure and REDD+ issue, the prevailing knowledge gaps are identified. Correspondingly, the chapter presents research objective, research questions to be addressed, hypotheses to be examined and scope of the thesis. The chapter ends with the structure of this thesis.

1.1. Brief introduction

Deforestation and other land use changes accounted for about 8% of global greenhouse gas (GHG) emissions in 2012 (Le Quéré, Peters et al. 2013). The effective mitigation of climate change by stabilizing atmospheric GHG concentration is therefore unlikely if the problem of forest loss is not addressed. As envisaged by the Cancun Agreements in 2010 as a result of the 16th Conference of the Parties (COP 16), REDD+ is a mechanism that could reduce emissions from deforestation and forest degradation, while delivering benefits such as conservation and sustainable management of forests and enhancement of forest carbon stocks by creating a financial value for carbon stored in forests as an incentive for developing countries (UNFCCC 2010).

As indicated in the COP decision 1/CP. 16 (III C Paragraph 73), REDD+ will be implemented in phases to allow the participating countries to take into account their national circumstances (UNFCCC 2010). Most countries are currently in readiness phase, which focuses on the development of national strategies, policies, capacity building and demonstration activities. During this stage of REDD+ development, thorough assessment of REDD+ pilots could provide lessons learned to support countries in assessing options for future national REDD+ strategies. Much of the existing literature that addresses the influence of tenure on REDD+ identifies tenure security as one of the crucial issues shaping social and environmental impacts of REDD+ (Unruh 2008; Sunderlin, Larson et al. 2009; Sikor, Stahl et al. 2010).

The competing notion emerging from the existing literature is that, where tenure security over forest is weak, REDD+ can pose threats or opportunities to local communities. On the one hand, REDD+ could help expediting tenure reform and thereby enhancing tenure security of forest-dependent communities, among other benefits (Larson, Corbera et al. 2010; Evans, Arpels et al. 2012; Larson, Brockhaus et al. 2013). On the other hand, in view of REDD+ implementation, the communities could be dispossessed, excluded and marginalized primarily in two ways. Firstly, REDD+ could insist on imposing tenure security through land titling as a prerequisite for participating local communities, the poor communities are likely to be excluded (Eraker 2000; Brown, Adger et al. 2004; Jindal, Swallow et al. 2008). Secondly, one of the potential modalities of REDD+ is a contractual agreement for improved forest management namely payment for environmental services (PES). It requires the providers of environmental services to hold property rights, at least *de facto* exclusion rights on land and resources they commit to protect or to manage sustainably (Wunder 2005; Wunder 2007). However, many land users in the tropics remain with perceived tenure insecurity and insufficient rights. (Wunder 2005; Wunder 2007). Therefore, it is doubtful whether the users with insecure *de facto* tenure would be eligible for benefits from carbon sequestration projects.

In many cases, tenure arrangements in forests remains unclear and contested with overlapping claims made by the government and local communities (Robinson 2008; Knox, Caron et al. 2011; Naughton-Treves and Day 2012). Today, people living in forests continue to claim customary tenure, even though states often do not recognize such claims to forest area. See, for example Galudra, van Noordwijk et al. (2011) and Colchester (2007). Therefore it is crucial to comprehend how REDD+ may affect existing land tenure regime as well as how weaknesses in tenure system may limit effective its implementation. The issue of tenure insecurity is likely to pose significant risks to the long-term success of REDD+ and henceforth requires additional attention as countries develop national strategies.

Despite the growing concerns over REDD+ implication on tenure as the subject of international and national debates, there are nevertheless very few scientific reports have attempted to assess the links between REDD+ and *de jure* and *de facto* tenure of forest-dependent communities and a limited number of studies based on the REDD pilot project of Thailand. This study therefore aims to fill in these knowledge gaps by using Thailand, where there is an apparent coexistence of *de facto* tenure rights and *de jure* state property, as a case

study. The study offers empirical evidences of REDD+ intervention outcome. It also provides lessons learned in order to enrich the on-going debate of REDD+ and tenure relationship. Despite being an early evaluation of the pilot project activities, the assessment could nonetheless generate valuable insights into the potential challenges and risks of REDD+, which could serve as a useful starting point in the process to improve its implementation across Thailand and other developing nations.

1.2. Definition

This section describes working definition of key terms intensively used in this thesis, they are: land tenure, tenure security and REDD+.

1.2.1. Land tenure

The nature of land tenure is defined in many diverse ways in each jurisdiction. One of the basic differences lies in the extent of ownership, exclusivity and alienability. Definition of land tenure in this thesis is based on the concept of land tenure as bundle of rights developed by Schlager and Ostrom (1992). The bundle according to Schlager and Ostrom (1992) comprises of access, withdrawal or use, management, exclusion and alienation rights. Access rights refer to the rights to enter a defined physical property (Schlager and Ostrom 1992). For example, if a group of travellers hold rights of access, they have the authority to enter a resource. Withdrawal rights are the rights to obtain products of the resources (Schlager and Ostrom 1992), such as timber and non-timber forest products from the forests. In other words, withdrawal rights authorize harvesting from a particular resource. Management rights allow the holder to regulate internal use pattern and transform the resource by making improvements (Schlager and Ostrom 1992). For example, the rights holder of forest resources may determine how, when and where timber harvesting and forest product gathering may occur. Furthermore the rights holder may also decide to adjust the land and make decisions on whether and where to plant or cut down trees in the area. The rights of exclusion authorize its holders to define requirements or qualifications of that individuals must meet in order to access the resource (Schlager and Ostrom 1992). This implies that the rights holder can not only determine who will have access and withdrawal rights but also exclude certain

individuals with incompatible use of the resource (Ostrom 2000). In application to forest resource, the rights holder can allow certain individuals to enter and use the forest area or collect forest products and can prevent other individuals with competitive use of the forest from entering and using the resource as well. Alienation rights represents the rights to transfer, sell or lease the resource (Schlager and Ostrom 1992; Ostrom 2000). Alienating the resources means that an individual transfers the rights of management, exclusion or both. Upon alienating such rights, the former rights holder can no longer exercise any authority related to the resource. However, in many developing countries, sales or transfer of rights to resources to descendants does not necessarily imply the complete transfer of rights as the previous owner may hold certain rights even after the transfer (Chauveau, Colin et al. 2006). Such situation generally generates conflicts and is referred to as incomplete contracts (Hart and Moore 1990) or imperfect commodification of land (Le Roy 1995). It should be noted however that only be able to transfer the rights of use and withdrawal is not equivalent to alienation rights that include both transfer of management and exclusion rights (Schlager and Ostrom 1992). This is because these rights are defined by others, who hold the rights of management and exclusion. Such rights holder is called an authorized user, who lacks the authority to devise his or her own harvesting rules.

Evidently, diverse tenure arrangements allocate different combination of rights to various actors; it is possible to have withdrawal rights described as usufructs, which give people the right to use lands or forests but not the alienation rights to transfer them (Schlager and Ostrom 1992). In other words, right holders may hold different rights that do not encompass the entire set of rights defined above. Unlike other resources where the five rights are generally independent of one another, in relation to forest resources, these rights are frequently held in an associated manner. For this thesis, land tenure composes of the following rights, as displayed in Table 1.

Table 1 Bundle of rights

Rights	Description
Access and withdrawal	To enter and make use of products of the resource
Management	To regulate internal use patterns and transform the resource
Exclusion	To determine who will have an access rights
Alienation	To sell, lease or transfer management rights or exclusion rights or both

Source: Adapted from Schlager and Ostrom (1992) and Ostrom (2000)

1.2.2. Tenure security

Tenure security is defined as the degree to which an individual or a group believes that its relationship to land or other resources is safe (Larson, Barry et al. 2010). Security does not refer to duration, marketability or breadth of rights over a piece of land; these are all components of a particular from of tenure (Sjaastad and Bromley 2000; Van den Brink, Thomas et al. 2006). According to the Food and Agriculture Organization (2006), unless people's rights to land are legitimated formally or informally by the social context, tenure security is not guaranteed. Tenure security can therefore be derived from formal and customary legal institutions and officials that give landholders recognition of their rights to land and confidence that these rights will be upheld. The erosion of tenure security can occur in the situations where authorities are not able to or do not wish to enforce land rights or where customary tenure regimes break down and lose legitimacy (FAO, 2006). Alternatively, it could occur in a situation, where *de jure* rights (rights originated from and enforced by the government) and *de facto* rights (rights originated among and enforced by resource users) overlap and in conflict (Schlager and Ostrom 1992). People whose tenure is insecure face the risk that their rights to land can be threatened by competing claims or even lost as a result of eviction. Without security of tenure, households are impaired in their ability to attain sufficient food and to enjoy sustainable rural livelihoods.

Conventional wisdom associates tenure insecurity with the absence of individualized land title. Formal titles that are recognized and enforced by the government implies security of land claim (Alston, Libecap et al. 1994). In other words, individualized land title equals tenure security (Feder and Feeny 1991; de Soto 2000). International development organizations such as the World Bank also has advocated this assumption (Whitehead and Tsikata 2003; Peters 2007). Reservations nonetheless have been expressed about the conventional concept of tenure security that also underlies the Bank's position. Writes Platteau (1996); (2000) among others, beneficial effects of individualized titling are over-estimated and community-based approach to tenure security is a preferable alternative. In application to Thailand, where individual title deed remains the supreme form of title document in terms of tenure security both among the local communities and the officials, presence of formal legal title deed is therefore considered in this thesis as one of the indicators for *de jure* tenure security. Additional to the absence of legal title, Angelsen (2007) on the

other hand defines tenure security by linking to possibility for eviction. Indeed, the degree of confidence that land users will not be arbitrarily deprived of the rights they enjoy over land and that the land users are protected against forced evictions is widely adopted as one of the indicators for tenure security (Feder and Onchan 1987; Bazoglu, Sietchiping et al. 2011). Following the concept, this thesis adopts fear of intergenerational eviction, which also implies withdrawal of rights to land, as one of the indicators of *de facto* tenure security (Table 2).

Table 2 Tenure security criteria

Criteria	Description
Legal recognition	The formalization of rights to customary land to members of local communities
Fear of eviction	The fear of potential intergenerational eviction and resettlement among local community members

There is an increasing recognition among development researchers that formal tenure is not always sufficient to impact landholders' decision-making, instead it is the perception of tenure is what matters (Broegaard 2005), c.f. widely accepted assumption that land titling equates tenure security (Feder and Feeny 1991; Deininger and Feder 2009). Therefore, the issue of tenure security – both *de jure* and *de facto rights* – has become the focus of many recent discussions.

1.2.3. REDD+

REDD+ is a mechanism that aims to reduce emissions from deforestation and forest degradation, while delivering benefits such as conservation and sustainable management of forests and enhancement of forest carbon stocks by ascribing financial value for carbon stored in forests in developing countries (UNFCCC 2010). Activities and objectives of REDD+ are described in paragraph 70 of the Cancun Agreements as (UNFCCC 2010):

"Encourages developing country Parties to contribute to mitigation actions in the forest sector by undertaking the following activities, as deemed appropriate by each Party and in accordance with their respective capabilities and national circumstances:

(i) Reducing emissions from deforestation;

(ii) Reducing emissions from forest degradation;

(iii) Conservation of forest carbon stocks;

(iv) Sustainable management of forest;

(v) Enhancement of forest carbon stocks "

Activities (i) and (ii) are known as REDD (Reducing Emissions from Deforestation and Forest Degradation). The latter activities, which constitute the 'plus' in the term REDD+, reflects an inclusion of activities that extend beyond the efforts to curtail deforestation and degradation. These activities under which they will be undertaken are both referred to as REDD+ in this paper.

Regarding historical development of REDD+, the mechanism was introduced to the international climate change debate originally in 2005; the Coalition for Rainforest Nations, led by Costa Rica and Papua New Guinea proposed an establishment of a mechanism called reducing emissions from deforestation (RED) in developing countries in the 11th COP (UNFCCC 2006). The principle idea of such mechanism was to address the challenge of global climate change, while providing developing countries with positive financial incentives for reducing emissions from their forest sector. The issue later turned into the central area of interest in the climate change debate in early 2007, fuelled by the publication of the United Kingdom government's Stern review on the economics of climate change. In his report, it is recommended that avoided deforestation measures should be included in the post-2012 commitment period under the United Nations Framework Convention on Climate Change (UNFCCC) as a cost-effective way of reducing greenhouse gas emissions (Stern 2007).

Reducing emissions from deforestation was then formally adopted in Bali Action Plan at 13th COP in 2007. Since its inception, the Parties to the UNFCCC have had extensive discussions about the scope of activities. From reduced emissions from deforestation or RED, the scope was expanded to REDD with additional consideration to forest degradation (UNFCCC 2006). Then the scope was broadened to further include forest conservation, sustainable forest management and enhancement of forest carbon stocks and named REDD+ because the added activities are also essential for achieving climate goals (Lawlor, Jenkins et al. 2010).

According to Bali Action Plan, the Parties committed to work towards climate change mitigation efforts that include: *"[…] Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries […]"* (UNFCCC 2008). The term REDD+ has since then gained considerable traction and was used in the Copenhagen Accord rather than RED or REDD to describe the international forest carbon policies to reduce emissions from

deforestation and forest degradation under the UNFCCC (UNFCCC 2009). The text emerged from COP 17 in Durban, South Africa in 2011 focuses principally on REDD+ financing, reference levels and safeguards. Although REDD+ decisions in important topics related to financing, verification, safeguards, drivers of deforestation was not decided in COP 18, REDD+ negotiations at COP 19 at Warsaw was regarded as a considerable progress. The decisions adopted provide pave the way towards the full implementation of REDD+ activities on the ground (UNFCCC 2013). The outcome provides a foundation for transparency and integrity of REDD+ action, clarifies way to finance REDD+ activities and how to improve coordination support (UNFCCC 2013). The Warsaw Framework for REDD+ is backed by pledges of 280 million USD financing from the United States, Norway and the United Kingdom (UNFCCC 2013).

1.3. Problem statement

This section begins by outlining the prevailing concern about potential negative impacts of REDD+ on tenure of local forest-dependent communities in Thailand, as primarily voiced by non-government organizations (NGOs) and civil society organizations (CSOs). Then, the existing literature related to prescribed concerns – relationship between REDD+ and tenure security – was examined and existing knowledge gaps were identified.

1.3.1. Local concerns over REDD+

The concern about potential REDD+ impacts on local forest-dependent communities has been increasingly vocal in Thailand in recent years. At the Bangkok Climate Change Talk 2009, REDD+ was widely understood by the Thai participants that its revenues would create incentives for the government to strengthen its control of forest resources and thereby threatening the rights to forest resources of local communities, or worse, to evict them out of the area (Goldtooth and Miller 2009; IWGIA 2009). During the Talk, the representative of the Network of Indigenous People of Thailand expressed a concern; despite the demand for all countries to uphold the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIPs), which recognizes free, prior and informed consent as a prerequisite for resettlement or any project or legislation that may affect them, these principles to safeguards

their rights were ignored (Goldtooth and Miller 2009). This growing concern led to the rejection of REDD+ mechanism by the Thai public in 2011 during consultation process for the draft of national master plan on climate change (ONEP 2011). Principally, the public feared that REDD+ would negatively impact tenure security and access to forest resources of local forest-dependent communities (ONEP 2011).

Similarly, at the Indigenous Peoples' Dialogue held in 2012 in Bangkok, one of the key points emerging from the plenary sessions was the concern about land grabbing in the name of conservation and national policy reform (AIPP 2012). A recommendation was made to the UN-REDD Programme to place more attention on the recognition and exercise of indigenous peoples' rights to their land and forest resources (AIPP 2012). In line with the concerns, attendants of the 2012 Policy Dialogue on Forest and Land Tenure Review and Reform organized by the Regional Center for People and Forest (RECOFTC) collectively agreed on the urgent need for forest and land tenure policy reform in Thailand in order to ensure fair and sustainable management of forest resources (Srivijittakar 2012) and to enable REDD+ implementation.

The issue became under the limelight following the public consultation on the REDD Readiness Plan (R-PP) draft in March 2013. Many of those who took part in the consultation believed that REDD+ might further weaken the tenure security of local communities (GoT 2013). The draft was principally criticized that the prevailing tenure conflict situation was under-represented and potential avenues to enhance tenure security of the local forest-dependent communities was not provided. According to a local NGO, appropriate safeguards and tenure clarification are deemed as a prerequisite to any REDD+ activity in Thailand and without them, it is most likely that REDD+ would worsen tenure of local communities (Pornpana Kuaycharoen, personal communication, 12 July 2013). Other key organizations related to REDD+ development in Thailand, notably the Lowering Emissions from Asia's Forest or LEAF program (Somsak Soonthornnawaphat, personal communication, 1 August 2013), RECOFTC (Regan Suzuki, personal communication, 15 July 2013) and World Wildlife Fund or WWF (Justin Foster, personal communication, 11 July 2013) also agree that supportive legal framework particularly tenure clarification and carbon ownership is deemed essential in making REDD+ development viable in Thailand.

1.3.2. Literature on REDD+ and tenure linkage

The competing notion emerging from the existing literature is that, where tenure security over forest is weak, REDD+ can pose opportunities or threats to local communities. On the one hand, REDD+ could help strengthening tenure security of local forest-dependent communities by expediting tenure reform or addressing the prevailing threats to the integrity of customary territories via REDD+ policies.

Evans, Arpels et al. (2012) use empirical evidences from Cambodia to substantiate the concept of tenure reform as one of REDD+ benefits. The study reports that the local forest-dependent communities have high perceived tenure insecurity and faces increasing external threat to their forest resources (Evans, Arpels et al. 2012). Based on the assessment of the REDD+ pilot sites called Seima Protection Forest REDD, the study documents the presence of strong government intent to enhance tenure security of customary rights holders (Evans, Arpels et al. 2012). Strategies to promote customary tenure recognition and issuance of indigenous communal land titles were observed (Evans, Arpels et al. 2012). The study highlights that REDD provides an impetus to accelerate tenure security enhancement process in Cambodia, against the backdrop of tenure insecurity of local forest-dependent communities (Evans, Arpels et al. 2012).

Likewise, another REDD+ pilot assessment study conducted in Brazil reveals similar results. Larson, Brockhaus et al. (2013) claim that REDD+ compounded by other drivers has led the Brazilian government to launch the land tenure formalization program, called the Legal Land Program. The program aims to grant titles to about 300,000 actual land users in non-designated public land, thereby increasing their tenure security (Larson, Brockhaus et al. 2013). The tenure security enhancement would nonetheless be conditional to the compliance with Brazilian Forest Code in order to ensure forest conservation performance (Larson, Brockhaus et al. 2013). In the case of Brazil, the study points out that REDD+ has provided an incentive for the government to materialize tenure regularization as one of the readiness activities (Larson, Brockhaus et al. 2013).

The study of Larson, Corbera et al. (2010) offers another avenue of how REDD+ could be helpful in accelerating tenure security improvement for local forest-dependent communities. By carefully design REDD+ policies to address the major drivers of deforestation and forest degradation, which in many cases also be the threats to the integrity

of customary territories, REDD+ could be helpful in securing the borders of customary territories (Larson, Corbera et al. 2010). Moreover, by providing REDD+ payments to the local communities, the REDD+ funds could strengthen the constitution of indigenous territories as political, social and economical entities (Larson, Corbera et al. 2010).

On the other hand, a number of scholars proposes an opposing view of REDD+ impact on tenure, arguing that the local forest-dependent communities could be dispossessed, excluded and marginalized largely in two ways.

Firstly, when REDD+ programs insist on imposing tenure security through land titling as a prerequisite for participating local communities, a great portion of local communities that remains without formal title documents is likely to be excluded. Empirical data obtained from carbon forestry project in Uganda proposes that the local forest-dependent communities, who are the land users in State-owned land, are excluded from the carbon benefits and would potentially be evicted from the present land use area (Eraker 2000). The 50-year concession of commercial plantation and carbon offsets generation was granted to the Norwegian company called Tree Farms AS by the Ugandan government. Provided that the State is the legal owner of the concession area, the actual land users are deemed illegal squatters (Eraker 2000). In light of the project implementation, the land users of about 8,000 people are prohibited from entering and using the concession area for framing, forest product gathering, cattle grazing and fishing (Eraker 2000). The study also documents that the government would be responsible for evicting the illegal squatters, as suggested by the Norwegian company (Eraker 2000).

Conforming to the findings of Eraker (2000), Brown, Adger et al. (2004) conclude that carbon sequestration projects that require clear and secure tenure as eligibility criteria to access carbon funds often are weighted against the local forest-dependent communities. The communities generally have less formal rights to forest resources and are henceforth bypassed as participants and beneficiaries to carbon forestry projects. The study offers empirical results of forestry Clean Development Mechanism projects that exhibit inequitable distribution of carbon forestry benefits (Brown, Adger et al. 2004). Only relatively well-off farmers with secure individual property rights to forest land are more likely to be beneficiaries (Brown, Adger et al. 2004).

Jindal, Swallow et al. (2008) alike suggest that using secure tenure as a prerequisite would undeniably exclude the local communities, who by and large do not possess secure title

document. Additional to the issue of exclusion from carbon forestry benefits, the study claims that REDD+ payments although intend to augment the value of standing forest, they might as well enhance the political incentives to confiscate the forest by influential groups or the government (Jindal, Swallow et al. 2008). Henceforth, the local communities might end up with limited use rights or might be evicted from their current land use area (Jindal, Swallow et al. 2008).

Secondly, when discussing about PES, which is one of the potential modalities of REDD+, minimum rights such as management and exclusionary rights are one of the preconditions for engaging in PES contractual agreements for keeping the forests. This implies that local communities without sufficient rights would undeniably be excluded. According to Wunder (2005, 2007), one of the minimum requirements for PES participants as proposed is having *de facto* land and resource use control. The participants do not necessarily hold the *de jure* rights to resources. This implies that informal land users whose land claims are widely recognized and respected can be eligible for PES even without formal tenure (Wunder 2005; Wunder 2007). Land users whose tenure is perceived as insecure or weakly enforced cannot be efficient service providers, since external agents can predictably occupy the land or harvest the resources and long-term conservation performance could not be guaranteed (Wunder 2005; Wunder 2007). The local forest-dependent communities with poor *de facto* tenure security and/or open-access resources type thus could potentially be excluded.

To date there has been little agreement on the REDD+ and tenure debates, where tenure security of local forest-dependent communities is poor. There are growing concerns over REDD+ implication as the subject of international and national debates. Most concerns voiced in Thailand are likely to stem from international experiences, rather than reliable evidence from the field in the country. So far too little attention has been paid to assess the outcome of REDD+ pilot implementation in the country. This thesis seeks to address the knowledge gap by examining the links between REDD+ and tenure of local forest-dependent communities based on the REDD+ pilot project in Thailand.

1.3.3. Literature on tenure security in Thailand

A considerable amount of literature has been published on the topic of tenure security of local forest-dependent communities in Thailand. Conventional wisdom associates local forest-

dependent communities in Thailand with severe tenure insecurity due to the legal framework that does not reflect the land use realities.

Due to the lack of legal title document and possibility of eviction in corresponding to the existing legal framework, the study reports that tenure insecurity of local communities located inside the State-owned forest land is widely observed (Brenner, Buergin et al. 1999). Brenner, Buergin et al. (1999) moreover identify that demand for secure land title was a major concern among local communities and suggest that communal tenure should be considered as an alternative to facilitate sustainable community forest management (Brenner, Buergin et al. 1999).

Owing to the contradictory forest laws, most local forest-dependent communities in Thailand have no formal rights to protect their community forest, provided that the land legally is part of the national forest reserve (NFR) or national park (NP) designation (Ganjanapan 2000). The lack of formal recognition of customary tenure system and of local community forest management results in tenure insecurity of the local communities (Ganjanapan 2000). The study provides an observation of attempts by several local communities in recent years to exercise their rights to community forest, mostly by resorting to rituals notably forest ordination (Ganjanapan 2000). The outcome of such attempts was however not assessed.

Neef (2001) and Neef, Onchan et al. (2003) depict the pervasive tenure insecurity among the local communities principally due to the national forest policies that declare the overlapping rights to land. A number of improvement in local practices related to soil erosion control measures and modification in agricultural practices, e.g. planting fruit trees and perennial crops, abandoning fallow systems and conversion of rain-fed land into paddy fields were reported (Neef 2001; Neef, Onchan et al. 2003). The papers highlight that such activities represent attempts to enhance the communities' tenure security, particularly in light of the prevailing threats of relocation during the time (Neef 2001; Neef, Onchan et al. 2003). Given that the issue is beyond the scope of the study, the detailed analysis of *de facto* or perceived tenure security following the implementation of such measures was not provided in the studies.

Successive developments in national forest policies since the 1960s place restrictions and limitations on rights of the local communities inside State-owned forest land (Walker 2001). Walker (2004) elaborates that the government conservation policies that do not reflect

the local resource-use realities resulted in many local communities were found to be located inside forest reserves. Consequently, many of them remain without any formal tenure recognition (Walker 2001; Walker 2004). The absence of formal recognition of customary tenure resulted in tenure insecurity among the local communities (Walker 2001; Walker 2004). Tenure insecurity of the local communities was further compounded by persistent government program to relocate local communities inside the State-owned forest land to less environmentally sensitive location (Walker 2004). Despite reporting the widespread tenure insecurity and relocation of many local communities, the study also notes that a few of them successfully resisted the forced relocation. Further analysis of such implied *de facto* tenure security was however not discussed (Walker 2001).

In the review of existing regulatory framework on natural resources management, Lasimbang and Luithui (2005) and Lasimbang (2006) describe prevalent tenure insecurity of local communities living inside State-owned forest land as a consequence of centralized, top-down policy-making process by the government without sufficient attention to the local land users. The study identifies the State's denial of citizenship to indigenous hill people as one of the causes of tenure insecurity of local communities in the Northern region. Attempts to enhance tenure recognition by a few local communities were mentioned but the change of perceived tenure security following the attempt was not described.

By contrast to the prevailing absence of *de facto* or perceived tenure security assessment of local communities in the current body of literature, Feder and Onchan (1987) calculates lifetime eviction probability of illegal squatters in State-owned land. The study compares the lifetime eviction probability between the legal land users with formal title document and illegal squatters in State-owned land without any formal title document (Feder and Onchan 1987). The study found that even though the probability of the illegal squatters is higher than the legal one, which was close to zero, the probability is rather low (7.5%) (Feder and Onchan 1987). The study notes that forced evictions of illegal land users even without any title documents became rare as resettlement programs created considerable political costs to the government (Feder and Onchan 1987).

Even though the conventional wisdom dominates discussion of tenure security of local forest-dependent in Thailand, local activities to enhance *de facto* tenure security by certain communities that were briefly mentioned by Ganchanapan (2000), Neef (2001), Walker (2001) Lasimbang and Luithui (2005) and Lasimbang (2006). In combined with Feder and

Onchan (1987), these studies imply that the present *de facto* tenure security may be different from the dominant idea of prevalent *de jure* and *de facto* tenure security in the country. Therefore, before making the linkage between REDD+ and tenure security in the context of Thailand, it is crucial to understand the actual situation of *de jure* and *de facto* tenure security of local forest-dependent communities in the country as well as in the REDD+ pilot site. In response to the lack of recent research with an updated, comprehensive assessment of different aspects of rights and tenure security of local communities and to a limited number of studies conducted on the REDD+ pilot site in relation to tenure security, the study aims to fill in the knowledge gap.

1.4. Research objective, questions and scope

This section describes the research objectives and research questions of this thesis along with corresponding hypotheses.

1.4.1. Research objective

The central objective of this thesis is to explore feasible avenues of REDD+ implementation by examining the relationship and interaction between legal framework related to land tenure and REDD+. More specifically, in response to the gaps in previous research on REDD+ and tenure in Thailand, the thesis aims to provide a comprehensive analysis of *de facto* tenure security of local communities in relation to domestic legal framework and a thorough assessment of how potential threats of REDD+ to local forest-dependent communities and land tenure are entrenched at the domestic level. To meet the research objective, the following issues are investigated:

- The legal framework relevant to tenure of local communities
- The actual impacts of existing regulatory framework on communities and *de facto* tenure of local communities
- The relationship between REDD+ pilot project and tenure of local communities as described in REDD+ policies and strategies

- The actual impacts of REDD+ pilot project activities on *de facto* tenure of local communities
- The relationship and interaction between REDD+ and land tenure

1.4.2. Research question

To fulfill the research objective, an overarching research question of this thesis is: "What are the relationship and interaction between existing tenure-related legal framework and REDD+ and what are their impacts on tenure of local communities?" Based on the overarching research question, two research questions will be explored:

Question 1**:** Does the present legal framework with non-recognized customary rights produce similar *de facto* impacts in all communities at present?

- What are the present legal frameworks with relevance to tenure of local forest-dependent communities in State-owned forest land?
- What were the *de facto* impacts of the tenure-related legal framework in the past?
- What are the factors leading to different *de facto* impacts of tenure-related legal framework among communities at present?

Hypothesis 1**:** Communities reveal different *de facto* impacts due to different local context.

Question 2: How has REDD+ implementation affected *de jure* and *de facto* tenure security of local forest dependent communities?

- What is the expected outcome of REDD+ in relation to tenure security of local communities?
- What is the actual outcome of REDD+ in relation to tenure security of local communities?
- What is the interaction between REDD+ and tenure security that could explain the deviation of the final result from the expected outcomes?

Hypothesis 2**:** REDD+ project activities positively impact tenure security of local forest communities.

1.4.3. Research scope

The scope of this research is restricted to land tenure and REDD+. Specifically, the research focuses on the *de facto* tenure of local communities from the aspects of access, use, management, exclusion and alienation rights, formal tenure recognition and fear of eviction or withdrawal of rights. Regarding tenure for agricultural land of the four communities studied, it appears that the community members have individual rights to access, use and manage the land with certain limitations, e.g. cutting down perennials and the use of heavy machinery for land preparation are forbidden. They also have *de facto* rights to informally transfer the land via inheritance but cannot sell it to non-community members. All four communities similarly do not have any formal recognition of their rights to agricultural land. For community forestland, the four communities studied appeared to have collective rights to access, withdraw and manage the forest area with certain limitations. They could also transfer these rights to the next generation informally, as the four communities did not have any formal recognition of their rights to the community forest, but they could not sell the land.

From the perspective of REDD+, land tenure of community forest area is of the essence. This is because community forest is where the potential REDD+ activities, namely reforestation, avoided deforestation, maintenance of forests, could occur, as opposed to agricultural area under cultivation. It is also worthwhile to mention that if reforestation activities were to take place in the name of REDD+, based on the information obtained from the four communities studied, it is most likely would occur in non-agricultural area of the members. Potentially, such activities could be conducted in degraded forest area within the community vicinity. Existing limitations of reforestation activities should however be noted. For the two northern communities, many reforestation activities in such area were conducted to the extent that nearby degraded area is no longer available. The reforested area are managed and maintained principally by the DNP officials and FORRU. For the two western communities, reforestation activities that were conducted in the nearby degraded forest area were maintained and managed solely by the DNP officials and ended up with frequent forest fire occurrences due to limited budget and staffs of the DNP for monitoring and maintenance. The issue of limited and insufficient agricultural land in combined with inability to expand the area further is commonly voiced by the four communities. Unless financial benefits from REDD+ are considerably more attractive than the benefits from agricultural production,

provided the low carbon price at present it is unlikely that REDD+ activities, i.e. reforestation, would involve agricultural land. The assessment of tenure for the purpose of this thesis therefore concentrates on tenure related to community forest area of the local communities studied.

The geographical setting for this research is in Thailand. The focus of the empirical part of the research is on four selected communities in Thailand: Mae Sa Mai and Mae Sa Noi communities in the Northern region and Ton Mamuang and Bongti Noi communities in the Western region.

1.5. Thesis structure

The first chapter introduces the study by elaborating on the problem statement, the research objectives and questions for the thesis as well as the structure of the study. Chapter two discusses the methodology adopted for this study. It consists of study area description, research strategy and methods used for data collection. Chapter three outlines the background on REDD+ development in Thailand and provides the information on the country's forest status at present and past development. It also presents the current major drivers of deforestation. Chapter four reviews and assesses the existing legal framework and its implication on tenure security of local forest-dependent communities. Chapter five and Chapter six present research findings and analysis with particular reference to case study area. The seventh chapter discusses the main findings as well as its significant contribution to the literature in a corresponding manner to the research questions and objectives, as outlined in the first chapter. Chapter eight concludes the study by providing policy implications, summarizing major findings and outlining research limitations as well as recommendations for further studies.

CHAPTER 2 METHODOLOGY

This chapter describes the research area by providing the background of the four selected communities alongside the rationales for the selection. It also presents and justifies the methodological approaches chosen for drawing samples from the interested population and for collecting data from those samples. The chapter then discusses about the analytical framework used in this thesis.

2.1. Study area

This section introduces the research area of Mae Sa Mai, Mae Sa Noi, Ton Mamuang and Bongti Noi communities. Additionally, it provides background information of the selected communities as well as the reasons justifying the selection of the communities as research area.

2.1.1. Mae Sa Mai and Mae Sa Noi communities

The study area of Mae Sa Mai and Mae Sa Noi communities are located in the North of Thailand, in Mae Rim district of Chiang Mai province within the boundary of the Mae Sa-Kog Ma Man and Biosphere Reserve. The Reserve was designated as one of the four Man and Biosphere Reserve sites in Thailand by the United Nations Educational, Scientific and Cultural Organization in 1977. The Reserve is located in Chiang Mai province of the northern region. Additional to two main watershed areas, the Reserve encompasses a large portion of two national parks (NP) and four national forest reserves (NFR): Suthep-Pui and Khun Khan NPs and Doi Suthep, Mae Khan and Mae Wang, Sameong and Ta Chang and Mae Kanin NFRs. The geographical location of the two communities is illustrated in Figure 1. The location of the communities is characterized by steep slopes, which are dissected by V-shaped valleys. The two communities are situated at 1,200 meters above sea level in Mae Rim district in the north of Chiang Mai province (FORRU 2009), with a large part of the land having slopes over 35%.

Primary reasons for justifying this study site were the findings from existing literature indicating tenure conflicts due to its status as national park and national forest reserve

designation, in other words, State-owned forest land and past attempts of the communities to enhance their tenure security. Moreover, there was a high likelihood of future REDD+ pilot project development in the area, based on personal communication with relevant government official (Rungnapar Pattanavibool, personal communication, 11 May 2012). Even though the two communities have to a certain extent been studied, information on the present *de facto* tenure situation from the aspects of rights to access, withdraw, exclude and alienate, legal recognition and fear of eviction or withdrawal of rights from the community forest is not readily available in the current literature. Moreover, a thorough analysis of the key drivers of tenure changes of the two communities remained absent. Such information is indispensable in understanding the relationship between tenure and legal framework in the context of REDD+. For these reasons, further fieldwork to be conducted on the communities is justified. It should be noted that even if the two communities share certain similar local features that met the selection criteria, the communities also have differences with regards to community forests. Firstly, the two communities have a clearly separated area of community forest for household consumption. Secondly, the two communities do not share local administration overseeing the community forest, e.g. village head, village committee members. Thirdly, the two communities have independent decision-making concerning the maintenance and management of the community forest. Altogether, this implies that tenure arrangement for the community forest of each community, which is at heart of this study, could be different. It is therefore worthwhile to investigate tenure evolution and arrangements of the two communities.

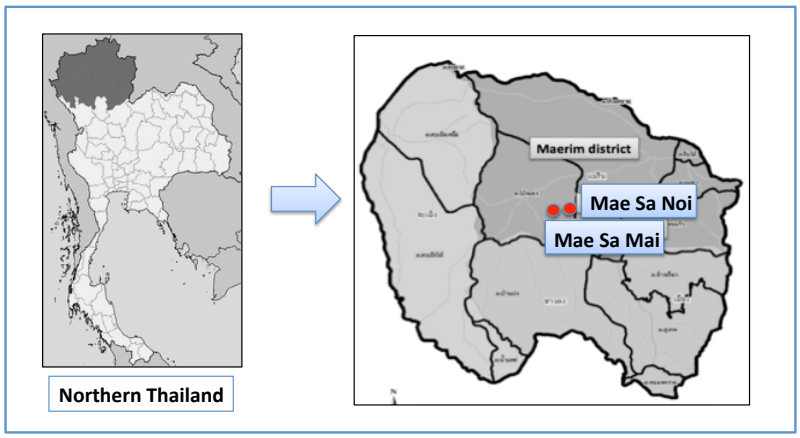


Figure 1 Map of Mae Sa Mai and Mae Sa Noi communities
"droits réservés"

Mae Sa Mai and Mae Sa Noi communities are home to Hmong descendants, which are one of several ethnic groups in Northern Thailand. Hmong and Thai languages are used as primary means of communication in the community. The Hmong originally came from the

mountainous area of Southern China. The history of Hmong had a strong link to opium cultivation as producers since the loss of China in the Second Opium War (Renard 1997). Due to the fact that opium can only be grown for up to fifteen to twenty years on the same land, the Hmong were in regular migration (Delang 2002). This had in part driven them to move from China to Vietnam, Laos and Thailand, where they continued to grow opium (Geddes 1976). Passing through Laos, the Hmong entered into Northern Thailand and settled down since 1850. In 1965, a Hmong community was founded under the name of Mae Sa (the area later called the Old Mae Sa or Mae Sa Kao) near the present settlement but at a higher elevation. The community then relocated to the present area after their prime source of water supply dried up in 1965 (Totrakul 2003) and named the new settlement as New Mae Sa or Mae Sa Mai community.

Given its small size and limited population during the initial years after establishment, the community was originally recognized as part of the neighboring community, Pong Yang Nok. For all administrative matters, Mae Sa Mai community relied on Pong Yang Nok community (Totrakul 2003). Nine years later, Mae Sa Mai community became more populated and was consequently legally separated from Pong Yang Nok community (Totrakul 2003). Mae Sa Mai community received its legal recognition as a community in accordance with the Local Administration Act in 1973, prior to the demarcation of the area as part of Suthep-Pui NP in 1981, Watershed class 1A in 1982 and yet after the inclusion of the area as part of Doi Suthep NFR in 1964. In 1992, parts of the settlement were expropriated in order to create the Queen Sirikit Botanical Garden in the area and the community received compensation of about 124,000 USD[1] in return (Totrakul 2003). Later primarily owing to the increase in population of the community, the community was sub-divided for administrative purpose and Mae Sa Noi community was officially created in 2004.

Traditionally, the community members conducted shifting cultivation with one to two years of rotation period. Additional to growing peach and opium poppies for commercial purpose, the community members planted cabbage for sale, corn for animal feed and rain-fed rice for household consumption. During the 1970s, opium cultivation began to be phased out predominantly attributable to the combined efforts of the Department of Public Welfare and the Royal Project Foundation. In 1973, the Department of Public Welfare introduced the concept of cold climate fruits and vegetables or cash crops. Since 1974, the Royal Project Foundation has provided Mae Sa Mai and Mae Sa Noi communities with technical support

[1] Exchange rate of 1 THB equals to 0.031 USD (5 December 2013)

and market access to materialize cash crop cultivation as an alternative livelihood to opium cultivation.

Forest clearance occurred as part of the transition from opium cultivation to cash crops. Its effect was gradually becoming evident in terms of increased erosion, landslide, drought and wildlife extirpation (FORRU 2009). In response, since 1997 the community members have assisted the Forest Restoration Research Unit (FORRU) in forest conservation activities. In 2013, the main occupation of the communities was agriculture, followed by commerce and labor at the Queen Sirikit Botanical garden and in Chiang Mai city. Additional to Lychee orchards, which chiefly dominated the cultivation area in 2013, the community members also grew a variety of vegetables and fruits including cabbage, Chinese cabbage, carrot, potato, bell pepper, chayote, tomato and coffee. The choice of these vegetables and fruits constantly changes in direct response to market prices. In 2012, Mae Sa Mai and Mae Sa Noi communities had a population of 1,210 (132 households) and 707 (92 households) respectively. Regarding religion, the majority of the population was Buddhist, followed by Christian.

2.1.2. Ton Mamuang and Bongti Noi communities

Ton Mamuang and Bongti Noi communities are located in Sai Yok district of Kanchanaburi, a province of Western Thailand. Both communities participated in the Biodiversity Corridor Initiative (BCI). The BCI was located in Tenasserim range connecting the Western Forest Complex consisting of eleven national parks and six wildlife sanctuaries and Kaeng Krachan Forest Complex consisting of two national parks and one wildlife sanctuary (Pattanavibool and Moinuddin 2009). As of 2013, the activities of the BCI were concentrated on four clusters: Sai Yok, Suan Phueng, Tanaosri and Ban Bueng. Ton Mamuang and Bongti Noi communities are one of the communities of Sai Yok cluster, which represents the proposed extension area of Sai Yok national park (Pattanavibool and Moinuddin 2009). At present, the location of the communities is regarded as part of the Wangyai Maenamnoi national forest reserve designation (Pattanavibool and Moinuddin 2009) with overlapping area with the Sai Yok national park designation (Figure 2).

The key justification for selecting the site included its status as State-owned forest land with overlapping area with national park and national forest reserve designation and its recognition as Thailand's REDD+ pilot site according to the Readiness Plan Idea Note (R-PIN) submitted to the Forest Carbon Partnership Facility (FCPF) in February 2009.

Additionally, until present, limited studies have been conducted on the two communities of interest, particularly from the aspect of tenure and REDD+, despite the on-going tenure conflicts. Data obtained from the communities could henceforth potentially enrich the national and international debates on tenure and REDD+ to a great extent.

Ton Mamuang is home to Thai descendants. Thai language is used as the primary means of communication in the community. The community was unofficially founded in 1967. The community is situated in a plain surrounded by mountains at an elevation of 200 meters above sea level. In 1969, the community was incorporated as part of Wang Yai Maenam Noi national forest reserve. In 1977, the community was legally recognized as a community in accordance with Local Administration Act in 1973. Certain parts of the community were dispossessed in 1980 and became a part of the Sai Yok national park designation. Traditionally, all of the community members engaged solely in agriculture and gathering forest products for a living. In the past, corn and sugar cane were the common agricultural produce of the community; corn for animal feed and sugar cane for sale. In 2013, main occupation of the members was agriculture (60%), followed by commerce (20%), forest products gathering for sale (10%) and labor (10%). In 2013, cassava, corn, brinjal, cotton, rubber and oil palm were generally grown in the community and the majority of the community members were Buddhist, followed by Christian. As of 2012, there were 321 households accounting 886 people residing in Ton Mamuang community.

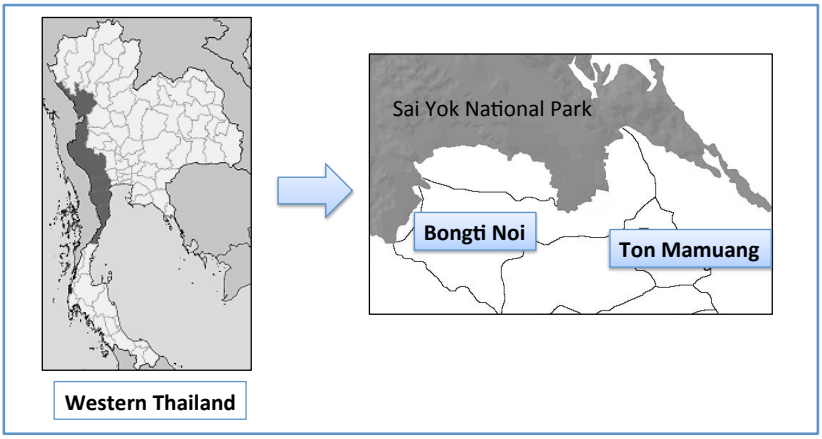


Figure 2 Map of Ton Mamuang and Bongti Noi communities
"droits réservés"

Bongti Noi is home to Karen-Thai ethnic group. Thai language is primarily used as the method of communication nowadays. The settlement compasses Tanaosri mountain range, which is the natural border between Thailand and Burma. In 1969, the settlement was incorporated as part of Wang Yai Maenam Noi national forest reserve (DNP 2013). In

accordance with Local Administration Act, the community was officially founded in 1973. In 1980, certain parts of the settlement became parts of the Sai Yok national park designation. Out of all the land that became parts of the national park designation, some plots of land were dispossessed, whilst other plots remain being used by the community members. Since 1983, certain forested area of the community, which was then considered as part of the national forest reserve of Wang Yai Maenam Noi, was cleared and used as forest plantation site for Sai Yok Forest Park. The Park was managed under supervision of the local RFD officials and later the management responsibility was transferred to the Forest Industry Organization (FIO). Traditionally, all of the community members engaged exclusively in subsistent agriculture and gathering forest products for a living. In 2013, the major occupation of the community members was agriculture (60%) and forest product gathering for sale and labor (40%). The former represents the members with land for cultivation and the latter represents the landless members of Bongti Noi community. Main agricultural produce of the community in 2013 was composed of cassava, corn and oil palm. The majority of the community members were Buddhist, followed by Christian. In 2012, there were 110 households totaling population of 442 living in Bongti Noi community.

2.2. Sampling method

This section describes the sample as well as methods used for drawing the samples from the population. Samples were drawn from the selected local communities and other key informants including government authorities, donor organizations and non-governmental organizations. Primarily, two sampling methods were used in this thesis, they are: quota sampling and purposive sampling.

2.2.1. Quota sampling

Quota sampling is a sampling technique that divides the population into non-overlapping sub-population that together comprises the entire population. Then, independent samples from each category are selected using availability sampling (Daniel 2012). The sample can be classified by a number of variables such as gender, age, race, nationality, occupation and education level. This method of sampling was chosen for this thesis in order to select a representative sample and facilitate sub-group analyses (Lewis-Beck, Bryman et al. 2004; Daniel 2012).

In application to this thesis, a total sample of thirty-nine to forty participants was drawn from each selected village classified by age and gender, i.e. divided equally by age (20-49 years old and 50-79 years old) and gender (male or female). Gender and age are an important consideration in the selection, principally due to their high relevance to the issue of forest tenure. Women and men face different constraints – socially, economically and politically – and often experience their environments and policy interventions differently (TetraTech 2012). In relation to tenure, literature is rich in examples of gender inequality in several aspects of rights to forest resources (FAO 1997; Siscawati and Mahaningtyas 2012; Sun, Mwangi et al. 2012). This implies that women and men may hold different rights and hence perception on forest tenure. Regarding the age, existing literature suggests forest tenure conflicts in Thailand in the past and potentially *de facto* tenure improvement in a few communities at present (Ganchanapan 2000; Neef 2001; Walker 2001; Lasimbang and Luithui 2005; Lasimbang 2006). This indicates that the perception and attitude towards the issue of forest tenure might be different between generations, based on their diverse personal experiences on the issue. For these reasons, the study therefore consulted men and women of different age classes equally in order to ensure a balance perspective of all gender and age classes.

2.2.2. Purposive sampling

Purposive sampling is a form of non-probability sampling and is also known as judgmental, selective or subjective sampling. Selection of samples of this technique is based on professional judgment and prior information, rather than randomization. The samples are selected based on a variety of criteria, which includes specialized knowledge of the research issue both in terms of relevance and depth or capacity and willingness to participate in the research (Jupp 2006). Unlike probability sampling techniques, the objective of purposive sampling is not to randomly select the samples with the intention of making statistical inferences from that sample to the population. Instead, it is to focus on particular characteristics of a population that will best enable the researcher to answer the research questions. Underlying logic of this technique is the idea that research participants are not always created equal; one informant may advance the study far better than any randomly chosen sample (Given 2008).

This technique is advantageous, compared to probability sampling; it takes a small number of samples, thereby making it less expensive to conduct and easier to implement both

in selecting samples and performing computation (Elder 2009). Furthermore, the technique is less time-consuming, since it allows the researcher to reach a targeted sample quickly. More specifically, the method of purposive sampling used in this thesis is called expert sampling. This method is particularly appropriate for a research that intends to gather knowledge from individuals that have particular expertise or experience (Given 2008). Due to the described characteristics, the purposive sampling was justified for this thesis. The sampling technique was used for obtaining in-depth data from samples with direct experience and profound knowledge of regulatory framework, tenure situation and REDD+ both at the study sites and at the national level. The participants included representatives from relevant government organizations, local leaders, local organizations, donor organizations and NGOs.

2.3. Data collection

This section explains how primary and secondary data was obtained for this thesis. Increasingly, the use of mixed methods – methodological approach that articulates the practices of combining quantitative and qualitative data collection within the same study – is being acknowledged as an appropriate approach to deal with complex issue and obtain more comprehensive explanations (Creswell 2002; Yin 2003). To collect primary data for this thesis, surveys were conducted in the study area in conjunction with focus group discussions. While the surveys offered quick and quantitative estimates of general situation, the detailed rationale behind the answers was not elaborated. Complementary to the surveys, the focus group discussions allowed the survey participants to provide explanations and meanings to their answers. The data were obtained from the four communities during June-July 2012 and July-August 2013. Approximately, the period of one month was spent on each village. Regarding housing during the field study, the researcher stayed at the houses of village head or village head assistant, local temples, local schools and, when the prior choices were not available, nearby tourist accommodations. Additionally, in-depth interviews with key informants involved in the implementation of legal framework and REDD+ in the study area were conducted to crosscheck, triangulate and enrich the data obtained from the communities. Secondary data was obtained by desk research through reviews of existing legal framework and literature.

2.3.1. Survey

Survey generally refers to the selection of samples from a wider group of population in whom the researcher is interested in, followed by the data collection from those individuals (Kelley, Clark et al. 2003). The researcher then uses information from the sample of individuals to make some inference about the wider population (Kelley, Clark et al. 2003). Survey can be useful when a researcher wants to collect data at a single point in time on phenomena that cannot be directly observed, notably perceptions. Survey has been used extensively in assessing interaction with the government policies and community perceptions related to land tenure (Liswanti, Shantiko et al. 2012). Therefore, the method was chosen for this study. In this thesis, surveys were used for gauging the perceived tenure of the community as a consequence of legal framework and REDD+ implementation, which was not readily available from other sources.

The surveys were conducted on two types of respondents: community member and community committee. Regarding the first type, although the surveys were performed on a selected portion of the entire community members, the selection was based on stratified sampling technique that randomly selected nine to ten independent samples from four different stratum. As a result, the total sample of thirty-nine to forty participants was drawn on a voluntary basis from each community stratified by age and gender, i.e. divided equally by age (20-49 years old and 50-79 years old) and gender (male or female). The techniques increases statistical precision of population estimates (Czaplewski, McRoberts et al. 2004). When the survey involves a statistically valid random sample, the results from the sample can be generalized to the entire population if the response rate is high enough.

After piloting the questionnaires, corresponding modifications were made and the group-administered technique was chosen over self-administered survey for the following reasons. Firstly, as data are collected in a group setting and most group members usually participate, the group-administered technique could therefore generate a higher response rate (Chambliss and Schutt 2012; Check and Schutt 2012). Secondly, the technique allows for a large number of questionnaires to be completed within a short period of time (Bornman 2009). Such advantage is of the essence, particularly in light of limited time and resources available for this field study. Thirdly, the researcher can control the circumstances under which the questionnaires are completed (Bornman 2009). Therefore, situations occurred with the use of self-administered surveys such as discussions among participants prior to making their decisions or completion of survey by a participant for multiple participants could be

avoided. Lastly, the researcher can elaborate or clarify the instructions or questions when needed (Bornman 2009). The occurrences, where the participants opt for not answering or unintentionally select wrong answers due to the need for clarification on the questions, could henceforth be minimized.

One of the potential drawbacks of the technique is that the answers of the participants might not reflect the honest opinion (Check and Schutt 2012), due to potential influence of other participants or the lack of confidentiality. Taking into account such drawback, the group survey was conducted in a small group of 9-10 participants within the same age class and gender without the presence and influence of the local leaders. Furthermore, the participants were aware that they would be asked to justify their survey answers during the following focus group discussion.

For the community committee, most of the time the participating community committee included the village head and/or his assistants. The same questionnaires as those conducted on the community members were used and at least two community committees participated the survey. The surveys were structured around the set of pre-determined close-ended questions related to land tenure of the community as a result of the legal framework and REDD+. Close-ended questions were chosen as they represent the approach that respondents usually find them fast and easy to complete by restricting the ranges of possible responses to those pertinent to the goals of the survey (Edwards, Thomas et al. 1996). Furthermore, they communicate the same frame of reference to all respondents and hence they allow the respondents to interpret the closed-ended items in the same way (Edwards, Thomas et al. 1996), making comparison across groups more reliable, compared to the open-ended questions. Only on the topic of pressing concerns, open-ended questions were used. Although close-ended questions prevent the respondent from providing narrative answers (Edwards, Thomas et al. 1996), the focus group discussion conducted after the survey could disclose the richness of responses to the close-ended survey questions.

2.3.2. Focus group discussion

Focus group discussion is a rapid assessment, semi-structured data gathering method in which a purposely selected set of participants gather to discuss issues and concerns based on a list of key themes drawn up by the researcher (Kumar 1987). Focus group discussion can provide qualitative information on perceptions, beliefs and ideas from a group of people with a shared interest in discussing the topic (IFAD 2010). It creates an accepting environment that puts

participants at ease, allowing them to thoughtfully answer questions in their own words and add meaning to their answers. The focus group discussion is widely used for evaluating project or program and for collecting information in a short time period (Morgan 1996). In other words, it can generate complex information at low cost and with the minimum amount of time (Liamputtong 2011). Therefore focus group discussion was selected for this thesis for evaluating the impacts of legal framework and REDD+ pilot on tenure of local communities.

Focus group discussions were conducted on the survey respondents, comprising of a total of thirty-nine to forty community members selected from each community according to stratified sampling method. The optimal number of participants of each focus group discussion is eight to ten. On the one hand, if a group is too small, one person in the group may dominate the discussion. On the other hand, if the group is too big, it might be difficult for the facilitator/researcher to control the discussion (Escalada and Heong 2009) and some participants may be left out during the discussion. For this thesis, nine to ten participants within the same range of age and gender formed a focus group, totaling four groups per community: male aged 20-49, female aged 20-49, male aged 50-79 and female aged 50-79. By grouping the participants according to their age range and gender, the participants are expected to be more comfortable in discussing with one another (Richardson and Rabiee 2001; Rabiee 2004). Homogeneity is the key to maximizing disclosure among focus group participants. The participants were recruited on a voluntary basis. Four focus group discussions were conducted without the presence of the community head to avoid potential influence on the answers of the participants.

The venue of the focus group discussion should be a neutral place, where it is free from distractions and where the participants can talk openly (Escalada and Heong 2009). Accordingly, the venue used for the discussions for this thesis generally included school buildings, temples, community meeting area and houses of community members. The timing for the meeting was arranged with the condition that it would be most convenient for the participants. A semi-circular seating arrangement was set for each discussion in order to facilitate interaction among participants allowing them to freely see and hear each other.

The focus group discussions were structured around a set of pre-determined questions related to tenure impacts of the legal framework and REDD+ project. A free-flowing discussion in which each participant's comments stimulate the thinking and sharing of others were encouraged. The participants were invited to express their own personal view on the issues, even when it was contradictory to other views.

2.3.3. Semi-structured in-depth interview

Semi-structured interview refers to an interview generally organized around a set of predetermined open-ended questions, with other questions emerging from the dialogue between the interviewer and interviewee (FAO 1990; Dicicco-Bloom and Crabtree 2006). Semi-structured interview encourages two-way communication, thereby allowing both the interviewer and interviewee the flexibility to probe for details or specific issues (FAO 1990). One of the semi-structured interview technique, semi-structured in-depth interviews are one of the most widely used interviewing formats for qualitative research (Dicicco-Bloom and Crabtree 2006). Semi-structured in-depth interview is a tool for collecting rich information on a topic of interest (Guion, Diehl et al. 2011). It is appropriate for situations, where elicit depth of information from relatively few people is needed (Guion, Diehl et al. 2011). In practice, the technique is widely used for policy evaluation and assessment (Guion, Diehl et al. 2011). The individual in-depth interview allows the researcher to delve deeply into social matters and it can provide richer and more in-depth information about perception and experience of individuals, compared to the group in-depth interview (Dicicco-Bloom and Crabtree 2006). For these reasons, the semi-structured in-depth individual interview was chosen for this thesis in order to uncover the detailed impacts of regulatory framework and REDD+ project on *de facto* tenure of local communities.

The interviewees should share critical similarities related to the research question (Dicicco-Bloom and Crabtree 2006). The selection of interviewees was based on an iterative process referred to as purposive sampling that seeks to maximize the depth and richness of the data to address the research question (Dicicco-Bloom and Crabtree 2006). After carrying out some interviews, performing preliminary analyses, data was further enriched by selecting more respondents to fill in emerging questions. This process of data collection and analysis was conducted until it reaches a point in the data collection, where no new categories or themes emerge – a saturation point signaling that data collection is complete (Dicicco-Bloom and Crabtree 2006).

2.3.4. Literature review

Secondary sources of information serve several purposes in this thesis. Firstly, the assessment of legal framework related to tenure of local forest-dependent communities required a comprehensive analysis of legal documents. The reviewed legislations comprised of Forest Act, Land Code Promulgation Act, Wild Animal Reservation and Protection Act, National

Park Act, Reserved Forest Act, Wildlife Reservation and Protection Act, Community Forest Act, Communal Titling Bill, Resolution on Watershed Classification, Resolution on Solution to Land Conflicts in forest area and Regulation of the Prime Minister's Office on the issuance of Community Land Title Deed. Additionally, journal articles that analyzed and criticized legal topics in great detail were also found helpful in the legal assessment.

Secondly, the analysis of REDD+ encompassed several crucial aspects: its progress in the country, its expected impacts on tenure of local forest-dependent communities and concerns about REDD+ of local forest-dependent communities and NGOs. The analysis of REDD+ progress and expected impacts entailed a thorough review of climate change and REDD+ related documents, notably Thailand's National Climate Change Plan, the Second National Communication of Thailand to the UNFCCC, most updated R-PIN available (version of 2009) and corresponding comments of the FCPF as well as the recently submitted R-PP (version of 2013). For the local concerns, REDD+ related comments from the local NGOs and CSOs expressed in policy dialogues or public consultations were reviewed. The comments found with high relevance to REDD+ were from Bangkok Climate Talk 2009, national public consultation for the draft of National Master Plan on Climate Change in 2011, Indigenous Peoples' Dialogues in 2012, Policy Dialogue on Forest and Land Tenure Review and Reform in 2012 and public consultation on the REDD Readiness Plan (R-PP) draft in 2013.

Thirdly, the tenure situation analysis comprised of the following issues: past tenure situation of local forest-dependent communities prior to the policy interventions, responses of local forest-dependent communities and present state of tenure of local forest-dependent communities both at the study site and at the national level. Typical secondary sources include articles and scholarly journals as well as recent books.

2.4. Analytical framework

This section describes the analytical framework that was used in this thesis. The proposed analytical tool was used for exploring the interactions among regulatory framework, REDD+ and *de facto* tenure in Thailand in order to prove or disprove the hypotheses.

2.4.1. Assessment tool

The primary analytical framework used in this thesis is based on the Land tenure and property rights (LTPR) assessment tool, which is used for evaluating impacts of LTPR–related interventions and complemented with Rapid Land Tenure Assessment (RaTA) analytical framework of the World Agroforestry Centre (TUL-SEA 2003). For this thesis, the interventions in question are: (i) legal framework related to land tenure, (ii) local responses to enhance tenure security and (iii) REDD+ implementation. The outcome focuses on the expected and actual impacts on tenure of local forest-dependent communities.

2.4.1.1. Land Tenure and Property Rights Tool

The LTPR Tool represents a practical step toward enabling evaluations to take place in a consistent manner and can yield improvements in donor programming through careful and rigorous evaluation of the impact of these interventions (Balestino, Bilinsky et al. 2008). Qualitative in nature, the Tool seeks to understand the impacts from two distinct angles: (i) interventions – "What changes or outcomes resulted from the given intervention?" and (ii) outcome – "What were the combination of causes that resulted in the given change or outcome?" (Figure 3). According to Belestino, Bilinsky et al. (2008), the emphasis on integrating the outcome and intervention paradigm helps establishing the extent to which interventions contribute to their objectives as well as to other unanticipated outcomes.

However, the LTPR Tool, when applying it for this thesis, remains with shortcoming related to its ability to assess multiple numbers of interventions and outcomes. With multi-issue interventions or outcomes, the time consuming nature of the Tool's qualitative methodology necessitates a trade-off between depth and breath of data collection (Balestino, Bilinsky et al. 2008). This limitation may pose difficulty in assessing tenure impacts of different legislations and local responses (interventions) in question and, at times, these interventions may have contradicting effects on land tenure (outcomes). This gap can be filled by incorporating the RaTA Tool, which aims to analyze different and potentially conflicting policies and legislations as well as their consequences on land tenure into the LTPR Tool.

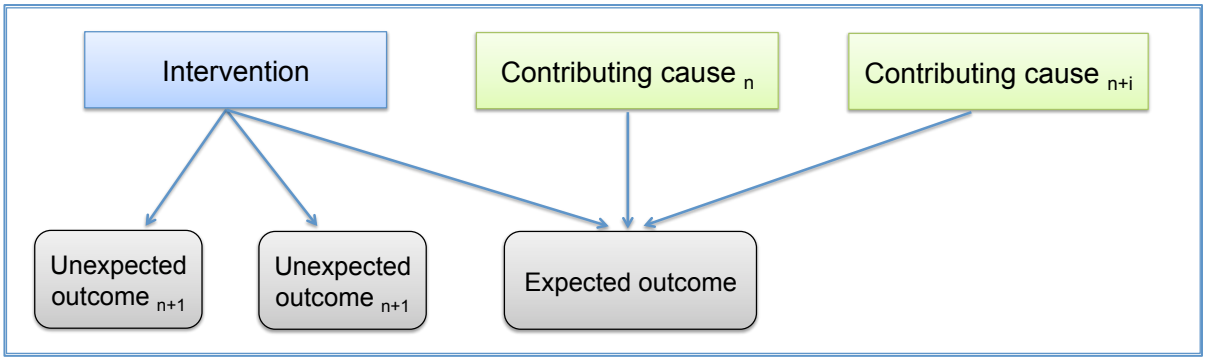


Figure 3 Land Tenure and Property Rights (LTPR) Tool
Source: Balestino, Bilinsky et al. (2008)

2.4.1.2. Rapid Land Tenure Assessment Tool

RaTA Tool seeks to provide a comprehensive understanding of the linkage between existing land tenure conflicts, external factors and regulatory frameworks in different historical periods for various purposes. The analytical framework of RaTA is depicted in Figure 4. To apply the RaTA Tool, there are five steps that are used for assessing and managing land tenure conflicts to be followed (TUL-SEA 2003):

- Describe the linkage between land conflict and particular external factors, such as politics, economy, environment etc.
- Identify stakeholder and analyze stakeholders involved in the conflict
- Determine various forms of perceived historical and legal claims by stakeholders
- Analyze the linkage of various claims to existing regulatory framework
- Propose policy options for conflict resolution mechanism

Despite its potential as an appropriate analytical tool for this thesis, the Tool however does not go into detail on land tenure conflicts, i.e. assessment of each aspect of land tenure and tenure security. Furthermore, the Tool does not leave room for differences in the actual tenure outcome, compared to the analysis of the written regulatory framework (expected outcome).

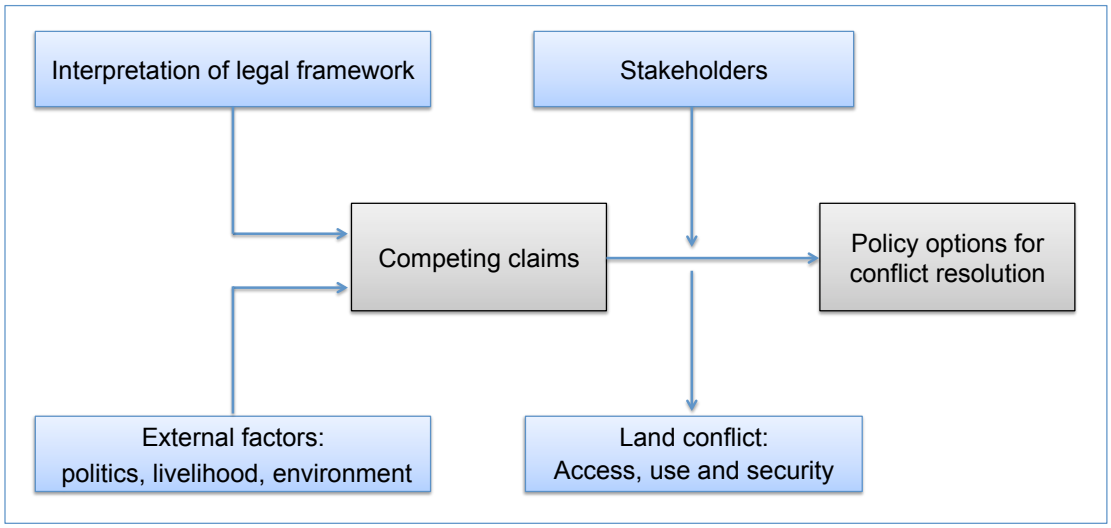


Figure 4 Rapid Land Tenure Assessment (RaTA) Tool
Source: TUL-SEA (2003)

2.4.2. Proposed analytical framework

Based on the modification of the two previously discussed frameworks, the analytical model that is suitable for this thesis is proposed (Figure 5). The proposed framework attempts to understand the impacts of regulatory framework and REDD+ on tenure of local communities from two distinct angles: intervention and outcome. The land tenure impact analysis shall be conducted in a detailed manner by assessing various aspects of tenure and tenure security. Also, the framework recognizes the potential differences between analysis of the regulatory framework and REDD+ documents and their actual outcome. To put the framework into practice, there are fundamental steps to follow:

- Interpret the interventions (regulatory framework, local responses and REDD+)
- Describe the linkage between land tenure outcome and particular external factors, such as politics, economy, environment and internal factors, such as local context of the communities
- Investigate the expected and actual impacts of the legal framework, local responses and REDD+ on land tenure of local communities

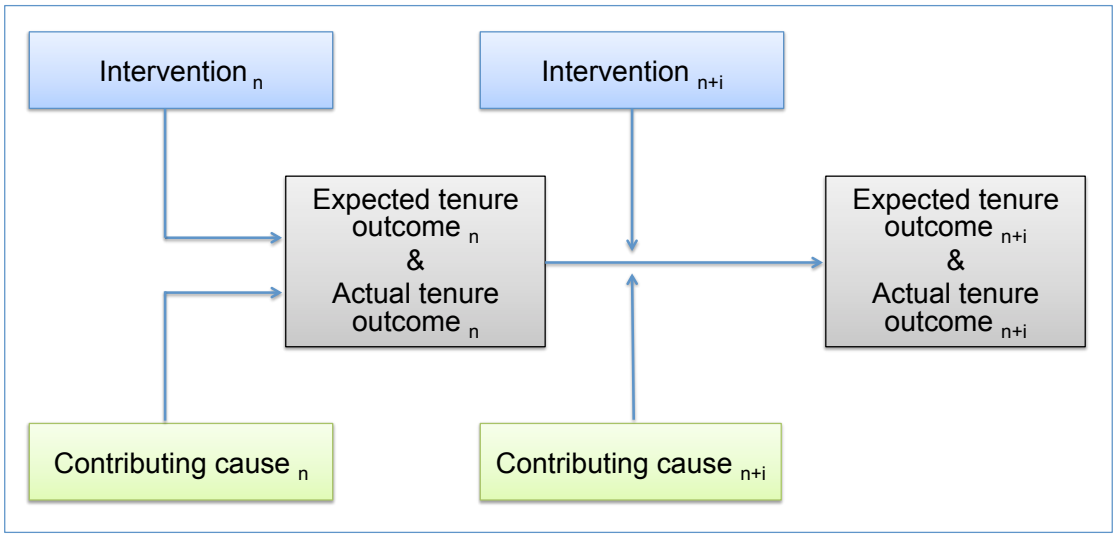


Figure 5 Proposed analytical framework for the thesis
Source: Author

CHAPTER 3 THAILAND, FORESTS AND REDD+

This chapter begins with the background of Thailand in relation to its economic development, population, geographical location and topography of each region. It subsequently discusses about It subsequently discusses about the history of forest politics in Thailand. Then it describes the past and present forest situation as well as deforestation level and its primary drivers. The chapter ends with the description of the significance of REDD+ in Thailand and its progress to date in the country.

3.1. Country background

This section describes Thailand country profile in relevance to its economy, population and geography. Thailand is upgraded from a lower-middle income economy to an upper-middle income economy by the World Bank since 2011 (WB 2013). Despite encountering a number of political challenges, Thailand achieved a notable progress with sustained economic growth and considerable poverty reduction. During the early 1990s, Thai economy was one of the fastest growing in the world at the rate of almost 9% per annum (WB 2013). Upon recovery from the Asian Crisis in 1997-1998, the economy regained its pace and reached the average growth at approximately 5% during 2002-2007 (WB 2013). Principally owing to the global economic conditions, national political uncertainty in 2009 and the devastating floods in 2011, the economic growth reduced (WB 2013). The Gross Domestic Product (GDP) rebounded from the floods at 6.4% in 2012 (MFA 2013) and was expected to grow at 5% in 2013 (WB 2013). Attributable to the continued high rates of economic growth, poverty has been on a steady decline since the late 1980s (WB 2013). Poverty reduced over three folds from 42.6% in 2000 to 13.2% in 2011 (WB 2013). Industry and other services sectors dominated the GDP in 2011 accounting for 38% and 25% share of the GDP by value respectively (MFA 2013). When considering the share of GDP by labor, agriculture and other services sector occupied the largest shares in 2011 at the rate of 37% and 24% respectively (MFA 2013).

Thailand is home to 65 million people as of 2010, the majority of whom live in rural areas (NSO 2011). The capital city, Bangkok, is home to 13% of the total population (NSO 2011). The country covers an area of 51,311 thousand hectares in the center of the Southeast Asian peninsula (BoT 2012). It is bordered by Burma, Myanmar, Lao people's Democratic Republic, Cambodia and Malaysia. Owing to economic, social and ecological reasons, Thailand is usually classified into six geographical regions: central, northeastern, eastern, southern, western and northern regions (UN 2008). The central is a vast expanse of plains and comprises the Chao Phraya River Basin, making it the most fertile land in the country and enjoying the highest per capita income after the Bangkok Metropolitan region (UN 2008). The northeastern region is mostly covered by high plateaus (UN 2008). Largely due to lower and erratic rainfall in combined with poorer soil conditions compared to other parts of the country, the region has the lowest per capita income in the country (UN 2008). The eastern region is a coastal area characterized by heavy rainfall and poorer soil conditions than the central region (UN 2008). The southern part lies along the coast of Thailand Gulf to the East and the Andaman Sea to the West. It has the highest amount of rainfall in the country and contains extensive alluvial deposits of tin (UN 2008). The west of Thailand consists of high mountains and steep river valleys and is home to many of the country's major dams and mining industry (UN 2008). Northern Thailand is a mountainous area and has been home to the majority of hill indigenous peoples (Thomas, Weyerhaeuser et al. 2000; SDC 2009). Parallel mountain ranges in a north-south direction forming the western border of Thailand. The region has a series of north-south flowing rivers including Ping, Wang, Yom and Nan, which unite to form the Chaophraya watershed, which is essential for agriculture in the central region of the country (UN 2008).

3.2. History of forest politics

This section details the issue of forest politics in Thai forest bureaucracy, policies and legislation from the historical perspective. Certain elements of the British colonial impact and influence on the present administration remain observable, particularly on the political aspect of non-recognized customary tenure.

3.2.1. Forest politics during the colonial era

The formation of Thai forestry bureaucracy was a product of the political and commercial

interests of Great Britain, on the one hand and the Bangkok administration, on the other hand. By the second half of the nineteenth century, the British were in need of teak in order to fuel its expanding demand. Due to the lack of their own forests, having lost access to America's forests and finite teak resources of India and Burma (Usher 2009), Britain started taking an interest in Siam's northern teak forest during the mid 1850s (Barton and Bennet 2010). The Bombay Burma Trading Corporation Ltd, the British Foreign Office and the Government of India collaborated in the 1880s-1890s to formulate a monopoly over teak forest of northern Siam (Barton and Bennet 2010). Siam was never formally colonized during nineteenth-century European imperialism, unlike its neighbours. However, the Britain created British vice-consular courts and offices in northern Siam and the British Foreign Office played a strong role in founding and administering the Royal Forestry Department (RFD), forestry system and laws and the attitudes and educational background of the foresters themselves.

A British forester educated in France named Herbert Slade was appointed as Chief Conservator of the RFD following its establishment in 1986 (Barton and Bennet 2010). In response to the complaints from major British logging company, the bureaucracy system, rules and legislations identical to those used in British colonies ranging from India to Australia were introduced in Siam (Usher 2009). Prior to the establishment, it was accepted that forests were owned by particular persons, e.g. local chiefs in the Northern area for teak forests (Pragtong 2000; Sumarlan 2004). These forest owners have the power to forbid logging on their land and to demand compensation when they permit timber extraction such that they receive the highest benefit (Pragtong 2000; Sumarlan 2004; Usher 2009). During the time, the central government received only one-sixteenth of its rightful share of the income from teak (Usher 2009). Moreover, Slade also put in motion to ensure the continuity of colonial forestry practices and structures in Siam by promoting the education of Siamese men, who later became high-ranking officials of the RFD, in forestry school in India and later Burma. According to Barton and Bennet (2010), this combination of the monopoly of British teak business, the British influence on the RFD and British northern consular and international courts, in turn, led Siam to be described by some scholars as an informal empire of the Great Britain, c.f. Brown (1988).

The dominance of British teak business in Northern Siam also benefited King Chulalongkorn (1853-1910). King Chulalongkorn used the threat of British annexation to create a centralised model of state forestry and internalize the independence states of Northern Siam, while preventing the French imperial expansion into its territory (Barton and Bennet 2010). Furthermore, the increased income from teak business was necessary in order to fund

widespread reforms and infrastructure development in the country (Usher 2009).

3.2.2. Path dependency on struggle for rights to forest

The centralization of forest resources nevertheless met with resistance. Forest laws in Burma and India, as Siam, defined forests as state land (Usher 2009). Establishing state hegemony over forest lands however implied taking rights away not only from the northern princes but also from communities living in and around teak-bearing forests. Prior to the establishment of the RFD, while teak in Northern Thailand was considered the property of the northern princes, commoners were allowed to use the smaller trees either by cutting them down or buying cut logs from others (Usher 2009). With the introduction of the new regulations, the rights to forests of the villagers became restricted. Regulations were put in place to secure exclusive state rights and manage timber extraction and the foresters were trained to guard the valuable timber resources and were in their full right to forbid villagers from destroying state property (Usher 2009).

In the years following the founding of the RFD, there were two main rebellions occurred in the north. Firstly, the Phraya Phap Rebellion of 1889-90 was a response to new taxation measures imposed from Bangkok as well as a reaction to British teak extraction and the flow of timber revenues to the capital (Usher 2009). Secondly, the Phrae Rebellion of 1901 targeted on European and Chinese teak companies (Usher 2009). Other minor indications of foresters clashing directly not only with the northern princes but with local people accustomed to having access to forest resources were manifested during the time (Usher 2009).

The essence of Thai forestry has resembled that of the British colony in terms of the structure of the Royal Forestry Department, the nature of the forestry system and laws and the attitudes and educational background of the foresters themselves (Usher 2009). However, the real lasting impact of the colonial forestry system was not systematic forestry use but rather a political system that has conditioned forest politics well into the post-colonial era. The RFD still claimed a monopoly over a vast area of forest in Thailand and criminalized the millions of forest-dependent people living inside the forest lands, although with the new justification – forest conservation. Such concept is often labelled as fortress conservation. It refers to an approach to preserve wildlife and natural resources through exclusion of local communities that traditionally relied on the natural resources in question for their livelihood (Brockington 2002). Although it was widely adopted in many countries around the world for the

establishment of national park system (Igoe 2004), it has been criticized for separating often economically impoverished populations from resources that are detrimental to their social, cultural and economic needs to benefit conservation agendas (King 2009). Such continued criminalization of local communities' customary rights of forest access and control resulted in provoked resentment against the forest conservation regime as well as other forest policies of the government in many countries during post-colonial period (Peluso 1992; Bryant 1997), including Thailand.

Since 1980s, resistance by local communities and NGOs to the activities of the state and private companies has been noticeable in contemporary Thai forest politics. Local forest-dependent communities' struggles for legal recognition of customary rights to forest have challenged and cast doubts on the legitimacy and suitability of the present rigid legal edifice that ensured a state monopoly over forests for a century.

3.3. Forest trends

This section portrays the past and present forest situation in Thailand as well as dominant government strategies to reverse stark deforestation rate in the past. Forest resources in Thailand have been officially owned by the State, since the establishment of the Royal Forestry Department (RFD) in 1896. The responsibilities relating to forest resources are divided between two departments: RFD and Department of National Parks, Wildlife and Plant Conservation (DNP). While the RFD oversees production in forest reserves, the DNP manages the protection of forests in the protected area designation. The Forestry Industry Organization (FIO) is a State enterprise, which has been responsible for conducting logging in government-granted logging concessions.

As illustrated in Figure 6, in 1961 the total forest area was 27,362 thousand hectares, covering over 53% of the country (Charuppat 1998). Government estimates indicate that Thailand's forest cover steadily declined from 53% in 1961 to 25% in 1999 (Figure 6). The forest cover area increased up to 33% in 2008 (RFD 2008). A caution should be made before concluding the substantial rise in forest area of Thailand in recent years. The government notes that the visual interpretation[2] of higher resolution Landsat-TM imagery at the scale of 1:50,000 was conducted to assess forest cover since the year of 2000, compared to the scale of

[2] Thailand adopted the FAO definition of forest as tree covered landscape of less than 0.5 hectares, with an average tree height of more than five meters and more than 10% canopy cover for forest inventory and interpretation of satellite imagery (GoT 2013)

1:250,000 adopted in the previous years (GoT 2013). The government suggests that due to the use of higher resolution, the recent data showing the rise in forest area is henceforth more reliable and more accurate than the lower forest cover shown in the years before (GoT 2013). Reservations have been made for the satellite imagery interpretation, as such interpretation has not been subject to scrutiny (Lakanavichian 2006; Leblond and Pham 2013). Moreover, Leblond and Pham (2013) point out a few methodological flaws and hereafter reject the interpretation of the official statistics proposing the rapid increase of forest area in Thailand in recent years.

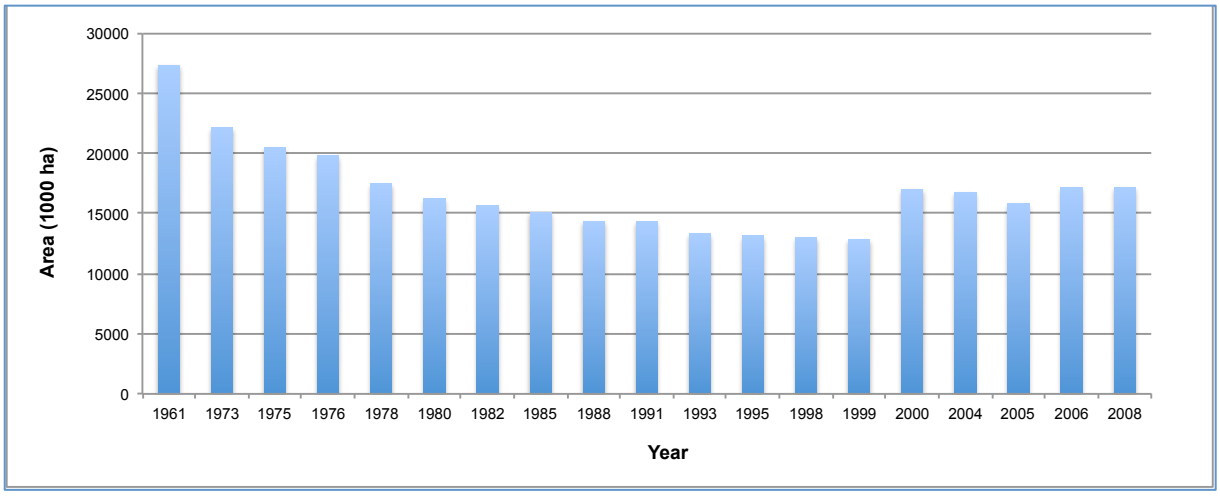


Figure 6 Forest area in Thailand during 1961-2008
Note: During 1961-1999, forest cover estimates were done using manual methods and not well advanced GIS/Satellite imagery. Therefore forest cover data shown should be differentiated between data before 1999 and data after 2000.
Source: Charuppat (1998) and RFD (2008)

Although the government estimates provide the rate of deforestation of about one percent per year during 1961-1999, different deforestation rates for the similar period were reported. According to the Food and Agriculture Organization (FAO), annual deforestation rates were over 3% for much of the 1960s-1990s (FAO 1998). During 1976-1982, the annual deforestation rate reached 3.85%, which was considered then among the highest rates of tropical countries worldwide (Jantakad and Gilmour 1999). Mangrove forests were severely degraded, as mangrove forests sharply declined from 312 thousand hectares in 1979 to 53 thousand hectares in 1993 (Jantakad and Gilmour 1999).

In response to the swift decrease in forest cover, the government implemented several strategies to reverse forest loss. Dominant strategies included logging ban, reforestation program and expansion of conserved forest area. Firstly, driven by the concerns over the effects of legal and illegal logging as well as the disastrous floods in the Southern region,

which were in part due to forest clearing for timber, the nation-wide logging ban was imposed in 1989 (Hirsch 2000). Following the ban, logging contracts and concessions were cancelled and applications for new concessions were dismissed (Waggener 2001). Even with the closure of timber concessions since 1989, illegal logging continued to be carried out along the borders and the export of timber product and its value has continued to increase (Kesmanee and Trakansuphakorn 2008). Secondly, a large area inside and outside the reserve and protected area was reforested through many programs notably watershed management, highland development, forestry research, Commemoration of the Royal Golden Jubilee and other volunteer programs from private and public sectors (RFD 2005). Additionally, large-scale commercial forest plantations by private sector were developed in private land or in degraded forest reserve. The RFD issues long-term leases on degraded forest reserve for conversion to plantation with annual fees charged (GoT 1992). Total reforested area during 1961-2004 was approximately 1.68 million hectares (RFD 2005), which accounted about 16% of total forest loss of the same period. Thirdly, following the National Forest Policy of 1985 goal of maintaining forest area at 40% of the country area, the protected area system of the country was expanded through the declaration of more national parks and wildlife sanctuaries (GoT 1985). By 1992, almost half of the country was declared as national forest reserves (GoT 2008). As of 2010, the protected area and forest reserve expanded over six and ten folds respectively compared to 1965 level, as illustrated in Figure 7.

Despite the progressive conservation activities to combat deforestation, the actual forest area in 2008 remained well below the forest reserve level (Figure 7). Moreover, the government predicts the continued decline in forest cover under the business as usual scenario ranging from 45 to 180 thousand hectares per annum and falling gradually to about 160 thousand hectares annually by 2020 (GoT 2013).

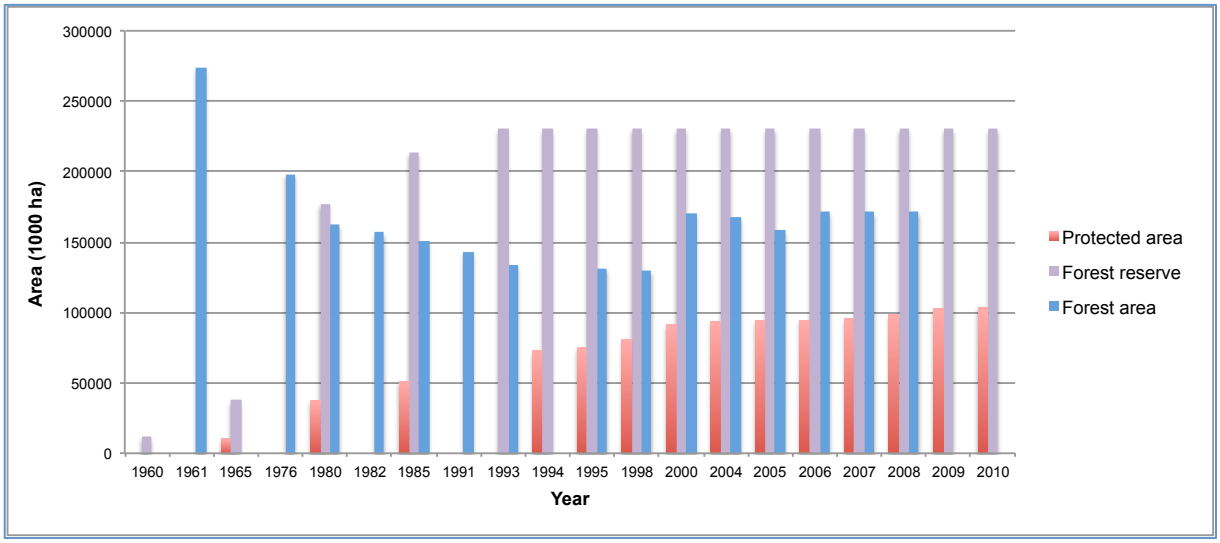


Figure 7 Forest area, forest reserve area and protected area in Thailand during 1960-2010
Note: Data on forest area, forest reserve area and protected area for certain years are not readily available.
Source: Charuppat (1998); RFD (1999); Lakanavichian (2001); RFD (2003); RFD (2007); RFD (2008); RFD (2009) and DNP (2011)

3.4. Drivers of deforestation and forest degradation

This section presents the key drivers of deforestation and forest degradation in Thailand. In line with the existing literature, the government acknowledges the conversion of natural forest for agriculture, infrastructure and mining as the major drivers of deforestation at present. Forest degradation on the other hand is caused to a greater extent by illegal logging and to a lesser extent by harvesting of forest products for commercial purpose and uncontrolled forest fire.

3.4.1. Land conversion for agricultural production

Thailand is often cited as an example of export-oriented agriculture and trade policy leading to rapid forest clearance for agriculture (FAO 1998). A number of studies discloses a strong linkage between the promotion of cash crop cultivation and deforestation in Thailand during the past decades (Dembner 1989; Dearden 1995; Hirsch 2000; Lang 2003; Entwisle, Walsh et al. 2005; Lorsiririat and Maita 2006).

Since its establishment in 1959, the National Economic and Social Development Board of Thailand, which has been responsible for all public investment planning, has been a major promoter of export-oriented cash crop cultivation. Since the First National Economic and Social Development Plan (NESDP), export-oriented agricultural production and expansion of agricultural land have been continuously sponsored by the government (GoT 2013). The First Plan starting in 1961 encourages the adoption of cash crop cultivation with mechanized farming in replace of the traditional subsistence shifting cultivation and opium production, which were prevalent in the Northern region at the time (NESDB 1961). During the First Plan period (1961-1966), almost 70% of the agricultural output was channeled into exports; additional to rice, which has been the country's major export item with the high export value[3], the rapid increase in importance of maize, kenaf and tapioca products as foreign exchange earners was also observed (NESDB 1961). The Sixth Plan (1987-1991) includes specific measures to particularly encourage the adoption of contract farming in order to further accelerate agricultural production by reducing price risks and market uncertainties for the farmers (NESDB 1991). The government issued the four-sector co-operation plan to facilitate agro-industrial firms, farmers, Bank for Agriculture and Agricultural Cooperatives (BAAC) and government agencies to work together for materializing contract farming in Thailand (Sriboonchitta and Wiboonpoongse 2008). The government invested almost eight million USD[4] in the BAAC to use as interest compensation for encouraging farmer participants (Sriboonchitta and Wiboonpoongse 2008). As of the Ninth Plan (2002-2006), the government agencies were found to continue supporting contract farming (Sriboonchitta and Wiboonpoongse 2008). In 2004, the government compensated farmers for switching from garlic production to other crops under contract farming in light of trade issue between China and Thailand (Sriboonchitta and Wiboonpoongse 2008). In the similar vein, the Eleventh Plan (2012-2016) aims to increase the share of agricultural sector in the economy (NESDB 2011). Moreover, the Plan also promotes bioenergy through increased agricultural production of commodities such as tapioca, sugar cane and oil palm as one of the key renewable energy resources.

The government as well as private company policies in providing guaranteed prices for certain cash crops for food, timber and energy have by and large incentivized forest clearing and encroachment (GoT 2013). Additionally, farmers have received a range of

[3] According to Rice Market Monitor Agriculture prepared by the Food and Agriculture Organization of the United Nations, Thailand was the world's largest rice exporter and the country's rice exports exceeded ten million tonnes in 2011 (FAO 2012).
[4] Exchange rate of 1 THB equals to 0.031 USD (5 December 2013)

subsidies and incentives from the government, e.g. demonstration plots, provision of seeds, agricultural inputs and marketing services and construction of paddy fields, irrigation infrastructure and roads (Walker 2001). Agribusiness involving in the production of cash-crops, which is concentrated in the hands of a small number of large conglomerates (Colchester, Chao et al. 2013), has also obtained financial help from the government through the BAAC, tax breaks, duty privileges and other promotional measures (Delang 2002). Furthermore, the key export cash crops have been protected by the government in form of import restrictions due to political influence exerted by well-connected lobbies (Siamwalla, Setboonsarng et al. 1991). Import prohibitions, licensing arrangements, local content rules and requirements for special case-by-case approval of imports are applied to a wide range of major crops such as soybeans, palm oil, rubber, rice, sugar, onions, garlic, potatoes, tea, maize, coconut products and coffee (Warr and Kohpaiboon 2007). As a consequence, from 1950 to 1990, the cultivation area of cash crops increased considerably, i.e. cultivation area of maize and soybean during the period grew about 44 times and 24 times respectively (Figure 8). By early 1990s, the export value of agro-industrial products reached 2,545 million USD[5] and grew over three folds to the value of 7,667 million USD by 2003 (MoAC 2004). By 2006, the agro-industrial product export value increased to 9,407 million USD (MoAC 2007).

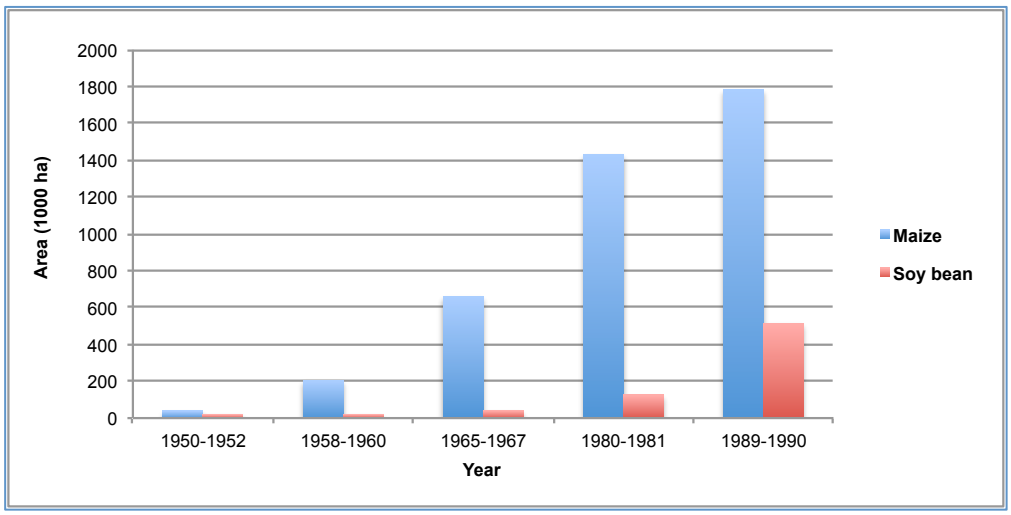


Figure 8 Cultivation area of maize and soybean in Thailand during 1950-1990
Source: Phongpaichit and Baker (2002)

Regarding the relationship between agriculture and deforestation, the econometric studies conducted in 73 provinces of Thailand by Amano, Noochdumrong et al. (1996) conclude that agriculture, i.e. cultivation of cassava, cotton, sorghum and soybean, was found to have significant correlation with deforestation. Similar result was suggested by Cropper,

[5] Exchange rate of 1 THB equals to 0.031 USD (5 December 2013)

Griffiths et al. (1997) [6]. Variable coefficients developed by Amano, Noochdumrong et al. (1996) were applied to the more updated data of annual changes in GPD and crop cultivation area during 2006-2009, adjusted to 1972 constant prices (GoT 2013). The results reveal that deforestation should be around 45,250 hectares per annum, which is close to the average annual increase in agricultural area during the same period (GoT 2013). As depicted in Figure 9, the conflicting relationship between forest area and agricultural area can be observed. Amano, Noochdumrong et al. (1996) further suggest that although soybean and sorghum were not directly expanding into forest land, they were displacing other crops, which were then grown on the newly cleared forest. The situation still continued in 2013, as rubber trees replaced sugar and consequently forests were cleared to plant sugar (GoT 2013). Similar implication could be made for bio-energy crops that have currently gain attention among the farmers (GoT 2013). In response to government policies promoting bioenergy, cultivation area of fuel crops has been on a rise. Statistics of oil palm cultivation area show over a six-fold increase during 1985-2009, for instance (Figure 10).

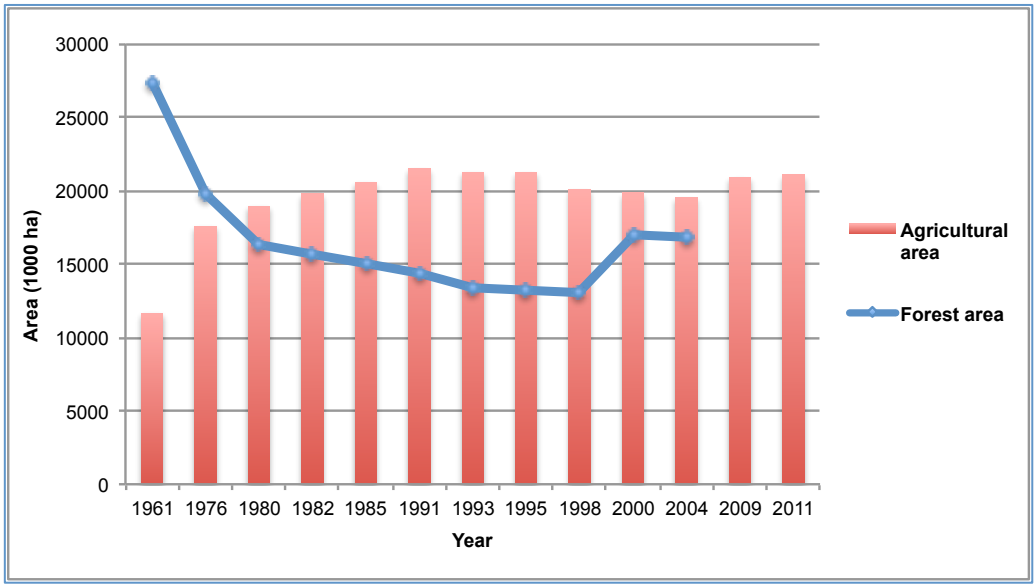


Figure 9 Agricultural area and forest are of Thailand during 1961-2011
Note: Data on forest area for 2009 and 2001 are not readily available.
Source: Charuppat (1998); RFD (2008) and FAOSTAT (2013)

[6] Cropper, Griffiths et al. (1997) found similar results showing that conversion of land for agriculture plays a greater role in deforestation, while population pressures play a minor role during 1976-1989.

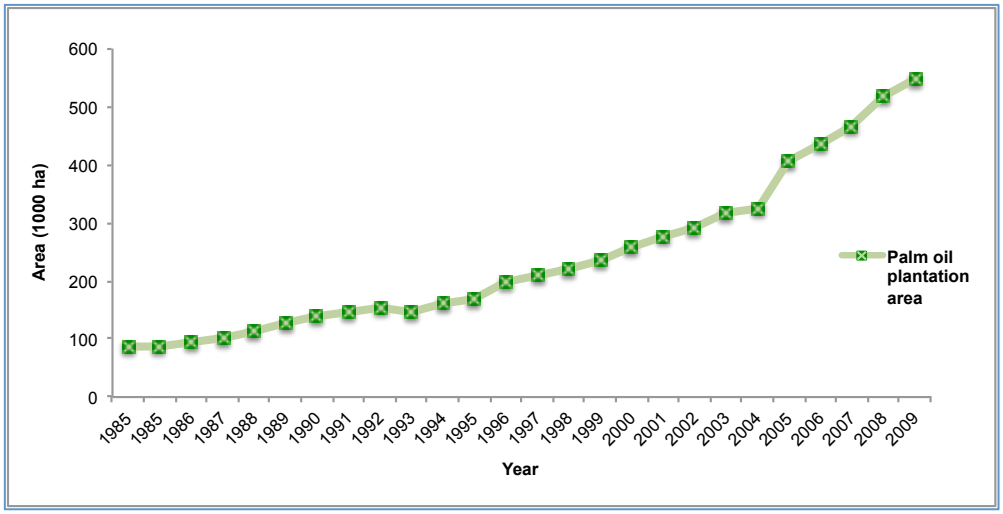


Figure 10 Cultivation area of palm oil during 1985-2009
Source: ARDA (2013)

Thai agricultural products have reached a wide range of markets including Europe, Middle East, Africa and other Asian countries (Colchester, Chao et al. 2013). The ever growing domestic and international demand for agricultural products for food, energy and industrial usage is expected to continue (GoT 2008). As Colchester, Chao et al. (2013) explained, such growth is driven by countries that are heavily reliant on Thai products and investors speculating with high returns from agricultural production investment. The trend emerged during the World Food Crisis in 2007-2008 when food prices rose to record highs (Colchester, Chao et al. 2013). The loss of forest land to agriculture is therefore anticipated to continue at the rate of 45 thousand hectares per year, based on the government's prediction (GoT 2013).

Also as illustrated in Figure 9, despite indications of strong correlation between deforestation and agriculture in recent years, the agricultural area expansion rate was comparatively lower than in the past. One of the potential explanations could be the de-agrarianization process. The study conducted by Rigg and Nattapoolwat (2001) in Tambon Thung Sadok of Northern Thailand documented the pressure of limited cultivation area in the 1970s in combined with low rice price and water shortage led to the shift from subsistence to commercial agriculture (i.e. adoption of contract farming) followed by de-agrarianization process (i.e. increased non-farm employment particularly among the young). Such trend, to a certain extent, reduced the pressure on forests from agricultural expansion. The similar trend of rural transformation was also observed in other Southeast Asian countries (De Koninck, Rigg et al. 2012).

Forest clearance for other uses than agriculture, e.g. tourism, has played a comparatively minor role in deforestation. Tourism contributed almost 12% of Thailand's GDP and accounted for 7% of national capital investment in 2000 (ICEM 2003). The government estimates of forest conversion for tourist resorts were reported approximately three thousand hectares in 2007 (GoT 2013). Principally, tourism contributed to the clearance of coastal mangrove forests (ICEM 2003). Furthermore, tourist infrastructure development including those located inside the protected area has often been associated with negative environmental impacts and degradation of natural resources (ICEM 2003).

3.4.2. Infrastructure development and mining

In addition to agriculture, other factors driving this precipitous forest loss include construction of large-scale infrastructure projects and mining. Since the early 1960s, the government has approved the construction of dams, roads and mining operations inside national parks, wildlife sanctuaries and watershed areas throughout the country (Tantiwiroon and Samootsakorn 1986; Pragtong 2000). Directly the creation of infrastructure replaces forest area (Tantiwiroon and Samootsakorn 1986; Jantakad and Gilmour 1999; ICEM 2003). The Royal Irrigation Department and Electricity Generating Authority of Thailand, amongst other governmental agencies, have played an important role in relation to forest area for the past decades. While the former agency is responsible for construction and operation of over four thousand irrigation dams, the latter is responsible for thirteen large hydropower dams (Pongtepupathum 2003). The analysis of all approved major public infrastructure projects over the past 39 years (1973-2012) in relation to forest removal revealed that irrigation projects contributed to the largest number of forest area clearance – approximately 336,000 hectares (Duangsathaporn 2013). In 2011, dam construction and power lines right-of-way led to the forest loss of approximately fourteen and ten thousand hectares respectively (GoT 2013). Mining resulted in about six thousand hectares of forest removal in 2011 (GoT 2013). Indirectly it enabled and facilitated further deforestation by local actors. For example, during the 1970s-1980s, road network creation in Thailand unintentionally aided the farmers, who theoretically were permitted to settle only within a one-kilometer radius from the road, to open new fields further into the forest (Delang 2005).

3.4.3. Illegal logging and forest product gathering

With the closure of timber concessions since 1989 (Kesmanee and Trakansuphakorn 2008) and the termination of auction of seized timber since 2007 (GoT and GoV 2013), access to natural timber has become limited. In response, rubber wood industry was developed and experienced rapid growth as a substitution for natural timber (Killmann and Hong 2000; ITTO 2005). Additionally, Thailand has relied on imports of foreign timber supply to a certain extent (Rosander 2008). Illegal logging in natural forests has nevertheless been carried out as another alternative supply source to meet the increasing demand for woods (ITTO 2005).

A number of illegal logging operations was increasingly reported in the neighboring countries, particularly Cambodia (Nellemann 2012), where Thailand imported timber from since the Khmer Rouge regime in the late 1980s (Le Billon 2000). The statistics of illegal logging in Thailand nonetheless doubled each year between 2009 and 2011 with the rise in the number of confiscation cases from 134 to 687 and in the confiscated timber volume from 184 to 596 m^3 (GoT and GoV 2013). At present, due to the strong demand driving the price of timber, illegal logging and timber trade are highly profitable. One of the high value species, *Dalbergia cochinchinensis* or Thai rosewood in particular, has been under significant illegal logging pressure. Moreover, speculation by overseas traders that the wood will soon be unavailable has contributed to a large increase in market price (GoT and GoV 2013). In 2012, the price of Thai rosewood reached 5,000 USD per cubic meter (GoT 2013), henceforward encouraging further illegal logging activities. Correspondingly, a large number of illegal rosewood logging operations in country alongside Thailand's neighboring countries in order to meet the increasing demand, particularly from China was documented (EIA 2012). From 2008-2014, over 363,000 pieces of Thai rosewood reported seized in Thailand (EIA 2014). The EIA (2014) furthermore suggested that a great portion of rosewood shipments to China in 2013 originated from Thailand and about 60% of rosewood on offer in Laos in 2014 originated from Thailand. The value of confiscated Thai rosewood amplified from almost one million USD in 2009 to over four million USD in 2012 (GoT 2013). Although illegal logging is widely understood as one of the degradation drivers in Thailand, the exact extent of its contribution remains difficult to assess.

3.4.4. Uncontrolled forest fire

Forest fire is usually caused by attempts to accelerate the germination of edible plants namely mushrooms, whereas smoke and heat are generally used for forcing animals from their hideouts (Rakyutidharm 2002). Burning of ground cover is often conducted for enhancing the growth of grasses as fodder for domestic animals (Rakyutidharm 2002). Forest fires remain one of the primary causes of forest degradation in Thailand, although its significance dramatically reduced at present compared to during the 1990s. The continuous decline of forest fire area is observable with an exception of an increase in 1998. Potential explanation for the unexpected rise was the extended drought related to El Nino Southern Oscillation event during 1997-1998 (Akaakara 2002; TDRI 2004). As shown in Figure 11, forest fire area decreased from 1,940 thousand hectares in 1992 to nine thousand hectares in 2013 (DNP 2013). Possible reason for the decline is a combination of climatic conditions that are not suitable for forest fire and successful forest fire management by the government including fire fighting, awareness raising, training and research (TDRI 2004; Clark, Back et al. 2008).

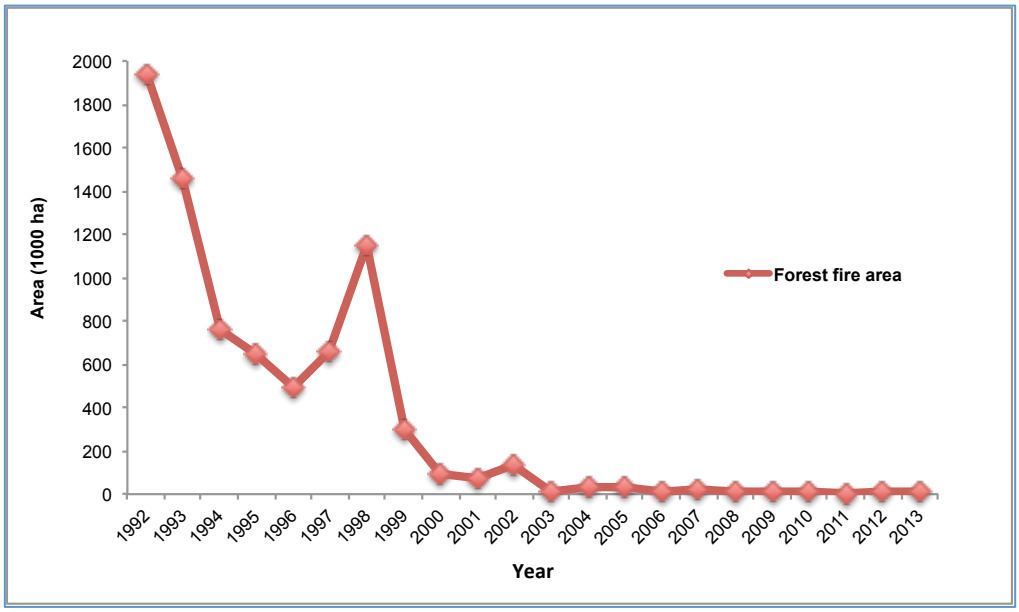


Figure 11 Forest fire area during 1992-2013
Source: DNP (2013)

3.5. REDD+ in Thailand

This section presents key issues related to REDD+ in Thailand. It begins with the government recognition of REDD+ as a crucial tool in combating deforestation and forest degradation and

in mitigating climate change. Then, the development of REDD+ in Thailand to date, notably institutional arrangement, funding and technical assistance as well as pilot program, is described.

3.5.1. Significance of REDD+

The government recognizes the significance of REDD+ in two ways: as a means to reduce deforestation and forest degradation and as the win-win strategy for GHG mitigation in the country.

The government estimates suggest that Thailand's forest cover steadily declined from 53% in 1961 to 25% in 1999. Even with a new benchmark of forest area of 33% that was established in 2000 owing to the change in the imagery scale and method of calculation, deforestation and degradation of forest would continue to be aggravated in the near future. The predicted forest loss is expected to negatively affect the livelihoods of many forest-dependent communities and environmental sustainability of Thailand. REDD+ is believed to serve as an apparatus to combat deforestation and forest degradation, while addressing local livelihoods concerns. In other words, REDD+ is anticipated to provide multiple benefits beyond carbon, namely poverty reduction, food security, biodiversity conservation and climate change adaptation and mitigation.

REDD+ has been recognized as one of the major strategies in national climate change mitigation principally in the National Master Plan on Climate Change and the Second National Communication to the UNFCCC. Thailand ratified the UNFCCC in 1994 and ratified the Kyoto Protocol in 2002 (MNRE 2009). The Office of Natural Resources and Environmental Policy and Plan (ONEP) of the Ministry of Natural Resources and Environment (MNRE) is designated to function as the national focal point on climate change under the UNFCCC and to draft the National Master Plan on Climate Change (Pitisombat 2011; NDF 2012). The forty-year master plan, which was set to continue through 2050, aims to provide a framework and strategies for effective response and preparedness to manage climate change challenges in adaptation, mitigation, capacity building and institutional readiness (ONEP 2011). The ultimate goal of the Plan is for Thailand to become a Low Carbon Society by 2050 (ONEP 2011; Pitisombat 2011). In this Plan, forest is highlighted, as one of the core strategies for climate change mitigation. According to the Plan, REDD+ activities are promoted; the government aims to enhance forest carbon stocks through maintaining existing forest area and increasing additional forest area in the country (ONEP

2011). In accordance with the Plan, Thailand's Second National Communication to the UNFCCC also centers the national mitigation efforts on forestry sector, regarding it as one of the best options available for GHG mitigation in Thailand (ONEP 2011). The expansion of conserved forest area, which includes national forest reserve, wildlife sanctuary, national park, class one watershed area and conserved mangrove forest, is considered as win-win strategies (ONEP 2011). While the conserved forests could be helpful in maintaining ecological balance and enhancing biodiversity, they could also reduce GHG emissions by preventing encroachment and deforestation (ONEP 2011). As part of the mitigation effort, the priorities as prescribed in the next four-year implementation plan of the MNRE include protection and rehabilitation of conserved forests, watershed area and degraded forest land (ONEP 2011).

3.5.2. Progress of REDD+

With regards to concrete actions to implement REDD+ in the country, there are three major developments to date: institutional arrangements, financial and technical assistance and pilot projects.

Firstly, the government established the REDD+ Task force in 2011 as an inter-ministerial and multi-sectorial committee. The Director-General of the Department of National Parks, Wildlife and Plant Conservation (DNP) chairs the REDD+ Task force. The REDD+ Task force is under the supervision of Climate Change Technical Sub-committee, which in turns is under the supervision of the National Climate Change Committee (Figure 12). The REDD+ Task force comprises of various stakeholders from government and non-government agencies including NGOs, local forest-dependent communities, private organizations and research institutions (Table 3). Main responsibilities of the REDD+ Task force are to: (i) formulate guidelines for conducting REDD+ readiness activities; (ii) prepare action plans in correspond to national REDD+ policy and strategy; (iii) appoint Technical Working Groups for REDD+ readiness; (iv) review and revise REDD+ related plans; (v) offer technical support to the Climate Change Technical Sub-committee; (vi) coordinate relevant stakeholders to provide information needed for REDD+ activities; and (vii) organize workshops and seminars supporting to REDD+ activities as appointed by the Climate Change Technical Sub-committee.

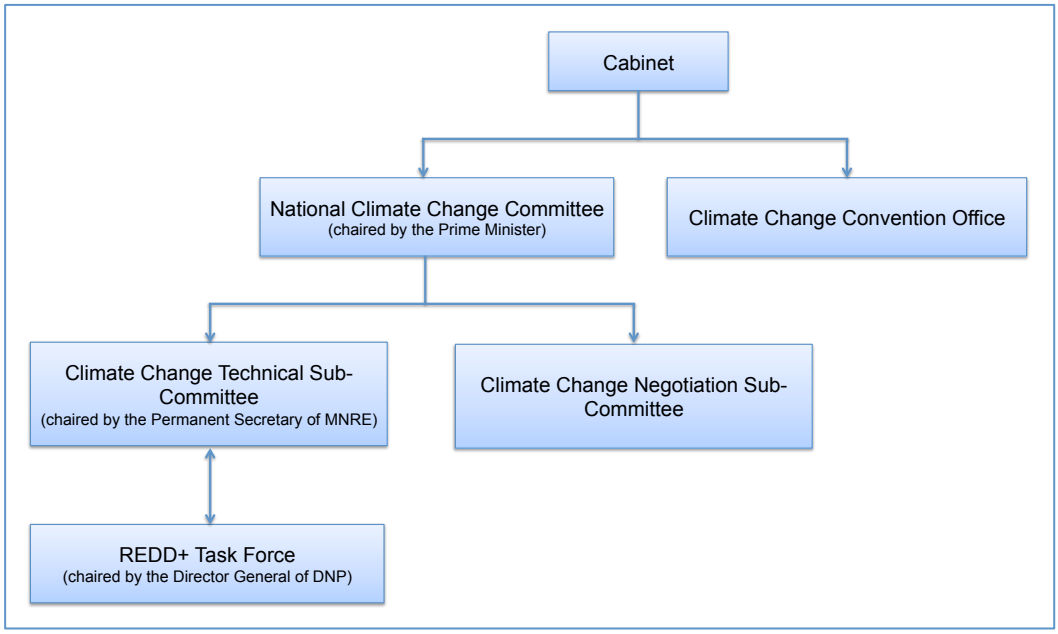


Figure 12 Institutional arrangements for climate change policy-making
Source: R-PP of Thailand version 2013 (GoT 2013)

Table 3 Composition of the REDD+ Task force Committee

Organization	List of stakeholders
Government	Department of National Parks, Wildlife and Plant Conservation Royal Forest Department Department of Marine and Coastal Resources Office of Natural Resources and Environmental Policy and Planning Thailand Greenhouse Gas Management Organization (Public Organization) Bureau of the Budget Office of the National Economic and Social Development Board Geo-Informatics and Space Technology Development Agency Forest Industry Organization Department of Agricultural Extension Department of Land Land Development Department Department of Provincial Administration The Treasury Department Agricultural Land Reform Office
Academia	Kasetsart University Faculty of Forestry King Mongkut's University of Technology Thonburi
Private sector	Suan Kitti Group
Non-government organization	Sueb Nakhasathien Foundation Good Governance for Social Development and the Environment Institute Thailand Environment Institute Indigenous Peoples Foundation for Education and Environment Raks Thai Foundation Sustainable Development Foundation Inter Mountain Peoples Education and Culture in Thailand Association
Local community	Northern Forest Community Networks North-eastern Forest Community Networks Southern Forest Community Networks Central and Western Forest Community Network
International organization	Regional Center for People and Forests

Source: R-PP of Thailand version 2013 (GoT 2013)

Secondly, concerning financial and technical support for REDD+ development, the government of Thailand signed a Participation Agreement to access the Forest Carbon Partnership Facility (FCPF) Readiness Fund and became one of the thirty-six developing countries located in tropical area that are selected as REDD+ Country Participants to the FCPF.[7] The FCPF assists developing countries in reducing GHG emissions from deforestation and forest degradation and fostering conservation, sustainable management of forests and enhancement of forest carbon stocks. The R-PP Formulation Grant of 200,000 USD was signed for Thailand in 2009 and was fully disbursed as of June 2013 (FCPF 2013). Facilitated by the fund obtained, Thailand prepared the R-PP draft for submission to the FCPF in March 2013 (FCPF 2013). In July 2013, four regional dialogues were organized in different regions of Thailand and in September 2013 a national dialogue was organized in Bangkok (FCPF 2013). These dialogues were funded by Swiss Development Corporation as part of REDD+ capacity development program (FCPF 2013). Collaboration between CSOs and DNP authorities was observed in planning and delivery of the dialogues (FCPF 2013). The CSOs Working Groups on REDD+ were formed in four regions and they were responsible for identifying the participants to attend the dialogues, providing inputs into the agenda and facilitating the regional dialogues along side the DNP authorities (FCPF 2013). These Working Groups are likely to continue playing a key role in REDD+ readiness (FCPF 2013). Presently, the R-PP draft is being finalized as inputs from the regional and national dialogues are being incorporated (FCPF 2013). The revised R-PP is expected to be submitted to the National Climate Change Committee in November 2013 and then to the MNRE in early December for final approval (FCPF 2013). Upon final R-PP submission to the FCPF which is tentatively in December 2013 and the assessment by the FCPF, the R-PP Preparation Grant would be disbursed most likely in April 2014 (FCPF 2013). Additional support for REDD+ development in Thailand would come from other donors. The donors that already committed to support activities identified in the R-PP of 2013 include International Tropical Timber Organization (ITTO), World Wildlife Fund (WWF) Treemaps Project, Lowering Emission from Asia's Forest (LEAF) and Asian Development Bank (ADB).

Thirdly, as described in the R-PIN submitted to the FCPF in 2009, Thailand piloted REDD+ implementation in the Tenessarim Biodiversity Corridor Initiative (BCI) with the focus on the following issues: (i) participatory multi-stakeholder consultations for REDD; (ii) channeling financial resources to local people through Village Funds for livelihood

[7] As of 2012, the primary contributors to the FCPF Readiness fund during 2009-2013 were Germany (52.5 million USD), Canada (41.4 million USD) and Norway (30.2 million USD).

improvement; (iii) participatory benefit sharing and providing benefits to local communities residing adjacent to the forests; (iv) zoning and providing user rights to local communities to improve livelihoods and consequently to lower deforestation; and (v) restoration of degraded forest and enabling carbon sequestration by using long rotation indigenous species (GoT 2008). The project was expected to provide deliverables related to carbon sequestrations, benefits to local communities and enhanced tenure security of forest-dependent communities by 2012 (GoT 2008). It should be noted however that the importance and status of the BCI was reduced from REDD+ pilot project to forest activities with potential to inform REDD+ activities, as illustrated in the R-PP submitted in 2013. Elaboration of its achievements in relation to the REDD+ measures as described in the R-PIN was not presented in the R-PP.

CHAPTER 4 LEGAL FRAMEWORK RELATED TO TENURE

This chapter prescribes the present legal framework related to tenure in Thailand, which includes a broad array of policies and legislations that explicitly or implicitly define the rights to forest land and resources. The key legal frameworks analyzed include the Land law, Forest law, Forest Land Conflict Resolutions and Community Forest law. The chapter ends with the overview of the interaction between the customary and statutory tenure over forest.

4.1. Laws on forest land and resources tenure

There section discusses a number of laws related to rights to forest land and resources tenure. The legal framework with high relevance to forest tenure in Thailand include policies and legislations on land, forest and land conflict resolutions and community forest.

4.1.1. Land law

The legal pattern of forest land and resources tenure in Thailand is a product of a long historical process. Traditionally, before 1900 all land and forest resources belonged to the King and he granted land tenure to his subjects who cleared and cultivated it (Engel 1978). Such grants could be passed on to heirs, mortgage or sold (Lasimbang 2006). However in 1901 King Rama V introduced the modern land law that is in contradiction to the customary tenure arrangement, leading to a confusion in land tenure system (Yano 1968). In the same year, the Department of Lands was established to formalize title deeds (Lasimbang 2006). The fundamental land law in Thailand is the Land Code and Promulgation Act, which was legislated in 1954. To an extent, the Land Code reconciles customary and modern land law concepts by allowing a room of opportunity for customary landowners to make a claim for the possession of land and to receive the land use claim certificate (GoT 1954). Section 5 of the Act allows the land users without any title document to notify the District Officer within 180 days from the enforcement date of this Act and failing to do so shall be regarded as the

renouncement of his/her customary land rights. In reality, most rural populations living in remote areas were unaware of this law and even those living close to provincial towns were unaware of this time stipulation (Lasimbang 2006). By failing to take advantage of it, a number of local forest-dependent communities became illegal encroachers (Lasimbang 2006). A particular group of forest-dependent communities – the hill tribe people – moreover was initially excluded from getting titles over land on the basis that they were not Thai citizens when the Act came into being (Lasimbang 2006). According to the Act, any land not acquired by law shall be regarded as State property (Chapter 1 Section 2) and the Director-General of the Department of Lands manages the use of public land by reserving, selling, leasing or allocating for concession (Chapter 1 Section 8, 9 and 10).

4.1.2. Forest law

The first forest policy of Thailand was implemented through the establishment of the Royal Forest Department (RFD) in 1896. After the creation of RFD in 1896, all forest lands were transferred from local chiefs to the RFD (Pragtong and Thomas 1990; MNRE 2008). The RFD was originally established under the Ministry of Interior and was transferred to the Ministry of Agriculture and Cooperative in 1935, where it remains today[8] (Usher 2009). The State ownership of forests was consolidated by the implementation of Forest Act of 1941 (Usher 2009). The Act defines forest in political rather than biological terms. It declares that any land not acquired under the Land Code would be considered as forest (Section 4 Clause 1) and such land, including those under customary ownership, automatically brought such land under State ownership. The Act is embedded with a number of elements that weaken the rights of local forest-dependent communities. To log any timber or collect any forest product, a royalty fee is required to be paid to the authority (Chapter 1 Section 9). Additionally, according to Chapter 5 Section 54 of the Act, clearing, burning, occupying any forest land is prohibited (GoT 1941). In other words, human settlement and agricultural activity are not allowed within the State-owned forest boundary.

The concept of national park as means to protect the forest in Thailand originally came from the American national park model. The nineteenth-century American national park idea is based on the concept of wilderness preservation for educational and recreational value (Fisher, Srimongkontip et al. 1997). In other words, it implies the backbone idea of fencing off an area and removing its inhabitants in order to protect the nature and provide recreational

[8] According to Usher (2009), the responsibilities for the national park on the contrary were transferred to the Ministry of Natural Resources and Environment in 2003.

place for urban tourists. In spite of innumerable cultural, ecological and political differences between the two countries, Yosemite and Yellowstone national parks have been explicitly used as models for conservation in Thailand (Usher 2009). Correspondingly, conserved forests in Thailand were created based on the core belief that within the boundaries there should be no human disturbance. Alongside the establishment of National Parks and Wildlife Conservation divisions within the RFD in the 1960s, the Wildlife Preservation Act of 1960 and the National Park Act of 1961 were enacted.

The Wildlife Preservation Act of 1960 forms the basis of the Wildlife Preservation and Protection Act of 1992. The Act of 1992 offers a legal support to designate wildlife conservation areas in any land not acquired by law, which directly implies the non-recognition of customary tenure. The Act has implication on access and use rights, as it makes forest resources use of local forest-dependent communities residing inside the wildlife sanctuary unlawful. Inside the sanctuary, according to Section 36, no person can hunt wildlife, collect or endanger any nest within a wildlife sanctuary except for educational purpose and then only with permission. Furthermore, no person can occupy, possess (Chapter 6 Section 38) or access the land without official permission (Chapter 6 Section 37). Inside the sanctuary, cutting or clearing trees is prohibited (Chapter 6 Section 38). Violators to Section 38 shall be punished with imprisonment and/or fine (Chapter 8 Section 54) and be evicted from the sanctuary (Chapter 6 Section 40).

The National Park Act of 1961 has wide ramifications for forest land and resources tenure of local forest-dependent communities. It does not recognize customary ownership of forest land. Chapter 1 Section 6 of the Act specifies that the government have the power to determine any land with natural features of which are of interest and to be maintained and preserved for the benefit of public education and pleasure as national park and emphasizes that the national park land must not be owned or legally possessed by any person other than public body. Moreover, Section 16 of the Act noticeably limits access and use rights of local forest-dependent communities to use forest land and resources. Inside the park, possessing land, clearing or burning the forest, collecting forest products, hunting, husbandry or any activity that may endanger soil, rock, flowers, leaves is not allowed (Chapter 3 Section 16). In other words, human settlement or agricultural activity is forbidden. Violators to the Section shall be punished with imprisonment and/or fine (Chapter 5 Section 24-27) and be removed from the national park area (Chapter 2 Section 21 and 22). The authorities are empowered to confiscate any instruments, including agricultural tools, used by the violators and can demolish any construction that is regarded as any change to the condition of the park in order

to restore to its natural condition (Chapter 3 Section 22). The National Park Committee consisting of different government organizations has the duty and rights to manage the park for the purpose of protection and maintenance (Chapter 2 Section 15).

The National Reserved Forest Act, alongside the National Park Act of 1961 forms the basis for determination, control and management of conserved forest in Thailand. According to Section 4 of the Act, the definition of forest resembles the one of the Forest Act of 1941, which refers to land including mountains, creeks, swamps, canals, marshes, basins, waterway, islands or seashore that has not been acquired by a person in accordance with the land law. Section 12 and 13 of the Act declare that any customary land user inside any reserve forest designation can file a written application to district or sub-district officials within 90 days after the Act comes into force to receive compensation. However, most local forest-dependent communities were not informed of these legal changes to their customary territories, most likely due to remote sites of their communities and/or language barriers in the case of hill tribe communities (Lasimbang 2006). This Act led to many local forest-dependent communities becoming illegal encroachers on their customary forest land. Access and use rights of local communities are restricted by the Act. Inside the reserve forest, no person can occupy, possess land, clear or burn forest, make a construction or collect forest products (Chapter 2 Section 14). In other words, any human settlement or agricultural activity is prohibited. Additionally, logging and collecting forest products require a permission from the Director-General of Department of National Parks, Wildlife and Plant Conservation or DNP (Chapter 2 Section 15 and 16). The authorities are empowered to evict the violators to this Act of the NFR area (Chapter 2 Section 25). The Director-General of the DNP has duties to control and conserve the condition of the NFR, according to Chapter 2 Section 19.

Another forest conservation legislation with equally essential implication on forest tenure is the Resolution on Watershed Classification (RoWC). With the original purpose of upstream watershed rehabilitation by reforesting abandoned shifting cultivated area, the RFD initiated watershed management programs in 1953 (RFD 2005). In 1975, the Watershed Management Division within the RFD was established and currently, the responsibility for watershed management in Thailand falls under the Watershed Management and Conservation Office within the DNP (ICEM 2003). The first watershed classification was made in 1975, categorizing watershed into three classes (Lasimbang 2006). In class one, no resource utilization could take place and all residents were to be evacuated. Such concept created high controversy and in response the revised version of watershed classification was presented in 1983 (Lasimbang 2006). The RoWC establishes different categories of watershed from one to

five, based on important physical features and degree of the watershed (Table 4). It is worth emphasizing that the watershed classification was purely based on ecological factors, while ignoring socio-economic factors such as water availability, infrastructure and the location of surrounding communities. As shown in Table 4, the strictest of these classifications is Class 1A that entails a prohibition on forest product gathering and a decision that reforestation programs should be undertaken immediately (Krairapanond and Atkinson 1998). By 1987, Watershed Class 1 and 2 had been endorsed by the Cabinet as areas to be highly protected and rehabilitated as headwaters and henceforth all residents occupying these areas were to be relocated (Krairapanond and Atkinson 1998).

Table 4 Watershed classification and area

Watershed Class	Description	Proposed management	Area (1000 ha)	Ratio (%)
1A	High elevation (over 500 meter) with steep slope (over 35 %)	Remain permanent forest cover	8,446.4	17
1B	Similar to 1A but some areas were cleared for cultivation or occupied by settlement	Should be reforested or maintained in permanent agroforestry	762.7	1
2	High elevation with steep slope (30-50%)	May be used for grazing or cropping with soil and water conservation measures	4,276.9	8
3	Uplands with steep slopes (25-35%)	May be used for economic interest, e.g. logging, mining, grazing, agriculture, with soil and water conservation measures	3,928.4	8
4	Gently sloping land (6-25%)	Suitable for agriculture with moderate conservation measures	8,103.4	16
5	Gentle to flat areas	Suitable for agriculture with fewer restrictions	25,148.4	49
Water bodies			543.5	1
Total			**51,311.5**	**100**

Source: The Office of Environmental Policy and Planning 1996 in ICEM (2003) and ONEP (2013)

Although total forest protection activities should be conducted in watersheds under Class 1A, where either resource utilization or human settlement is allowed, a number of local forest-dependent communities that have been settled in these area needed to be relocated (Krairapanond and Atkinson 1998; Lasimbang 2006). Compounded by the fact that the classifications were made without public consultation, the implementation of the RoWC generated violent disputes between the local forest-dependent communities and the authorities (Lasimbang 2006). In 1995, in response to the public pressure, the RoWC was revised. Consequently, the local communities can continue to reside in and use the land, if they can prove their formal land ownership with historical aerial photos and academic reports showing low environmental impacts of their settlement (DNP 2010). Access to aerial photos for time

series analysis in Thailand was however difficult and available historical assessments of land use change were limited to small areas (Thomas, Weyerhaeuser et al. 2000). It is henceforth doubtful whether the local communities would have sufficient capability to prove their historical settlement.

4.1.3. Forest land conflict resolution mechanism

The expansion of physical territory covered by conservation areas resulted in a situation, where new boundaries have enclosed and overlapped with the settlements and forests of thousands of communities. In combined with resettlement attempts, the conflicts over forest land and resources between the local forest-dependent communities and the government has been increasingly prominent. To alleviate land conflicts in State-owned forest lands, rather than relinquishing the complete control over customary territory, the RFD launched a program in 1981 issuing a five-year use license or Sor Tor Kor (STK) to households living inside and using degraded land of the national forest reserve for agricultural or residential purpose (Lohman 1995; USAID 2010). The license provides a recognition of cultivation rights inside the State-owned forest land (RFD 2008). The license is renewable and transferable by inheritance but it could be revoked if the land is left unused for at least two consecutive years (RFD 2008). The license nonetheless cannot be converted into a title deed or certificate of use. By 1990, approximately 700,000 households obtained STKs (Barney 2005). Tenure security strengthening as a result of the program was however criticized. While some scholars believe that such outcome was attributable to the fact that the grant was given for a short-term and the authority could seize the land based on their subjective judgment (Childress 2004; Giné 2005), others suggest that it was due to overall framework of the program namely farm size limitation, array of land certificates and limited implementation facilities (Neef and Schwarzmeier 2001). Moreover, many STKs were informally sold, even though the certificate is non-alienable by law (Lakanavichian 1995).

Additional effort to alleviate tenure conflicts of the forest-dependent communities in the forest reserve was the provision of Sor Por Kor (SPK) 4-01 documents by Agricultural Land Reform Office (ALRO). Launched in 1993, the program was initially managed by the RFD and later transferred to the ALRO because the SPK certificates were often purchased by outsiders opening doors for misuse and land speculation (Rock 2004). The SPK 4-01 certificates provide rights for farming purpose for up to 2.4 hectares of land (Chapter 3 Section 39). By 2011, the total area of 8,320 thousand hectares was allocated to landless

farmers by the program (ALRO 2012). However, numerous corruption scandals were uncovered involving the misdirection of the SPK land reform certificates to local elites (Barney 2005). One of such scandal in Phuket province in 1996 in part led to the fall of the first Chuan Leekpai government (Barney 2005). The assessment of both STK and SPK land reform programs reveals the overall unsatisfactory effects of further concentration of land holdings in the hand of local and provincial elites (Lohman 1995).

The unsatisfied results of the past forest land allotment program in combined with intensive expansion of conservation area had aggravated the conflicts further. By the mid-1990s, the RFD's focus on conservation grew dramatically (Usher 2009). The redefinition of forestry's mandate was followed by an immense expansion of physical territory of conservation areas and by a large-scale relocation scheme primarily occurred in the North and Northeastern regions. On the ground of watershed protection and the establishment of national park, national forest reserve and wildlife sanctuaries, local forest-dependent communities in the North encountered threats of eviction. While the resettlement attempts by the government owing to wildlife sanctuary demarcation in Phayao province were documented (Jonsson 2010), the tensions between a local community and local authorities as a result of the national park designation in the area overlapping with customary territory were observed in Chiang Mai province (Roth 2004). In northeastern Thailand, the forest-dependent communities in Pa Kham in Buri Ram province (1989- 1994), Thap Lan in Nakhorn Ratchasima (1994); and Dong Yai in Buri Ram (1994) without land titles were resettled owing to reforestation program in the area (Fey 2007). Driven by uncertain rights to land and threats of eviction from the State-owned forest area, more than two thousand local forest-dependent people from six northern provinces marched in protest against the RFD's desire to evict them from forest reserve land in 1995 (Fey 2007).

Similarly in 1997, the Assembly of the Poor organized a 99-day protest in Bangkok demanding for customary tenure recognition (Baker 2000). The core of the network consisted of insecure local forest-dependent communities living inside the State-owned forest land (Baker 2000). The protest represents the peasant struggle over rights to land and forest resources. The protest ended with the issuances of three Cabinet Resolutions of 1997 halting the forced eviction of local forest-dependent communities from State-owned forest land and allowing the long-settled groups to remain in the forest land on the condition that they participate in forest conservation (Baker 2000). Proof of historical settlement including communities' history and age of fruit trees and permanent buildings was used for settling land rights conflicts in local forest-dependent communities (Lohman 1999). In 1998, the situation

however changed. In early 1998, a large portion of forest in northern Thailand was affected by forest fire, which led to the situation where the government authorities blamed the forest-dependent communities particularly the hill tribe population as the primary cause (Lasimbang and Luithui 2005). Following the incidence, the forestry chief raised the possibility to remove the forest encroachers even though they settled before the declaration of the protected area and suggested that the three 1997 Cabinet Resolutions were impractical since they encouraged more forest encroachment (Lasimbang and Luithui 2005).

The three Cabinet Resolutions of 1997 were subsequently cancelled and were replaced with the Cabinet Resolution of 30 June 1998 or the Resolution on Solution to Land Conflicts in forest area (RoSLC). The RoSLC stipulates that only those households, who have settled in the area prior to the demarcation of the area as forest, may be granted permission to continue living in or using the area with no further expansion of land-use area (GoT 1998). However, if the officials consider that the settlement area is potentially harmful to the environment, even if the household can prove of its existence before, it shall be relocated, similarly to those households found to settle in the area after the demarcation (GoT 1998). In other words, the strategy of forced eviction of forest-dependent communities living in sensitive areas was re-introduced in this Resolution.

4.1.4. Community forest

The concept of community forests was perceived as a promising alternative to state-controlled conservationism and became an important political debate in 1990s (Buergin and Kessler 2000; Pearmsak 2000), as changes in the national political landscape towards a more decentralized political system were intensified (Aulin, Buhl et al. 2011). In 1998, the Community Forest Act was proposed by the Assembly of the Poor, Northern Farmers Network, academics and the Northern Community Forest Network to legally recognize communal use rights in forests (Zurcher 2005). After a number of modification to the original draft, the Community Forest Act draft was passed by the National Legislative Assembly in 2007 with criticisms over sections that potentially restrain the rights of local communities to use and manage community forests in protected area. To elaborate, Section 25 limits the eligibility of the participating community, and thereby limiting the rights to access and manage the protected area of communities living outside but along the rims of the protected area countrywide. Section 34 does not allow logging or agriculture within the protected areas

(Weatherby and Soonthornwong 2008). By 2009, the Act nevertheless effectively lapsed (Scheyvens, Kothari et al. 2011)

As a flagship policy of the Abhisit Vejjachiva government to solve the land-use disputes over forest land and resources tenure, the Regulation of the Prime Minister's Office on the issuance of Community Land Title Deed was passed in 2010. It allows the local forest-dependent communities to collectively manage and use State-owned forests for a certain period of time but not providing any legal recognition for customary tenure (Erni 2010). In other words, the State retains its ownership of the forests. The Regulation requires that the holder of the community title renew the title periodically with the respective government agencies that formally own the land. Strong opposition of this Regulation came from the Ministry of Natural Resource and Environment (MNRE). Principal reason for the disagreement was the disapproval of the customary tenure recognition in State-owned forests (Erni 2010). Moreover, the Director General of the Department of National Parks, Wildlife and Plant Conservation at the time also pointed out that the community title deeds would be in breach of existing laws, notably National Park Act and National forest reserve Act (Erni 2010). A few community title deeds were issued despite the opposition. Since the change of the governing political party, however, further issuance of community title deed is yet to be seen.

4.2. Summary

The question of forest tenure and customary rights of local forest-dependent communities in Thailand has usually been linked to serving political and economical interests of the government. During the early twentieth century, forest tenure was consolidated in the hand of the government for the reasons of income from timber production and national security against colonization. Following the end of the Vietnam War in 1975 until the early 1980s, a particular group of local forest-dependent communities composed of Hmong ethnic descendants was believed to organized insurgency to support communism (Sumarlan 2004; Fey 2007). For the sake of national security, one of the government responses to these perceived threats was non-recognition of customary tenure. This resulted in a combination of declaration of conservation forest in the area with insurgency and forced resettlement of the local communities to the area with ex-soldiers and government workers (Hearn 1974; Sumarlan 2004). During the 1990s, the government still retained the centralized view to forest tenure, although supported by a different reason – an ecological one.

Negative ecological impacts of agricultural activities conducted by local forest-dependent communities allegedly were responsible for high rate of deforestation and water imbalance in the country (Lasimbang 2006; Fey 2007). In 1998, the Director General of the RFD at the time ruled out the principle of coexistence between man and the nature (Ridmontri 1998). Such ecological justification for rejecting customary tenure to forest and watershed area was regarded as a more publicly acceptable framing of the older desire to make forest land and resources as the legitimate subject of the government. More recently since the mid-1990s, economic benefits from tourism inside the national parks and wildlife sanctuaries resulted in infrastructure and private construction for tourism inside the parks as well as relocation of local forest-dependent communities inside the designation (Leepreecha 2005)

For different reasons over time, the government has continuously approached and viewed forest land and resources as the legitimate domain of the government. Neither the realities of the actual land users, nor their customary tenure has been incorporated into the legal framework. Rather than recognizing the customary tenure of local forest-dependent communities, the government has regarded them as illegal encroachers, who invaded the State-owned forest land as they were driven by poverty (Usher 2009). The concept of Reserve Settlement Commission adopted during the colonial era in certain countries, i.e. Ghana (Wardell, Reenberg et al. 2003), that allows for the identification and protection of customary rights to forest lands of the local communities prior to the gazettement of forest reserves was not employed in Thailand. As a consequence, the two tenure systems produce the overlapping claims in forest land and resources inside the State-owned forest jurisdiction and undoubtedly the two systems have incessantly been in confrontation. In its antagonism towards the local forest-dependent people, the government put forward relentless efforts and at times exercised heavy-handed measures through the years to have them evicted. Consequently, Thailand's forest areas have been plagued by conflicts between the authorities and local communities.

In spite of legal obligation and attempts to remove people from the forests by the forestry agencies, the number of encroachers inside State-owned forest land grew significantly over the years from five million in 1974 to ten million in 1980 (Usher 2009). According to RECOFTC estimates of encroachers living in or near State-owned forest land as described in Usher (2009) reached fourteen millions by 2006. The legal status of millions of people living within State-owned forest area, including substantial number of long-term occupants, was problematic, as they do not have any legal recognition. The local forest-dependent communities, who have been regarded as illegal encroachers in forest land, were in legal violation by their very presence in their customary territory (Ratanakhon 1978). The

lack of formal recognition of customary tenure system and of local community forest management results in tenure insecurity of these local communities (Brenner, Buergin et al. 1999; Ganjanapan 2000).

CHAPTER 5 DE FACTO TENURE IMPACT OF LEGAL FRAMEWORK

This chapter presents the findings of forest land and resource tenure situation in Thailand, based on the data obtained from the two selected communities in the Northern region. It prescribes the past tenure situation and conflicts, corresponding response of the two communities to solve the tenure conflicts and to enhance tenure security. The chapter also portrays the present tenure situation and it ends with the pressing concerns and the tenure type preference of the communities.

5.1. Past tenure situation

This section outlines the historical tenure conflicts of the communities by associating them to the relevant regulatory framework. Furthermore, it demonstrates past pivotal efforts of the communities to solve such conflicts and to enhance tenure security.

5.1.1. Past tenure conflicts

The national forest reserve (NFR) Act provides a room of 90 days after the reserve forest demarcation for any customary landowner to declare him or herself in order to receive financial compensation. Perhaps due to language barriers, remote location and the absence of public consultation prior to the demarcation, the two communities were unaware of the Doi Suthep NFR establishment as well as the call for customary landowners to claim for their rights. Not doing so within the prescribed timeframe was regarded as the customary landowner renounced his or her own rights to land. After the declaration of the community area as part of the reserve forest, the communities appeared to be rather unaffected even though the NFR Act strictly forbade occupying or using forest land and resources. The communities continued with their settlement inside the NFR designation, agricultural practice of shifting cultivation with one-year rotation period, hunting and subsistence gathering forest products without any official permission. All in all, the communities' tenure over their

agricultural land and the surrounding forests, which were then regarded as their traditional community forest, was not disturbed.

The impacts on tenure of the communities became observable about one year after the designation of Suthep-Pui national park. According to the national park (NP) Act, any activity related to gathering forest products, using or possessing land inside the national park area was regarded unlawful, as it might create disturbance to the original state of the park. As a consequence, the communities became illegally using their agricultural land, their residential area and the surrounding forests. Since 1982, the DNP/RFD officials had been actively enforcing the NP Act in the settlements. One of the initial responses was the formation of local guarding and warning system. Once the authorities were spotted approaching to the communities, the members would communicate within the group in order to flee from the land-use area before the authorities arrive. As mentioned by the head of the sub-district (Kaew Mon-ut, personal communication, 12 June 2012) and Tambon Administration Organization (TAO) representative (Duangjun Sansuya, personal communication, 13 June 2012), in the past when the wrongdoers were caught by the authorities, the remaining community members would deny to provide any evidence or witness of such wrongdoing and many times they would block the road preventing the authorities from taking away the wrongdoers. The Pong Yaeng Nai community head and the TAO representative further noted that such strong collective action is generally the Hmong typical characteristics that did not exist among the surrounding Thai communities. The warning system was however not always effective. A large number of the community members was nevertheless arrested and their agricultural tools were confiscated on the account of utilizing NP land. During that time, there was no distinction between traditionally cultivated land or newly cleared land, as anyone occupying or utilizing NP land was regarded as violators to the NP Act. As stipulated by the Act, the arrested violators were penalized in forms of fine and/or imprisonment. This marked the beginning of accumulated resentment of the communities against the DNP/RFD officials.

Being classified as part of the watershed class 1A, the enforcement of NP Act and the RoWC in the settlements was further strengthened. As forced eviction was recommended in the RoWC as one of the potential arrangements for existing settlements inside the watershed class 1A, during 1985-1986 threats of forced relocation became progressively pronounced as certain communities in Thailand were being relocated. In combined with the resentment due to the arrest and punishment of many community members, occasionally it led to retaliations. In the 1990s, one of the arbitrary arrests resulted in violent gunfire between the two parties. According to the village head assistant of Mae Sa Mai, the overlapping claims made by the

officials were deemed legitimate due to the widespread negative perception of shifting agriculture and hilltribers at the time. Shifting agriculture was regarded as an unsustainable cultivation method that requires continuous clearance of forest land, whilst the hilltribers were reckoned the forest destroyers. Therefore it was in direct contradiction to forest conservation effort of the government.

In response to the nation-wide protest, the RoSLC allowed for temporary settlement and use of land inside the NP without further expansion, until the process of historical settlement investigation is finalized. The criterion as historical settlement proof nonetheless is rather incompatible with the communities that traditionally performed shifting cultivation. To illustrate, when doing shifting cultivation the land users tend to leave big trees standing and when rotating to another piece of land, the used land revert to natural vegetation. Given that the criteria of used land of the government is the completely cleared land without natural vegetation, historical aerial photographs alone would not be able to properly detect the trace of shifting cultivated land. The implementation of the RoSLC in the meantime had led to demarcation of agricultural plots, community forest and conservation forest of the two communities by the DNP officials both by ground truthing and GPS mapping.

5.1.2. Past efforts to solve tenure problem

Driven by strict enforcement of laws and fear of forced eviction, the communities collectively employed several strategies in order to enhance their tenure security and to survive the threat of eviction. Aside from the assistance of various NGOs to negotiate with the authorities for enhanced tenure security, crucial strategies conducted and performed by the communities include forming the Natural Resource Conservation Group, establishing the conservation forest, hosting experimental forest restoration plots and participating in protests for their rights to forest land and resource.

5.1.2.1. Natural Conservation Group

Amongst the initial conservation efforts was the formation of Natural Resources Conservation Group in late 1980s. The Group was principally composed of leading community committee members built a community-wide consensus towards the creation of the conservation forest locally called Dong Seng. Originally the area was covered with evergreen forest. It was then cleared for cultivation of rice, cabbage, corn, potato and other cash crops. In 1990 as a result of series of community meetings and majority vote for approval of conservation forest, about 20-30 community members gave up their agricultural area in the upper watershed headwater

in order to preserve as the conservation forest of the communities. Gradually over the course of four years, cultivation activities were phased out and the conservation forest of 80 hectares was created.

5.1.2.2. Conservation forest

The conservation forest was maintained and protected by the two communities. Community rules created by the Natural Resource Conservation Group limited the use and prescribed punishment for any violator. The community members normally entered the area only for the Forest Ordination ceremony and for constructing firebreaks[9]. According to the community rules, forest product collection or hunting was forbidden in the area. Anyone violating such rules would be fined. For example any hunting activity would be fined at the rate of 500 THB per number of legs of the animal hunted. The fine collected would then go to the community funds. Primary objectives of the conservation forest most likely were: (i) to demonstrate the community's willingness and ability to conserve forests in order to replace their negative image among the public and the DNP of forest destroyers with forest guardians; (ii) to use as a protection from forced relocation; (iii) to keep headwater area forested in order to maintain downstream water quality and quantity; and (iv) in light of the nation-wide discussions on the Community Forest Act during the time that was expected to be passed, to grab more land when the Act comes into effect.

With the evidence of improved forest condition of the conservation forest area after four years of establishment, the local DNP officials had altered their negative attitude towards the communities. Then discussion and negotiation between the two parties then became possible, as they collaborated for forest conservation in the communities. Certain conflicts caused by expansion of agricultural land into the forest land nonetheless remained, essentially due to the absence of clear boundary of individual agricultural plots at the time.

5.1.2.3. Experimental forest restoration

Additional to the conservation forest, in collaboration with Forest Restoration Research Unit (FORRU) of Chiang Mai University, the communities have assisted in preparing experimental forest restoration plots in its vicinity that had been continuously enlarged during the period of 1997-2012, from 0.48 to a total of 30.72 hectares (Stephen Elliot, personal communication, 2 August 2013). In combined with the community forest conservation initiative, the effort was

[9] The community has a community forest, which used to be an agricultural area and was forced to be given up by community's majority vote for approval of community forest. After reforesting the area, the community uses the forest area for gathering forest products and timber for community ceremony. The area is about 4.8 hectares.

well received by the DNP. The community received a number of awards as forest guardians and in 2008 the DNP selected the communities as one of the sites that received funding for reforestation program from the Petroleum Authority of Thailand (PTT) due to their outstanding conservation performance.

5.1.2.4. Assembly of the Poor

In 1997 the communities joined force with other forest-dependent communities in Chiang Mai to protest in front of the City Town Hall of Chiang Mai province and later participated the Assembly of the Poor to protest further in Bangkok for 99 days. Consequently, the protest has eventually led to the issuance of the Cabinet Resolution of 30 June 1998 or RoSLC.

5.2. Present tenure situation of Mae Sa Mai community

The community members seem to have rights to enter, to use with certain restrictions, to manage, to exclude incompatible use of land as well as to transfer these rights to the next generation. Even without any formal recognition, the members commonly did not fear of eviction or withdrawal of rights to the community forest.

5.2.1.1. Rights to access and to withdraw

Concern with rights to access and use the community forest, all of thirty-nine respondents (100%) and the village head assistants collectively indicated that the community members could enter and gather non-timber forest products from the community forest for household consumption without any official permission (Figure 13). In response to the question of what are the forest products that the members usually collect, most respondents indicated bamboo shoot, mushroom and medicinal plants. Over half of the younger male and female participants as well as the village head assistants further explained that due to a number of fatalities associated with poisonous mushroom in the past, the popularity of mushroom gathering and consumption in the community was dramatically reduced. All of the thirty-nine respondents (100%) mentioned that collecting forest products for commercial purpose was not allowed, as stipulated in the community rules (Figure 13). Such rules were purposively established to prevent a situation where greedy members intensively collect forest products and thereby degrading the community forest condition, as explained by a few older male participants.

Approximately 87% of the participants as well as the village head assistants indicated the community members could not hunt animals (Figure 13). A few participants of the older male group commented that the violator would be fined 3,000-5,000 THB for four-legged animals and 2,000 THB for fowls. The village head assistant revealed that the community committee once fined a violator 5,000 THB. The minority of five respondents principally comprising of the younger male group believed that the community rules allowed the members to hunt small animals such as bird and squirrel, but not big animals (Figure 13).

With regards to timber, over two-thirds of all participants (92%) indicated that the community members could use timber in the community forest (Figure 13). As voiced in all groups, the members needed to ask for approval of the village committee or village head before extracting the timber from the forest and only for community events, e.g. funeral, wedding etc. (Figure 13). The village head assistants then confirmed such notion. An individual of the younger female group stated that given the limitation of timber use inside the community forest, some members illegally logged trees outside of the community forest in order to build houses. However, the village head assistants added that most of the members of the younger generation tended to build their houses with cement rather than wood due to its greater durability and to avoid potential conflicts with the community committee and the DNP officials.

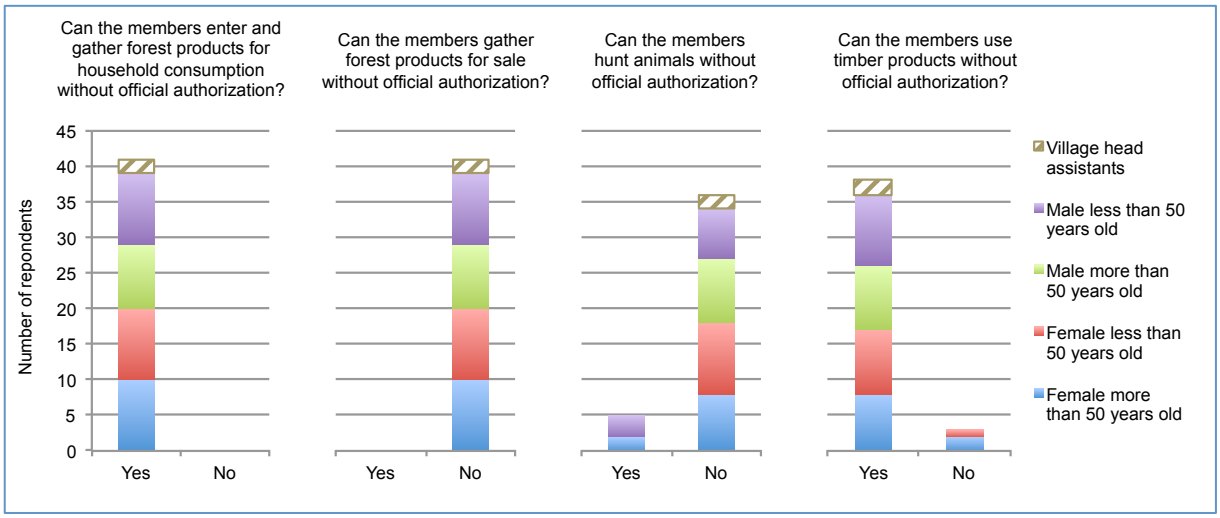


Figure 13 Access and withdrawal rights of Mae Sa Mai community

5.2.1.2. Rights to manage

Concerning rights to manage the community forest, all the thirty-nine participants (100%) as well as the village head assistants unanimously agreed that the community was responsible

for maintaining, replacing dead trees with seedlings and constructing firebreaks every year (Figure 14). According to a few younger female participants, each household had to send one representative to construct firebreaks annually. The representatives were then classified into groups and each group was responsible for creating firebreaks in a different designated area of the community forest. Furthermore, during dry season, the community members guarded the area that was prone to forest fire around the clock on a voluntary basis, as discussed in the younger male focus group. As mentioned by over half of the older male participants, the community had been responsible for management and maintenance of the community forest for the past decade.

In relation to involvement of the authorities in the management and maintenance of the community forest, the 46% majority of the respondents principally comprising of female groups believed that the DNP had not been involved in the management of community forest, while the other 33% of the respondents held an opposing view (Figure 14). After cross checking with the village head assistants, the minority view was found more accurate. This might be due to the fact that many female members had not been directly participated in the management and maintenance activities, as often as the male groups and hence may lack of in-depth information of the activity. Over half of younger and older male participants revealed that the DNP contributed to the firebreaks construction every year, once informed by the community of the exact dates (Figure 14). Additionally, according to the village head assistant, the community often asked for and received financial support from the Tambon Administration Organization to construct firebreaks.

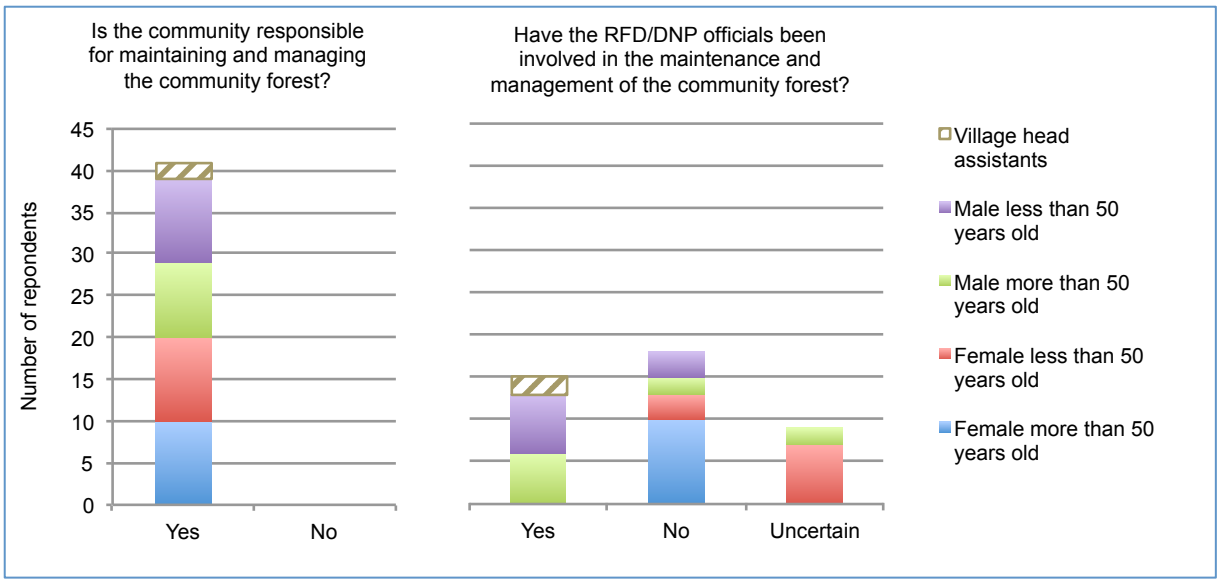


Figure 14 Management rights of Mae Sa Mai community

5.2.1.3. Rights to exclude

Related to exclusionary rights, about 92% of the respondents as well as the village head assistants expressed the belief that the community members could exclude any incompatible user that was either a villager from other villages or an investor (Figure 15). Only two respondents felt uncertain whether the investor would be too powerful for the community members to exclude (Figure 15). A few respondents revealed that the members could collaborate with the DNP to exclude incompatible land users, given that the DNP held ownership rights to land.

When the respondents were asked if the competitive land users had been the DNP officials, over 85% of the respondents commented that the community members could also exclude them (Figure 15). The reason commonly provided by all groups and the village head assistants was the unofficial permission by the DNP to use and responsibility to maintain and manage the community forest through negotiation between the community committee and the local DNP officials. As remarked by a few older and younger male participants, this implies that as long as the community could continue to maintain the community forest, the community should then have the rights to exclude any competitive land user including the officials. The minority of six respondents chiefly led by the participants of the older female group believed that the community members could not exclude the DNP primarily because the DNP was the legal owner of the community forest land (Figure 15).

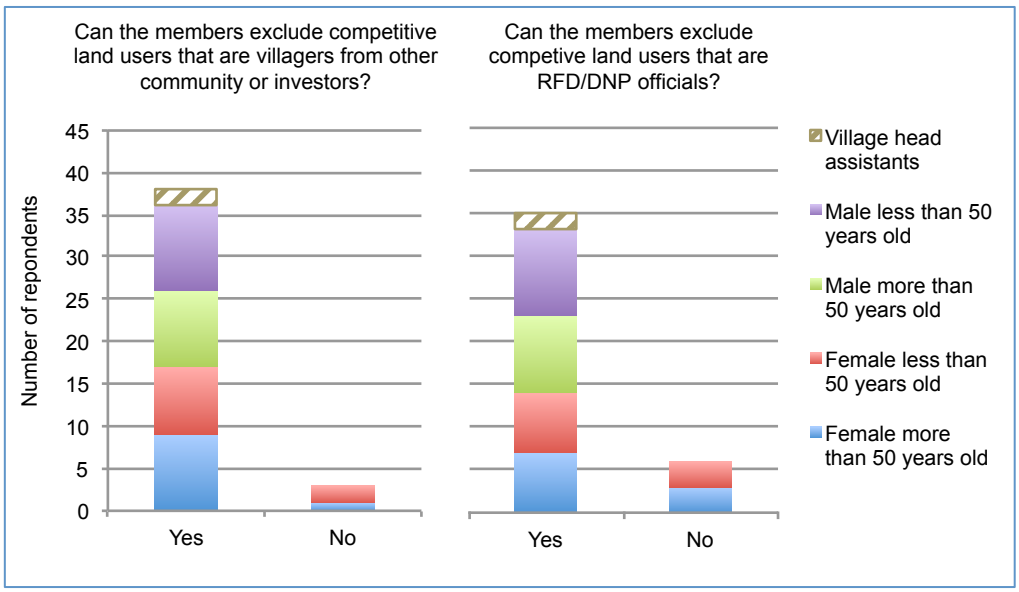


Figure 15 Exclusion rights of Mae Sa Mai community

5.2.1.4. Rights to alienate

With respect to alienation rights, all of the thirty-nine respondents (100%) as well as the village head assistants indicated that the community members could transfer the community forest to the next generation (Figure 16). A few respondents specified that the members could transfer only the assigned rights to use and the responsibility related to the community forest to descendants, not the legal ownership of the land. All of the participants (100%) agreeably commented that the community members could not sell the community forest land (Figure 16). As noted by a few participants of the older male group and the village head assistants, the community rules stipulated that the community members could use and should maintain and protect the community forest for the next generation but no one could sell the community forest land. Moreover, an individual from the younger male focus group stated that if the community had sold the community forest, implying that the community could not protect the forests, then there would certainly be consequential land conflicts with the DNP.

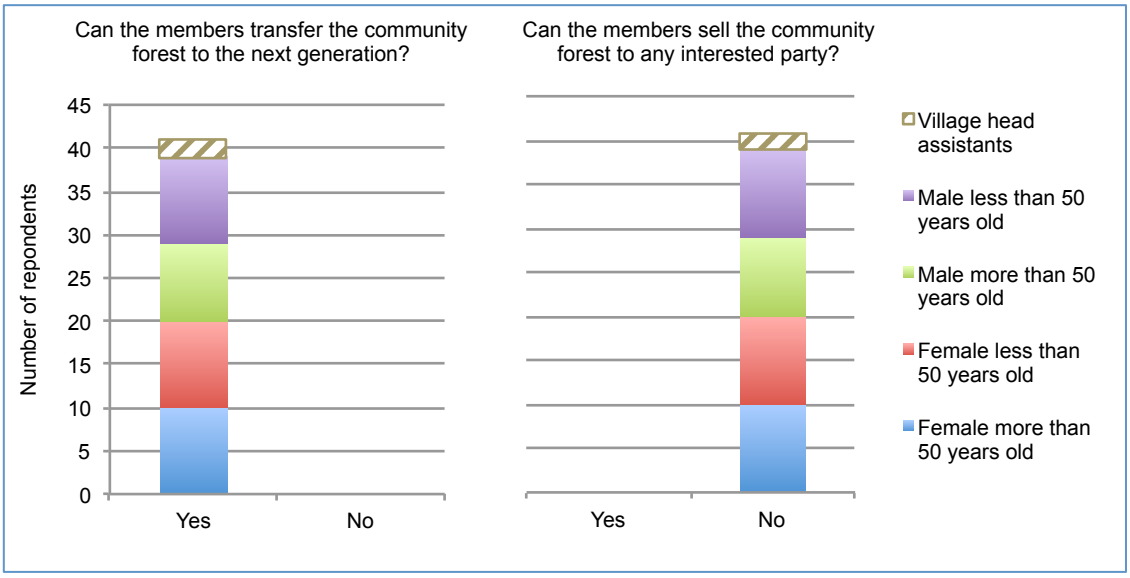


Figure 16 Alienation rights of Mae Sa Mai community

5.2.1.5. Fear of eviction or withdrawal of rights

Concerning fear of eviction or withdrawal of rights over the community forest, similarly to the village head assistants, almost 78% of the respondents did not fear of withdrawal of rights to the community forest land (Figure 17). The prime reasoning voiced in most groups was the verbal agreement reached between the community committee and the DNP officials to allocate rights and responsibility to the community forest to the community. Furthermore, as mentioned in the older and younger male discussions as long as the community could

conserve and maintain the community forest, the officials would not have sufficient reasons to withdraw their rights to the community forest. The minority of the respondents (22%) revealed the fear of withdrawal of rights to the community forest based on the absence of any legal title document to the community forest and the potential future changes in laws related to national park designation (Figure 17).

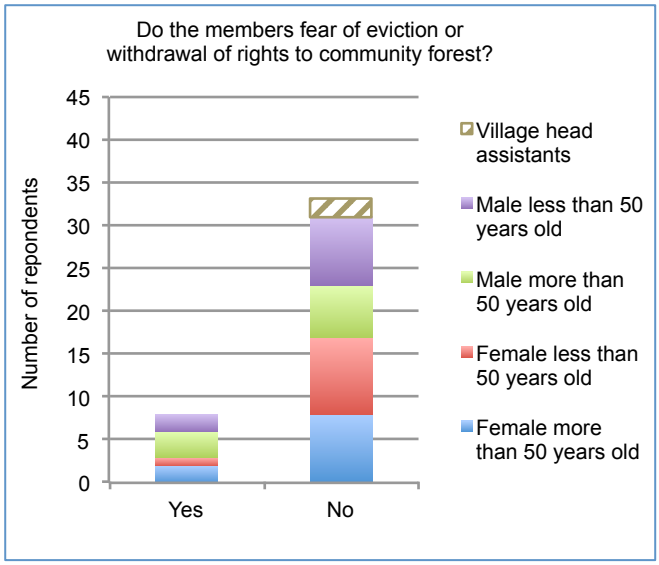


Figure 17 Fear of eviction or withdrawal of rights to community forest of Mae Sa Mai community

5.2.1.6. Legal recognition

With regards to legal recognition of community forest, all participants (100%) as well as the village head assistants unanimously agreed that the community members did not have any formal recognition of their rights to the community forest (Figure 18). Many participants voiced that it was due to the fact that the community forest area was located inside the NP designation.

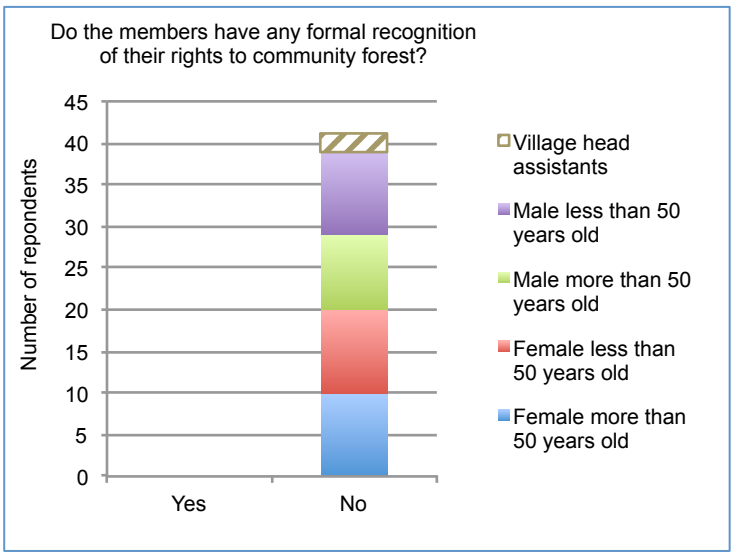


Figure 18 Legal recognition of community forest of Mae Sa Mai community

5.3. Present tenure situation of Mae Sa Noi community

The community members appeared to enjoy rights to enter, to use with a few restrictions, to manage and to exclude incompatible use of their community forest land. Moreover, they could transfer these rights to the next generation. Even without any formal recognition, the members in typically did not fear of eviction or withdrawal of rights to the community forest land.

5.3.1.1. Rights to access and to withdraw

With respect to rights to enter and use, 100% of the participants as well as the village head and his assistant identified that the community members could enter and gather non-timber forest products from their community forest at their convenience for household consumption (Figure 19). Most respondents highlighted that the community members could collect any edible forest products, such as bamboo shoot, mushroom and banana blossom. A few younger female participants commented that many community members in present day preferred to grow vegetables for household consumption in their agricultural or residential land rather than gathering from the forest because it was more convenient to harvest. Some older and younger female participants highlighted that many community members no longer gathered mushroom

due to the fear of mushroom poisoning. Conforming to the village head and his assistant, most respondents (88%) agreed that the collection of forest products for commercial purpose was prohibited by the community rules (Figure 19). The minority of five respondents was uncertain yet some of them also noted that they had never seen any member selling forest products (Figure 19).

A 90% majority as well as the village head and his assistant disclosed that hunting animal inside the community forest was not allowed, as stipulated by the community rules (Figure 19). A few younger male participants noted that for any violator, after the initial warning by the community committee, s/he would be fined following the community rules and if continued, the committee would hand over the violator to the DNP officials. Regarding timber products, a great portion of the respondents (83%) believed that the community members could use timber from the community forest occasionally for community events, such as wedding and funeral, upon approval of the village head or community committee (Figure 19). The village head and his assistant confirmed such notion. A few older male participants indicated that the members were usually allowed to log two to three trees and the trees should be no more than 20-30 years old. As elaborated by the village head, had any member violated or logged trees without permission of the village head or his assistant, the community committee would warn the violator and if continued, the violator would be sent to and punished by the DNP officials in accordance with the NP Act. The use of timber for personal purpose, such as building houses, was not allowed, as discussed among the younger female participants.

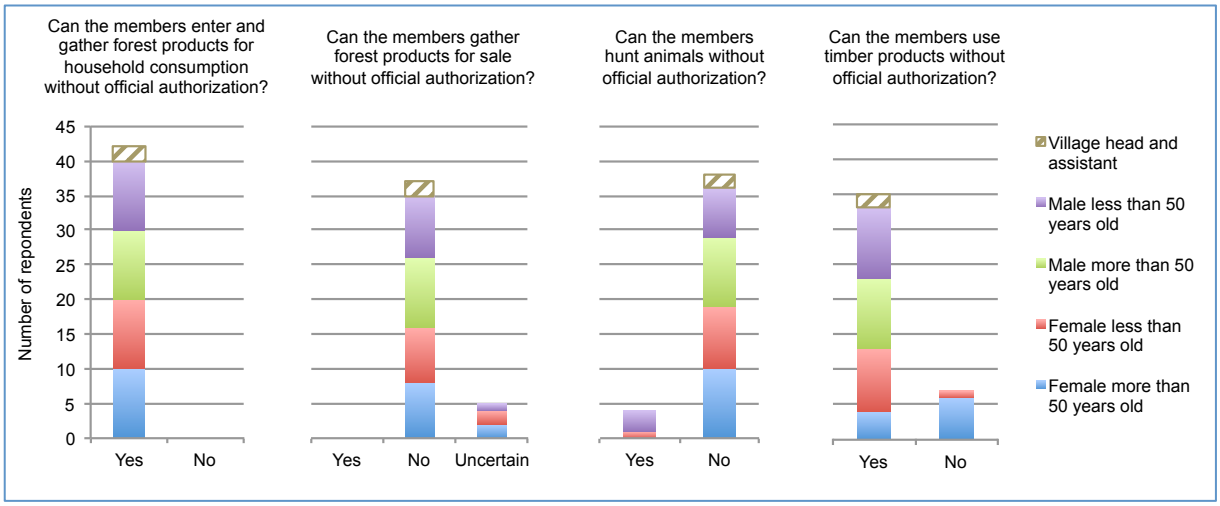


Figure 19 Access and withdrawal rights of Mae Sa Noi community

5.3.1.2. Rights to manage

With regards to management rights, by consensus the respondents (100%) as well as the village head and his assistant stated that the community had been responsible for applying fertilizer in the forest, replacing dead trees with seedlings, constructing firebreaks and guarding against forest fire (Figure 20). Most respondents highlighted that the community rules that were established and enforced by the community committee in order to regulate the use and maintain the community forest. A few individuals of the younger male group noted that the community rules were accepted by the local DNP officials.

In response to the question on the level of involvement of the DNP in community forest management, 65% of the respondents believed that the DNP had not been involved in the management of the community forest at all (Figure 20). The minority of 18% primarily comprising of older male participants reported the involvement of the DNP in form of funding for firebreak construction at times (Figure 20). In fact, the village head and assistant identified that upon the community's request the DNP usually provided man labor and the TAO often provided financial support for firebreak construction. The remainder of 18% was uncertain of the DNP's involvement (Figure 20).

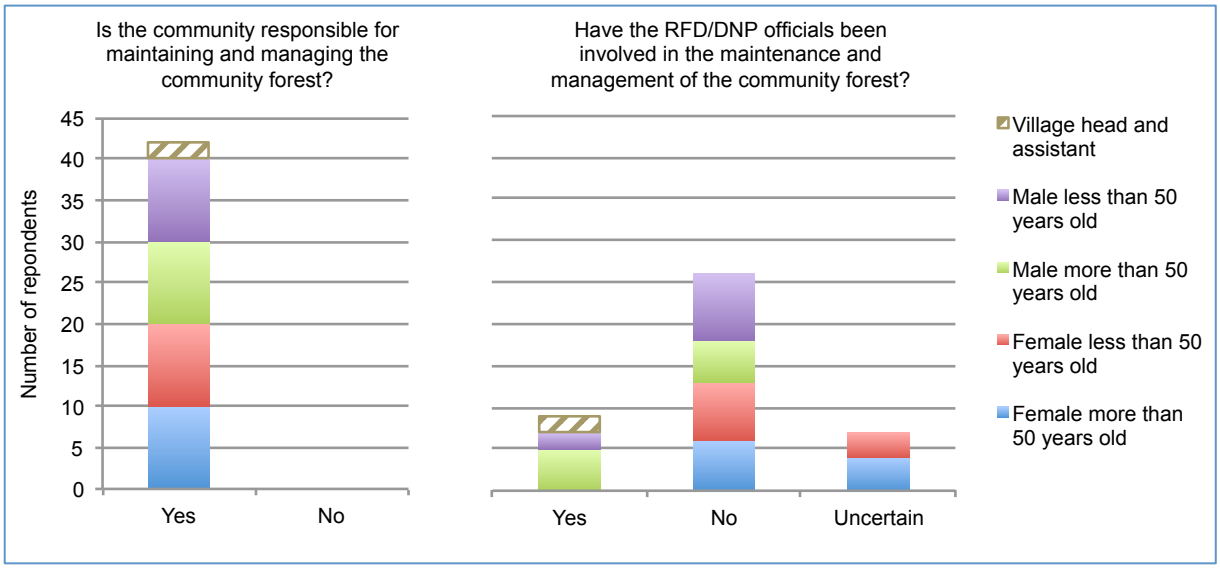


Figure 20 Management rights of Mae Sa Noi community

5.3.1.3. Rights to exclude

About the rights to exclude incompatible use of the community forest land, a 98% majority as well as the village head and his assistant indicated that the community members could certainly prevent any incompatible use of the community forest land if the competitive land user had been a villager from other communities or an investor (Figure 21). Only one

participant expressed hesitance about the ability of the community members to exclude investors, who might be comparatively more powerful.

When the participants were asked if the DNP officials had been the competitive user, the overall response (78%) revealed that the community members could also prevent such user, similarly to the village head and his assistant (Figure 21). Over half of the younger male participants suggested that the members could exclude any incompatible land users including the DNP thanks to the GPS maps and demarcation of the community forest conducted by local DNP officials. A few individuals of the older male and younger female group commented that the community could collectively protest against any competitive use of the community forest. The minority of the respondents predominantly from the older female group based their belief that the community could not exclude incompatible use of land of the officials due to past incidence of land appropriation by the government in the neighboring forest for rattan plantation.

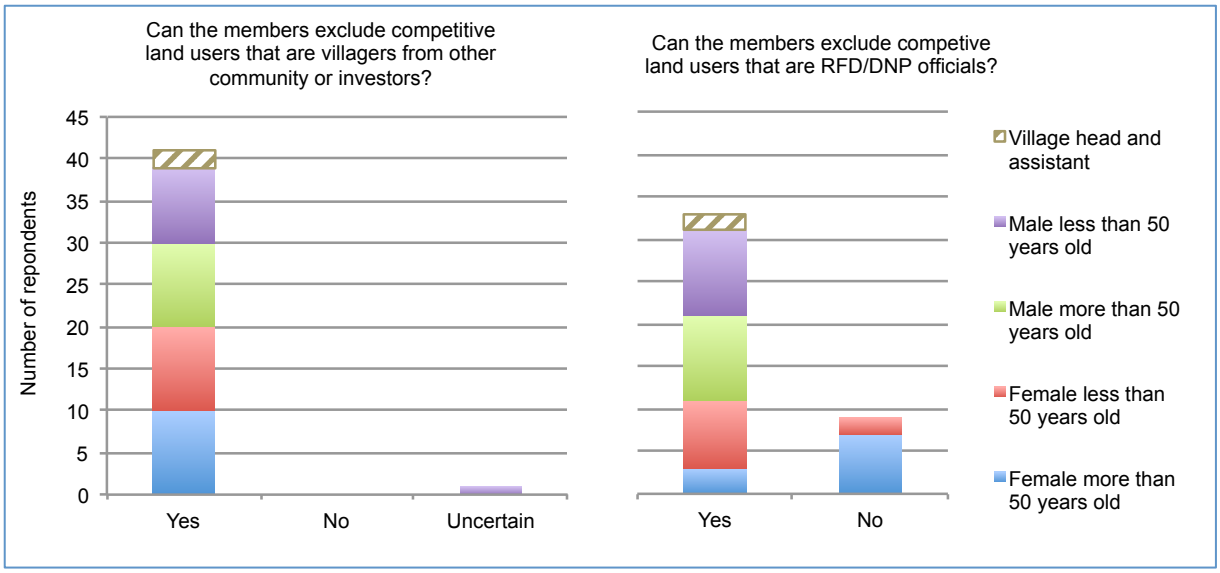


Figure 21 Exclusion rights of Mae Sa Noi community

5.3.1.4. Rights to alienate

With regards to rights to alienate, the participants of all groups (100%) and the village head as well as his assistant jointly agreed that the community members could transfer the rights to use and manage the community forest to the next generation (Figure 22). Certain participants of the younger male group added that the community could transfer such rights directly without any intervention of the DNP officials because the DNP already demarcated the community forest as part of the settlement. According to an individual of the older male

group, he noted that at present the community forest had been transferred for the past six to seven generations already.

All of the forty participants (100%) as well as the village head and his assistant concertedly commented that the community could not sell the community forest land although for various reasons (Figure 22). Over half of the younger female participants indicated the community wished to maintain the forest for the next generation. As elaborated by a few older female individuals, the ownership of the community forest land remained with the DNP and the members held only certain rights and responsibilities to the community forest.

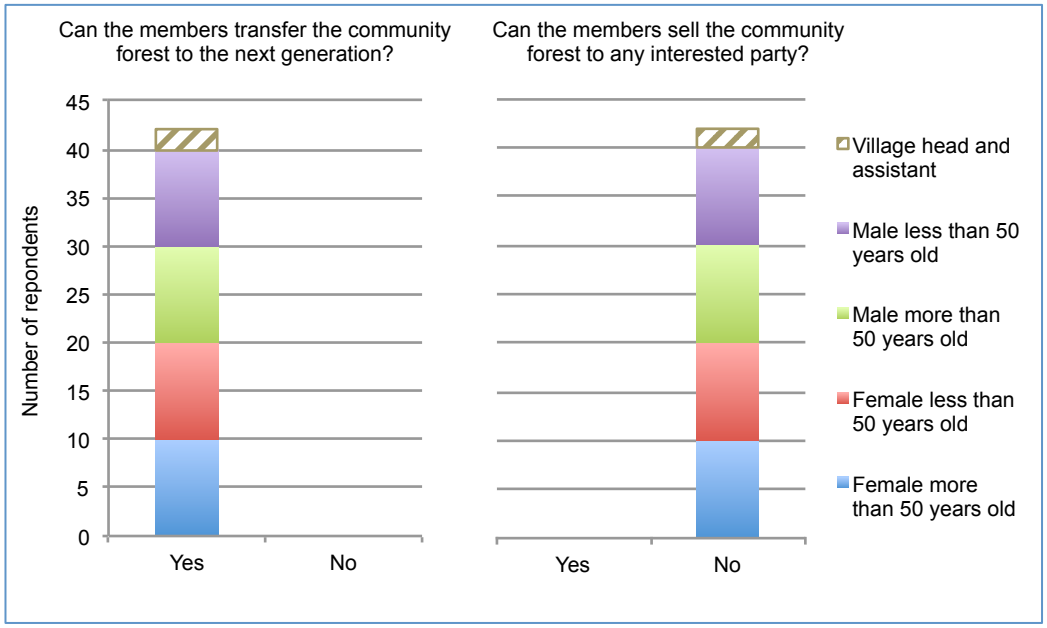


Figure 22 Alienation rights of Mae Sa Noi community

5.3.1.5. Fear of eviction or withdrawal of rights

Concerning the fear of eviction or withdrawal of rights to the community forest, a 83% majority of the participants did not fear of the matters (Figure 23). Over half of the younger male participants commented that such fear was considerably reduced after the GPS mapping of the community forest area by the local DNP officials. A few individuals of the older male group voiced that as long as the community could protect and maintain the community forest in good condition, the DNP had no sufficient reason to take away their rights. The minority of the respondents predominantly comprising of older female participants on the contrary believed that the DNP might be able to withdraw the community's rights to the community forest based on the past incidence of land appropriation for government's rattan plantation.

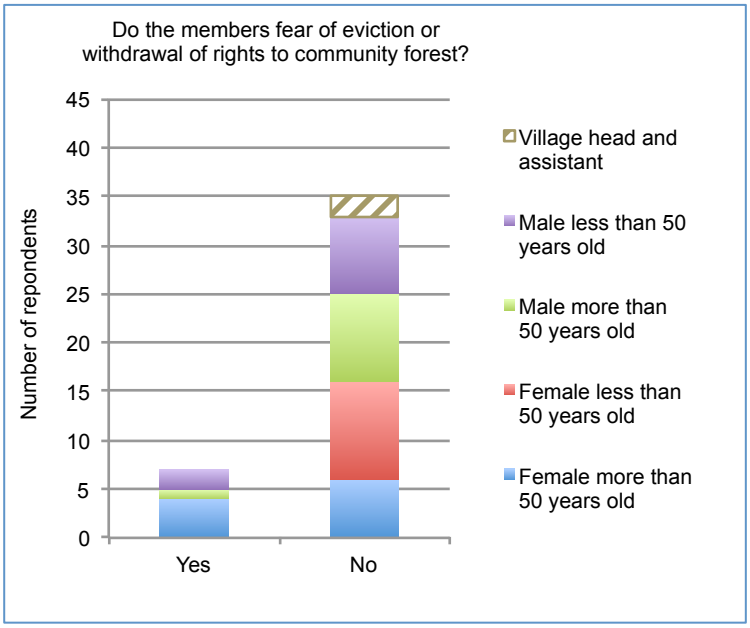


Figure 23 Fear of eviction or withdrawal of rights to community forest of Mae Sa Noi community

5.3.1.6. Legal recognition

When discussing about the legal recognition of the community forest, the respondents (100%) as well as the village head and his assistant concurrently agreed that the community had neither formal recognition nor title document to the community forest (Figure 24). Some participants of the younger male group expressed the belief that the community's demand for a title document to the community forest was denied by the DNP on the ground that the community forest was located inside the NP designation. Echoing the explanation provided by the DNP officials, the village head revealed that the existing laws on National Park did not allow the issuance of any title document to individuals or communities inside the NP designation.

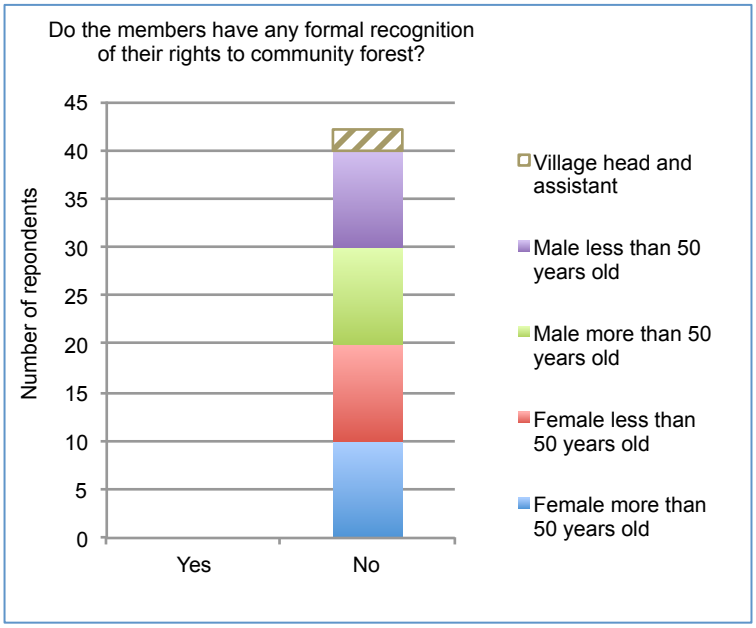


Figure 24 Legal recognition of community forest of Mae Sa Noi community

5.4. Pressing concern and tenure preference

This section covers the issue of present concerns of the two communities. Moreover it discusses about tenure type preferences of the community members to their community forest land as well as willingness to sell land upon receiving formal tenure recognition.

5.4.1. Pressing concern

When being asked about the top three urgent problems in the communities, the issue of land tenure was expressed in form of the desire for title deed in both communities, rather than conflicts with the DNP officials. Furthermore, the desire for title document was mentioned only in certain focus groups – male groups of Mae Sa Mai community and older groups of Mae Sa Noi community. For Mae Sa Mai, some older male participants highlighted that the members were certain that their rights to land would not be contested in their generation but without the title document there remained uncertainty for the next generation. Other concerns included drug addiction, insufficient agricultural and residential land, low agricultural produce price, high education expenditure and narrow road (Figure 25).

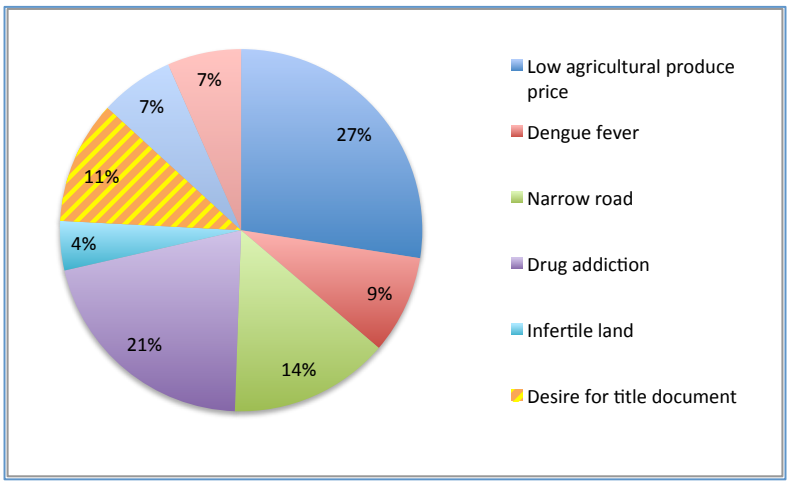


Figure 25 Pressing concern of Mae Sa Mai community

In Mae Sa Noi community, in response to the question why none of the younger male participant mentioned tenure issue as concern, most participants of the group replied that the community members currently no longer had conflicts with the DNP officials. Compared to their parents' generation that the members had to flee from their land when encountering the officials, now the members could continue with their activity without the fear of being arrested. The DNP officials only came to the community from time to time to check the boundary on a monthly basis and to discuss with the community committee. Other concerning issues comprised of low agricultural produce price, drug addiction, narrow road, dengue fever, limited access to health care, insufficient agricultural and residential land and infertile land (Figure 26).

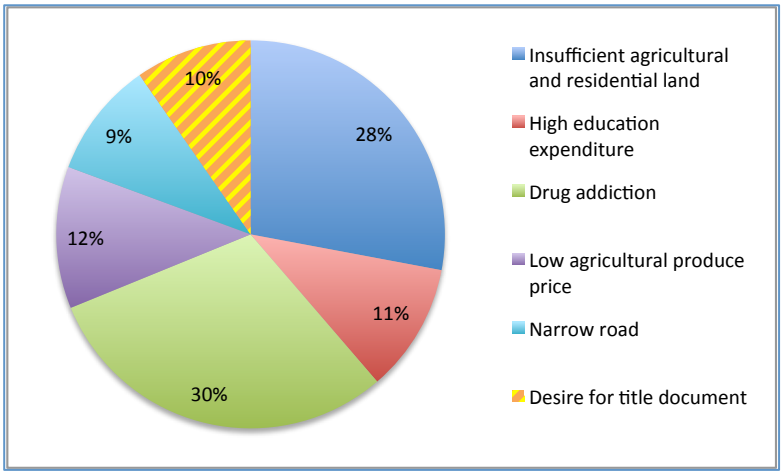


Figure 26 Pressing concern of Mae Sa Noi community

5.4.2. Tenure preference

When being asked whether the community members would like to have recognition of their rights to the land, all of the participants of both communities harmoniously replied yes. Primarily, the reason frequently voiced among all groups to substantiate such desire was to enhance the community's tenure security to the land. The question was then further divided into the preferable format of tenure for the community forest as well as agricultural land.

For the community forest land of Mae Sa Mai community, the majority of the respondents (98%) indicated the preference for communal tenure. General explanation for the choice of communal tenure over individual tenure to community forest land by all groups was related to the long-term ability to conserve the forest. A few younger male participants mentioned the benefit of communal title that could prevent the sale of community forest land in the pursuit of personal wealth. Other respondents from the older male group pointed out that the communal title would allow sharing of resource use and encourage collective effort to conserve the community forest. As explained by a few individuals of the younger female group, the community forest area was too large for a handful of individuals to maintain. Only one younger female participant revealed the preference of individual title to the community forest attributable to the greater flexibility in decision-making on the use and management of the land.

In relation to community forest of Mae Sa Noi community, all of the forty participants (100%) seemed to prefer communal tenure to community forest. The rationale for such preference that was mentioned in all groups was the non-alienation attribute of the communal title, as means to prevent the sale of community forest land. Other reasons provided related to the communal rights to use the forest products and shared responsibility in management and maintenance of the community forest.

5.5. Summary

For decades, government policies towards forest management have been top-down and the concept that co-existence of human and forests is deemed impossible. The demarcation of Doi Suthep national forest reserve in 1964, Doi Suthep-Pui national park in 1981 and Watershed Class 1A in 1982 overlapping the settlements was conducted without public consultation or consent. Since the 1980s, rapid expansion of conserved forest network and stringent

enforcement of forest conservation laws have been noticeable. In many countries in Southeast Asia with ethnic minorities, the negative view of shifting cultivators as forest destroyers was magnified (Delang 2002). Similarly, in Thailand, the typical negative image of the local forest-dependent communities in highland particularly the Hmong hilltribers was pronounced (Hirsch 2000; Delang 2002; Sumarlan 2004; Forsyth and Walker 2008). Furthermore, deforestation was believed to cause irregular rainfall and compromise regular water runoff, worsening flooding and drought (Forsyth and Walker 2008). Such water imbalance had large implication on the majority of the Thai population (64% in 1994), who were at least part-time rice farmers and dependent on constant supply of stream water (Delang 2002). Furthermore, upland ethnic minorities in the past were regarded as communist insurgents, illegal immigrants and drug producers and traffickers and therefore should be closely monitored and controlled (Leblond 2010; Lee and Tapp 2010). In combined, various pressures backed by environmental protection and national security rationales were exerted on communities residing in upper watersheds at mid to high elevation (Leblond 2010), including the two communities studied. Mae Sa Mai and Mae Sa Noi communities consequently lived under insecure rights to forest land and resources without any legal recognition and were incessantly exposed to threats of arbitrary arrest and relocation by the authorities in the past.

In light of the rising tenure insecurity, one of the key responses of the communities was the focus on forest conservation activities. The communities initiated a number of forest conservation activities, e.g. formation of Natural Resources Conservation Group in late 1980s, the creation of the conservation forest in 1994, the assistance to Forest Restoration Research Unit (FORRU) in creating forest restoration plots since 1997. The characteristics of strong collective action of the two communities made possible the creation and successful continued management of the conservation forest that required the dispossession of agricultural land of several community members as well as strict enforcement of community rules governing the use and management of the forest resources. Moreover, such strong collective action along with certain level of negotiation skills led to the acceptance of the communities' rules governing the access, use and withdrawal rights to the community forest by the local authorities.

Another factor that appears to contribute to tenure security improvement of the communities is the presence and assistance of local mediators. Various NGOs and research institutions that had collaborated with the communities played an essential role both indirectly and directly. Indirectly, they instilled the concept of forest conservation as means to enhance *de facto* tenure security and to gain trust from the officials. The Royal Project Foundation

encouraged and facilitated the communities to change from shifting cultivation to permanent cultivation, which were regarded by the authorities as less destructive to forest (Bunrongsak Sainoi, personal communication, 25 June 2012). By doing so, the communities learned that the potential avenues to gain acceptance and lower tenure conflicts with the authorities are to adopt environmental-friendly approach to cultivation and/or forest conservation activities. Along the same line, FORRU, the reforestation research unit hosted by Chiang Mai University provided the communities with opportunities to showcase their willingness and capacity to conserve the forest. FORRU also helped conveying scientific evidences of positive conservation outcome of the communities to the authorities on several occasions (Stephen Elliot, personal communication, 2 August 2013). Directly, a number of organizations entered into negotiations with local authorities to enhance tenure security of the communities. The Royal Project Foundation initiated the demarcation of agricultural area of participating community members and negotiated for the use of land on behalf of its members with the local authorities (Bunrongsak Sainoi, personal communication, 25 June 2012). The Uplands Program, an international collaborative research program conducted in the communities, together with its Thai partners also negotiated with the local authorities for the two communities to have the rights to permanently settle in their present location (Neef 2012).

Additional to the three major factors that could be described as specific local context of the communities leading to *de facto* tenure security, another complementary external factor is the growing public pressure on the government to provide tenure security to local forest-dependent communities in Chiang Mai in 1997 and later in Bangkok led by the Assembly of the Poor. Consequently, the protest, which augmented political pressure on the government, eventually led to the issuance of the Cabinet Resolution of 30 June 1998 or RoSLC. Following the implementation of RoSLC in the communities, the GPS maps of the individual agricultural land, community forest and conservation forest were created. Furthermore, the DNP officials also demarcated the boundary of the settlements to inform the members of their periphery. The mapping process was finalized approximately in 2008. Upon the GPS mapping, another layer of collaboration between the communities and the authorities was added, as their level of trust grew. The community committees of both Mae Sa Mai and Mae Sa Noi were assigned to guard against expansion of agricultural plots beyond the boundary and to ultimately hand over the wrong-doers to the local authorities. With the clear boundary and strong collaboration between the communities and the DNP, the number of members expanding their land became significantly lowered as well as the conflicts between the

communities and the DNP officials. At times, the community committee captured the members, who cleared land beyond his boundary and sent them to the DNP officials with consent, as opposed to the past where the committee sided with the community members against the DNP whether the members were truly guilty or not. The communities' forest conservation initiatives were well received by the DNP officials and the public. The community obtained a number of awards as forest guardians and in 2008 the authorities selected the community as one of the sites that received funding for reforestation program from private sector due to their outstanding conservation performance.

Even without any legal recognition of their tenure, it is widely understood in the communities that the local authorities informally recognized their tenure due to the direct involvement of the authorities in plot allocation and community mapping. Furthermore, the communities were able to initiate and enforce the community rules governing the access, use and management of the community forest autonomously with an acceptance from the authorities. Moreover, the majority of the respondents revealed excludability vis-à-vis all incompatible land users of the settlements including the authorities and the absence of fear of relocation. Correspondingly, when being asked about their pressing concerns, tenure conflicts were not mentioned as one of the top three priorities. As a few members explained, the communities no longer had tenure conflicts with the authorities as in the past. In other words, the communities appear to have *de facto* tenure security to their forest land and resources. The illustration of tenure analysis of Mae Sa Mai and Mae Sa Noi communities is shown in Figure 27.

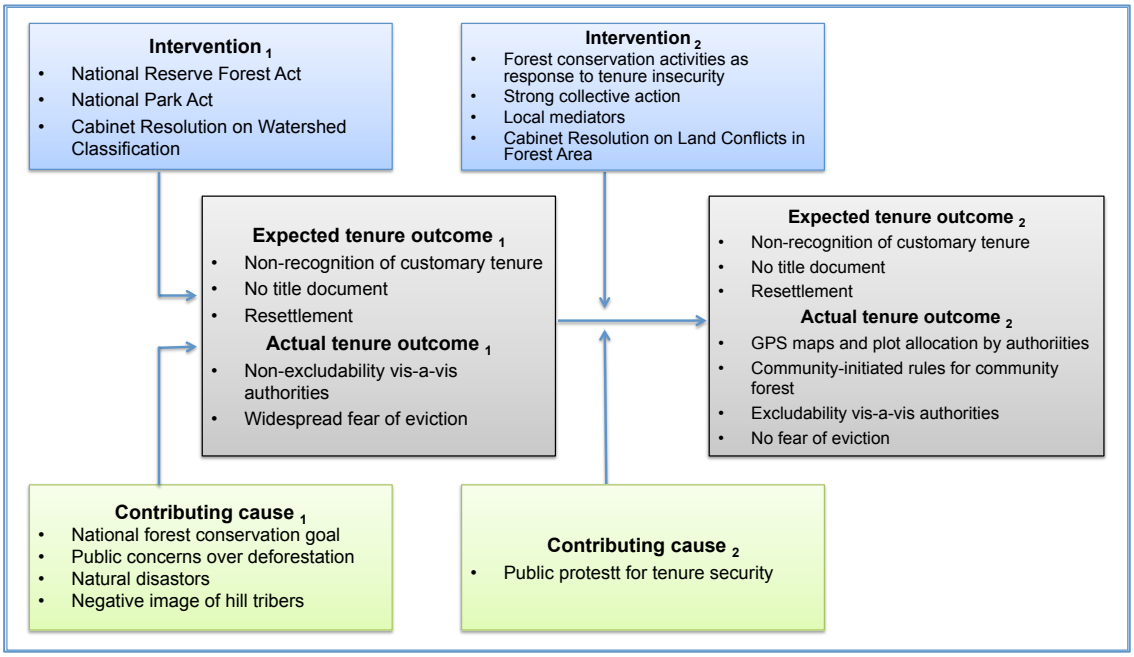


Figure 27 Tenure impacts analysis of Mae Sa Mai and Mae Sa Noi communities

CHAPTER 6 DE FACTO TENURE IMPACT OF REDD+

This chapter presents the findings related to REDD+ pilot measures and activities performed in Thailand. It discusses about the evolution of tenure situation of the selected communities and identifies the tenure changes occurred as a result of REDD+ pilot implementation. The findings were obtained from two local communities, Ton Mamuang and Bongti Noi communities that participated the Tenessarim Biodiversity Corridor Initiative (BCI) located in Kanchanburi province of Western Thailand.

6.1. Overview of pilot project activities

This section discusses about the context of the REDD+ pilot project in Thailand. Moreover, it describes the expected activities as well as the actual activities conducted in the pilot project.

6.1.1. BCI as REDD+ pilot

The BCI was launched to address long-term ecosystem fragmentation by securing recognition of a biodiversity landscape as part of the regional program implemented in Greater Mekong Sub-region (GMS). In Thailand, the BCI is located in the Tenasserim corridor, comprising remnant forest between Sai Yok national park and Maenam Phachee wildlife sanctuary. The proposed corridor includes a 10-kilometer wide strip from the Thai border and covers a total area of 1,807 square kilometers. Using the Asian Development Bank (ADB), the governments of Finland, the Netherlands and Sweden provided financial support to the Department of National Parks, Wildlife and Plant Conservation (DNP) of the Ministry of Natural Resources and Environment to implement BCI starting in 2006. The first stage of the BCI was expected to finish by December 2009. However, given the disagreement over funding arrangements between the Thai government and the ADB, the second stage of the BCI was uncertain at the time. The Wildlife Conservation Society contributed to the BCI by conducting an initial biodiversity survey of the pilot site and the Center for People and Forest (RECOFTC) provided training to local communities on how to set up and manage village funds.

Between 2005 and 2010, development pressure and the resulting land use changes increased ecosystem fragmentation in landscapes across the GMS. The objective of the BCI was therefore to link protected areas in order to: (i) ensure species could move between? habitats and maintain viable populations; (ii) enhance and maintain ecosystem services; and (iii) promote and enhance local community welfare through conservation and sustainable use of natural resources. A combination of budget constraints for the continuation of the BCI and the possibility of REDD+ funds from the Facility for Infrastructure Development ORIO of the Netherlands in 2009 led to a proposal in which an emission reduction component was added to the BCI activities.

According to the R-PIN submitted to the FCPF in 2009 and its Annex, Thailand proposed to pilot REDD measures in BCI site with expected completion and deliverables[10] by the end of 2012. The REDD activities included:

Carbon sequestration

(i) Total amount of carbon sequestration per hectare and per year in the 70-kilometer corridor between the Western Forest Complex and Kaeng Krachan Complex;

(ii) Restoration of native species in 5,000 hectares of degraded forest at least around the protected area as carbon sequestration zone and 5,000 hectares of enrichment planting area;

(iii) Assessment of potential sales of certified emission reduction obtained from the project in the voluntary carbon market;

(iv) Updated data of from the BCI to be fed into national deforestation level and land use change according to the type of forest ecosystem affected and the production of forest cover and land use maps comparing the situation in 1995, 2000, 2005 and 2010 by June 2010; and

(v) Strengthened enforcement of the existing protected area and expansion of the protected area designation in agreement with local communities.

Benefits to the local communities

(vi) Cash and non-cash benefits to 7,000 households living adjacent to the corridor forests;

(vii) 5,000 hectares of livelihood plantations in buffer zones with eight-year rotation of fast growing species for the use of beneficiary households in the government owned degraded land whereby 70% of the revenue goes to participating households and 30% flows back to the village fund;

[10] Excluding the activities (xi) and (xii)

(viii) Demarcation of 5,000 hectares for agro-forestry and provision of funds to households to grow non-timber forest products for household consumption;

(ix) Provision of US$10,000 as capital for twenty selected communities as the village revolving funds linked to income-generating activities; and

(x) Performance-based cash incentives of US$70 per hectare per year to households through village funds for protection of up to 10,000 hectares of intact forest and for maintenance of the restored area.

Tenure security of forest-dependent communities

(xi) Enhancement of land tenure and tenure security of forest dependent communities and other forest adjacent dwellers. Such communities and people were regarded as stewards of the forest providing protection against forest encroachment; and

(xii) Provision of rights and assignment of responsibilities relating to community forest management to the local communities in form of contract between the government and the local communities.

6.1.2. REDD+ activities performed

According to the BCI update report of 2012 (Moinuddin, Pokhrel et al. 2012) and personal communication with key project developers from the Asian Development Bank and the DNP, the actions undertaken were:

Firstly, regarding reforestation of the degraded protected area, about 120 hectares of degraded land inside the Sai Yok national park were restored with the participation of the community. Upon completion of reforestation of the area, the members of Ton Mamuang or Bongti Noi communities did not take part in the use, protection or maintenance of the reforested area. The DNP had been responsible for the area. According to government officials, most budgets for reforestation projects in Thailand lasted at least eight years: plantation in the first year and maintenance from the second to the eighth year. However, the BCI fund was provided only for restoration work during the first year. The DNP, whose mandate included forest maintenance, then relied on the departmental budget to carry out the work. Given the limited departmental budget, insufficient manpower and large reforested area, the Ton Mamuang community assistant village head reported the occurrence of forest fires in the reforested area (Somchai Lima, personal communication, July 25, 2013).

Secondly, the review of land use and land use changes using a geographic information system was undertaken. Based on the review, four management zones were proposed:

agroforestry (sustainable land use), livelihood plantation (buffer zone), carbon sequestration (natural regeneration and man-made restoration) and deforestation avoidance incentive zones (undisturbed area). As of 2013, the proposal has not yet been implemented in the framework of the BCI.

Thirdly, a preliminary assessment of estimates of GHG emission sequestration potential was conducted in the southern part of the BCI. The assessment revealed carbon storage values ranging from 55-83 million tonnes from the forested area of 283,094 hectares.

Fourthly, extension of the Sai Yok national park designation into the community area was discussed unofficially with several community committee members. Implementation modalities and public consultation have not yet been conducted.

Lastly, the revolving fund was disbursed to 20 selected communities to encourage the creation and expansion of income-generating activities in the communities. Prior to distribution of the fund, a detailed socio-economic study was conducted and workshops on fund management and utilization were organized. In the Bongti Noi and Ton Mamuang communities, the funds were disbursed in the form of loans as capital investment for local occupational groups, such as herbal farming, organic fertilizer production and bamboo weaving. Each member was eligible for a one-year loan with a flat interest rate before the loan rotated to other members. Certain percentages of the interest obtained from the loan were used for communal purposes, for example improvement of the irrigation system, a fund for the elderly, and the construction of firebreaks.

In 2013, a number of the communities who had participated in the BCI appeared to lose their revolving fund. According to the project developers and the head of Suan Phung sub-district (Sakol Kunapitak, personal communication, 3 August 2013) who oversees a few participating communities with the loss of fund, three central factors are suspected to contribute to this situation, including local contexts, unconditional agreement and infrequent monitoring. Local contexts such as high indebtedness level, weak leadership, low forest conservation capability, and limited collectivity are conceivably the most important. This is because against a similar backdrop of unconditional agreement and infrequent monitoring, some participating communities managed to further increase their fund, while others lost or diverted it entirely. In fact, for many communities that lost the fund, the situation was predictable. During the fund management workshops, DNP officials admitted detecting a few communities with weak local factors suggesting that failure was likely. However, the officials understood that removing any communities that had already been selected was not an option, given that the selection was made by other project partners during the preliminary stage of the

project. So the communities with high failure potential were not removed. Furthermore, the fund was made unconditional due to the probable discontinuity of the post-2009 BCI at the time and the fund was not tied to any particular performance. In other words, there was no punishment or corrective actions when the conditions of the fund were not respected. Combined with the infrequent monitoring of performance, this led to lax management and control of the fund, resulting in its loss or in its diversion by certain community members in some participating communities.

6.2. Tenure insecurity as obstacle to REDD+

According to the project developers, the activities listed as REDD+ activities in the 2009 R-PIN that were undertaken, such as reforestation and expansion of NP designation, were not regarded as REDD+ activities. In fact, the REDD+ activities were postponed and were expected to be implemented during the second stage of the BCI. The project developers further suggested that the REDD+ component was not implemented during the first stage of BCI mainly due to the absence of expected funding from the Facility for Infrastructure Development of the Netherlands (ORIO). The agreement on REDD+ funding was not reached mainly due to the Thai government's reluctance to clarify tenure over State-owned forestland, which involved considerable risks for REDD+ investment. This issue is one of the critical obstacles Thailand is facing today.

The existing laws – primarily the National Park Act and National forest reserve Act – stipulate that the occupation or use of State-owned forestland would be deemed illegal and only DNP or RFD officials are authorized to carry out any activity inside the state-owned forestland. On the one hand, implementing REDD+ inside the state-owned forest area implies that the government officially hire the communities located in the forest area to participate in reforestation and maintenance work. However, should the government does not recognize their tenure, the government could either officially compensate them or, alternatively, acknowledge the communities who illegally reside inside State-owned forestland and are the actual land users, as project partners. If these communities are excluded from the project, with its limited manpower and budget, alone, the DNP would not be able to effectively and completely prevent potential degradation of the forested area, as required by the ORIO funded

REDD model. Such a situation could reduce the actual amount of carbon sequestrated from the project in the future (non-permanence risk). Furthermore, Thailand still lacks sufficient knowledge and expertise in carbon accounting. To be eligible for REDD+, the project requires accurate baseline calculation as well as a series of project carbon accounting. Due to the lack of familiarity with the topic and of in-house expertise, this issue tends to be regarded as a complicated matter for the government to execute.

Admittedly, certain modification to existing laws are indispensable to enable REDD+ development of State-owned forestland[11]. With similar interest in developing REDD projects in Thailand, the USAID-funded Lowering Emissions from Asia's Forest (LEAF) program decided to shift their interest to Payment for Ecosystem Services (PES). The PES project aims to reduce the occurrence of forest fire in the Northern region, which is one of the pressing concerns of the local DNP office. In addition to the lack of clarity concerning the national ramifications of REDD and carbon ownership, the reason given for this shift was to avoid carbon bureaucracy, which could be costly and time-consuming (Somsak Soonthornnawaphat, personal communication, August 1, 2013). Owing to the problem of carbon bureaucracy, i.e. the cost incurred by carbon monitoring, calculation, verification and marketing, PES appeared to many donors to be preferable to REDD (Karsenty, Vogel et al. 2013).

6.3. Past tenure situation

This section contains the issues related to tenure conflicts of Ton Mamuang and Bongti Noi in the past as well as efforts to resolve them.

6.3.1. Past tenure conflicts

Perhaps due to remote location, absence of public consultation prior to the demarcation and in the case of Bongti Noi community language barrier, both communities were unaware of the Wangyai Maenam Noi NFR establishment in 1969 as well as the clause of the NFR Act calling customary landowners to claim for their rights. Failure to claim for their rights within the prescribed timeframe signified the renouncement of his or her rights to land. The NFR Act

[11] Forest resources in Thailand have officially been owned by the State since the establishment of the Royal Forestry Department in 1896. In 2002, the responsibility for forest resources was divided between the RFD and the newly established Department of National Parks, Wildlife and Plant Conservation or DNP (Lakanavichian, 2006).

states that no person could occupy, use the land or gather forest products inside the designation in order to prevent any damage caused to the nature of the national forest reserve. After the reserve forest declaration, the communities continued with their settlement inside the designation, agricultural practice of shifting cultivation, hunting and subsistence gathering forest products without any official permission. By and large, the communities' tenure was not disturbed.

The impacts on tenure became apparent a few years after the designation of Sai Yok national park in 1980. According to the NP Act, any activity related to gathering forest products, using or possessing land inside the NP area was regarded unlawful, as it may create disturbance to the original state of the NP. As a consequence, the communities became illegally using their agricultural land as well as their existing residential area. The DNP/RFD officials had actively enforced the NP Act in the settlements. Continuously, a large number of the community members was arrested and their agricultural tools were confiscated on the account of utilizing NP land. During that time, there was no distinction between traditionally cultivated land or newly cleared land, as anyone occupying or utilizing NP land was regarded as violators to the NP Act. Furthermore, gathering forest products inside the NP designation was also deemed illegal. As stipulated by the Act, a few agricultural plots of Bongti Noi members was appropriated and the arrested violators were penalized in forms of fine and/or imprisonment by the DNP. This has led to the resentment between the communities and the DNP/RFD officials.

Upon the strict enforcement of the NP Act, the RFD officials similarly began to impose stringent implementation of the NFR Act in the national forest reserve part of the settlements. In early 1980s, the Sai Yok Forest Park, an area of the NFR designated for forest plantation, was established encompassing certain parts of the settlements. During the beginning of its establishment, the Forest Park cleared the assigned land, which was originally covered with perennials, and planted trees only in a small part of the newly cleared land, leaving many patches of land empty. Seeing the newly cleared land being left unused, a few community members of both communities began to use the land as their agricultural area. Many claimed that they were not aware that they were using the land of the RFD, given that there was no boundary at the time. After a few years, the RFD realized and began to exercise their rights to the land. Once the RFD officials running the Forest Park realized the intrusion, the officials arrested and penalized the community members, who used the Forest Park area for agriculture, based on the NFR Act. The officials also uprooted the members' plantation at times. The responsibility of the Forest Park management was transferred to the FIO in 1992,

meanwhile the RFD officials remained in charge of arresting the encroacher on behalf of the FIO. The Forest Park successfully retracted a few plots of land back from some community members that used their land for agriculture. The landless community members had to become labor and collect forest products for commercial purpose for a living.

To compensate the deforestation occurred from gas transmission pipeline route in the early 1990s and to commemorate the King's 50th anniversary of his coronation, the PTT in collaboration with the RFD launched a 192-hectare reforestation program inside the Wangyai Maenam Noi boundary, which included the area overlapping the settlement of Ton Mamaung community in 1996. This led to a situation where a few plots of land of some community members were dispossessed to be used for reforestation site. Moreover, the community committee of Ton Mamuang attempted to ask for rights to use the reforested PTT site as their community forest and was rejected, fuelling further conflicts between the community and the officials. The on-going confrontation in both communities had led to an accumulated resentment against the DNP/RFD/FIO officials and at times forceful retaliation. In 2003, a community member of Bongti Noi member was arrested for using his agricultural land, which is located inside the NFR area, and his plantation was uprooted without warning. Such incidence led to gunfire between the two parties.

6.3.2. Past efforts to solve tenure problem

The communities generally used the strategy of negotiating for compromises and requesting title document in solving tenure conflicts. In response to a large number of arrest and lawsuits against a few community members of Bongti Noi in recent years, the village head began to negotiate with the DNP officials by filing a request for measures to alleviate the on-going tenure conflicts to the DNP Headquarter in Bangkok in 2013. As a result, a compromise was made to arrest only the members, who cleared forest land beyond the current agricultural area. In a similar vein, the community committee of Ton Mamuang requested the RFD officials for title document to both community forest and agricultural land in 2006-2007. There was no noticeable progress on the matter as of 2013.

Community-initiated forest conservation activities were not adopted as one of the strategies for enhancing tenure security. Perhaps, this lack of community performance on forest protection might be one of the causes of the absence of trust from the officials that the community members would be able to conserve the forest. This observation was made by the

former village head of Ton Mamuang community in light of the PTT and the RFD's rejection to transfer the reforested area to the community as community forest.

6.4. Present tenure situation of Ton Mamuang community

The community members seemed to have rights to enter, to use with certain restrictions, to manage, to exclude incompatible use of the community forest land to an extent as well as to transfer these rights to the next generation. Without any title document, the community members in general remained with fear of eviction and withdrawal of rights to their community forest. These rights appeared to be unchanged after the implementation of the project.

6.4.1.1. Rights to access and to withdraw

Concern with rights to access and use the community forest, the respondents (100%) as well as the village head assistant and former village head indicated that the community members could enter and gather non-timber forest products from their community forest for household consumption without any official permission (Figure 28). The forest products usually gathered, as mentioned in all focus groups, comprised of mushroom, bamboo shoot, repellent plants and bamboo. For commercial purposes, the local RFD officials in collaboration with the district office specified a particular period of the year allowing the members to gather bamboo shoots for sale, as unanimously commented by all respondents (Figure 28). Often, the period ranged from fifteen to sixty days per year, depending on ecological circumstances each year. Due to the attractive price of bamboo shoots compared to the agricultural products commonly cultivated[12] and the widespread perception of forest products as cost-free commodities, most if not all members intensively gathered the bamboo shoots for sale every year[13].

After the permitted period, the middlemen who normally bought bamboo shoots from the community would refuse to buy more, following the agreement made with the RFD and

[12] According to the village head assistant, in 2013, the community members earned 4-13 THB per kilogram of bamboo shoots and Cassava price was at 6 THB per kilogram. On average the member could earn about 500 THB per day from gathering bamboo shoots.

[13] According to the village head assistant, termite mushroom was also another popular forest product that the community members generally harvest, given that the price of 2013 was 400-500 THB per kilogram.

the district office. As described by a few individuals of the older female group, most members then stopped collecting bamboo shoots for sale due to the difficulty in finding alternative market access. Many participants of the younger and older male stated that the officials would arrest anyone collecting bamboo shoots for commercial purpose after the permitted period. An older male participant remarked that the officials had been highly stringent on the members on forest product gathering. On the contrary, other individuals of the younger and older male group as well as the village head assistant viewed the arrangement in a positive light. Some believed that it was an effective means to prevent over-exploitation of bamboo shoots and others trusted that it could ensure sufficient supply of fully-grown bamboo, which the members needed for weaving in summer.

Approximately 88% of the respondents as well as the village head assistant and the former village head disclosed that hunting animal inside the community forest or the neighboring forest was not allowed (Figure 28). Over half of the older male group participants noted that it was the regulation imposed by the RFD officials, whilst many younger male participants reasoned the religious belief for no hunting because the community forest was located inside the temple area. As voiced by many participants of the younger female group, the officials would arrest any members who violated such regulation. The minority of five respondents (13%) believed that the members could hunt small animals in the surrounding forest for household consumption, although with associated risk of being arrested by the officials (Figure 28).

Concerning timber, about 95% of the respondents believed that the community members could not use timber from the community forest (Figure 28). The officials imposed such regulation, according to over half participants of the older male group. Many individuals from the younger and older male group stated that given that the community forest was located inside the temple area, the members do not gather timber from the community forest due to religious belief. Either because of the regulation or religious belief, it was mentioned in all focus groups that some members resorted to surrounding forest for timber instead, although illegally. Only a small minority of two respondents (5%) revealed that the members could use timber from the community forest or surrounding forest, nevertheless with risks of being apprehended by the officials. All respondents (100%) as well as the village head assistant and the former village head collectively disclosed no change in their rights to access and to use due to the BCI project (Figure 28).

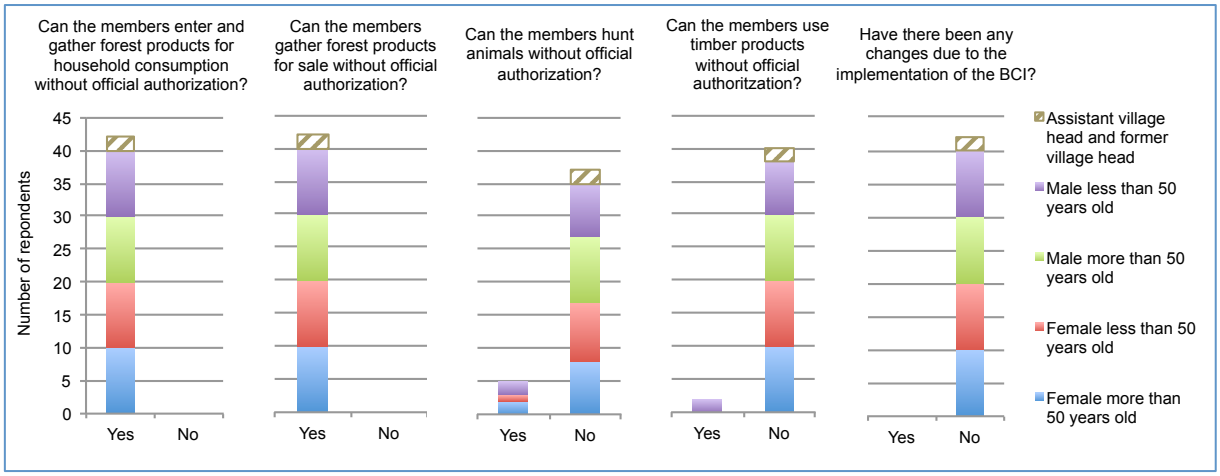


Figure 28 Access and withdrawal rights of Ton Mamuang community

6.4.1.2. Rights to manage

Concerning rights to manage the community forest, over half of the participants (60%) as well as the village head assistant and the former village head agreed that the community members constructed firebreaks for the community forest on a yearly basis (Figure 29). On the one hand, a great portion of the female participants believed that the community was not involved in management activity of the community forest. A few older female participants noted the community rarely did anything to the community forest land due to religious belief, as it was part of the temple area. On the other hand, the majority of the male group disclosed the annual firebreak construction around the community boundary and the community forest. The village head assistant and the former village head confirmed the comments of the male groups. Perhaps, the misunderstanding was due to the fact that most members that actually participated in the firebreak construction were mainly the male members.

In relation to the RFD involvement in the management of community forest, the majority of the respondents (85%) indicated no involvement (Figure 29). The minority were either uncertain or believed that the RFD provided support in firebreak construction. Indeed, the village head assistant and the former village head confirmed that the RFD had provided financial support for the firebreak construction upon request, although usually with three to six months delay in payment. Vis-à-vis the BCI project, all respondents (100%) as well as the village head assistant and the former village head unanimously agreed that no change in their rights to manage occurred as a result of the project (Figure 29).

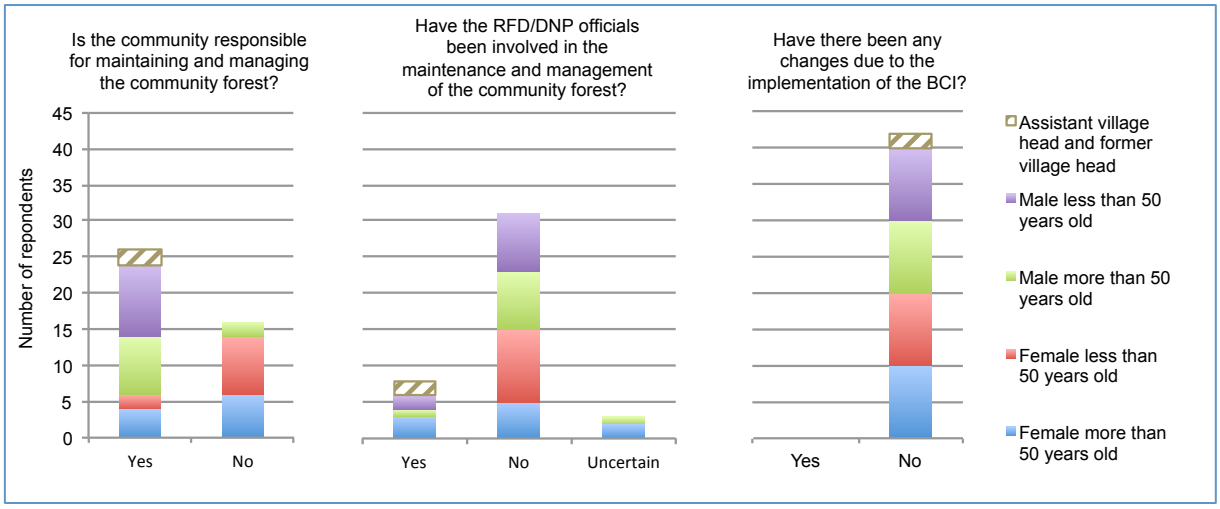


Figure 29 Management rights of Ton Mamuang community

6.4.1.3. Rights to exclude

Related to exclusionary rights, about 88% of the respondents as well as the village head assistant and the former village head expressed the belief that the community members could exclude any incompatible user that was either a villager from other villages or an investor (Figure 30). Many older female participants explained that the members could contest the competitive land user, as the community had conserved the area as community forest for a number of years. Only a small number of five respondents (12%) primarily from the female group revealed hesitance in ability of the community members to exclude powerful investors.

In the case that RFD officials were the competitive land users, 93% of the respondents commented that the community members could not exclude them (Figure 30). Over half of the younger male participants as well as a few older female participants asserted that the RFD had formal ownership over the entire settlement including the community forest. Only a small number of three respondents (8%) believed that the community members could try to exclude the RFD officials but uncertain of the outcome. Concern with the BCI project, all respondents (100%) as well as the village head assistant and the former village head unanimously agreed that no change in their rights to exclude occurred as a result of the project (Figure 30).

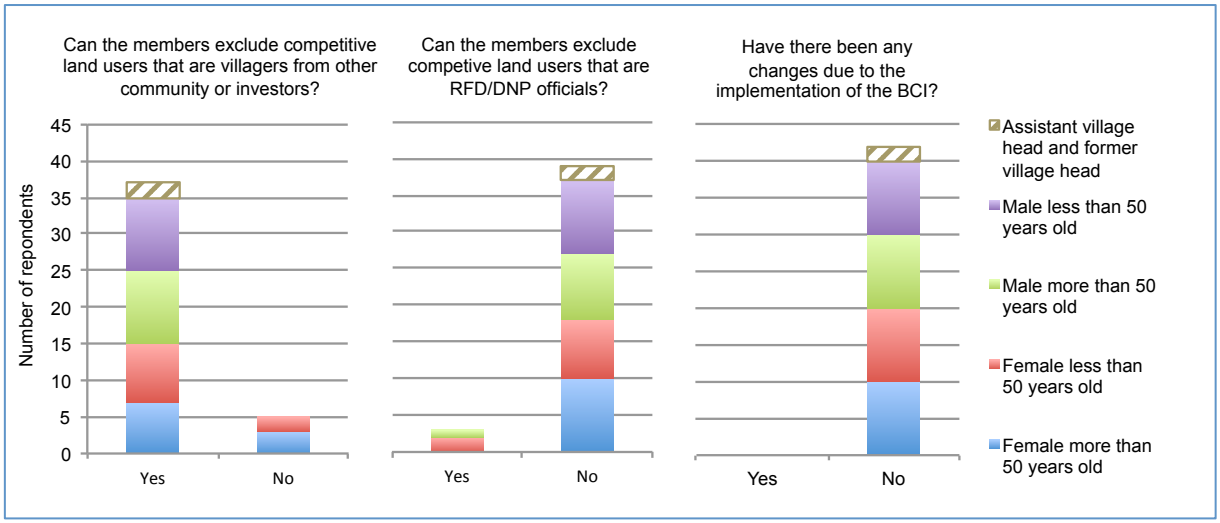


Figure 30 Exclusion rights of Ton Mamuang community

6.4.1.4. Rights to alienate

With respect to alienation rights, all of the 40 respondents (100%) as well as the village head assistant and the former village head indicated that the community members could transfer the community forest to the next generation of the community members without any official permission (Figure 31). According to a few individuals of the younger male group, such transfer the rights to use and responsibility to conserve the community forest occurred for many generations already.

Similarly, 100% of the respondents as well as the village head assistant and the former village head agreeably commented that the community members could not sell the community forest land (Figure 31). Commonly voiced reasoning for such belief was the need to conserve the community forest for the next generation. About the project, all respondents (100%) as well as the village head assistant and the former village head unanimously agreed that there was no change in their rights to alienate as a result of the project (Figure 31).

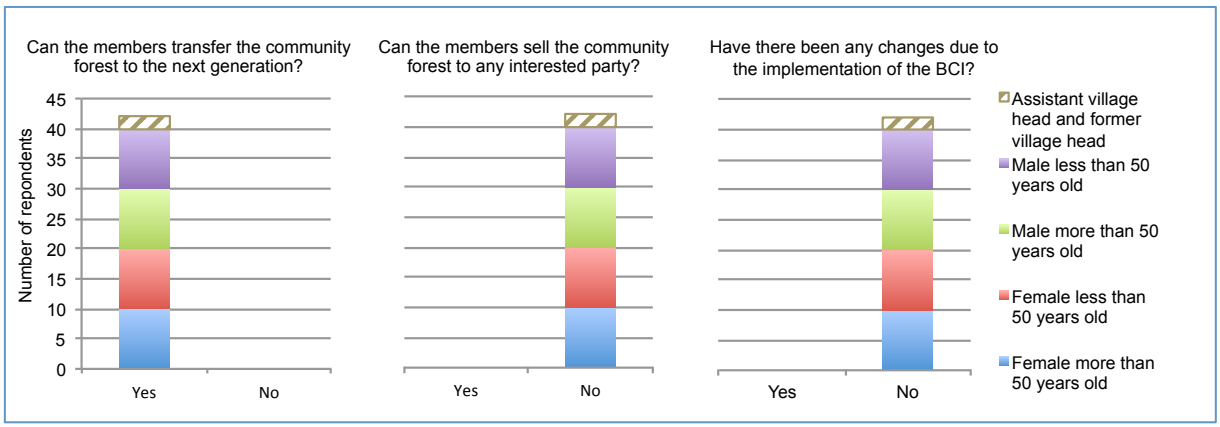


Figure 31 Alienation rights of Ton Mamuang community

6.4.1.5. Fear of eviction or withdrawal of rights

Concerning fear of eviction or withdrawal of rights to the community forest, similarly to the former village head, 30 of all 40 participants (75%) revealed the fear (Figure 32). During the discussion of the older female group, some expressed the fear based on the on-going conflicts between the members and the officials over the past years, while others pinpointed the absence of title document as the cause of the fear. A minority of 25% contrariwise revealed no fear of withdrawal of rights to the community forest (Figure 32). Some younger and older male participants trusted that the community could protest against any withdrawal of rights. However, a few of them noted that the members might not win the fight anyhow. An older male individual described the community members' attempt to confront to the local authorities as sweeping back Atlantic with the broom. All respondents (100%) as well as the village head assistant and former village head unanimously agreed that there was no change to the fear of withdrawal of rights to community forest occurred as a result of the project (Figure 32).

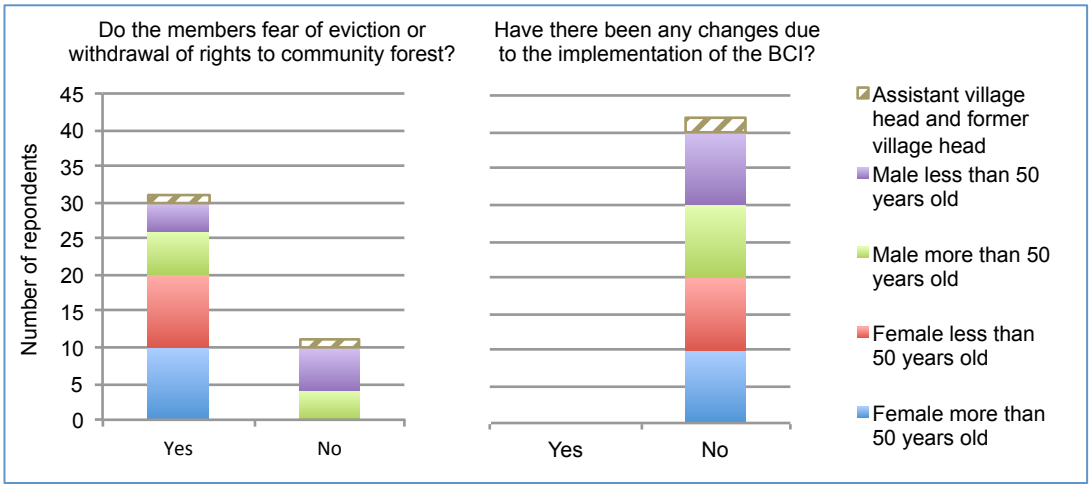


Figure 32 Fear of eviction or withdrawal of rights to community forest of Ton Mamuang community

6.4.1.6. Legal recognition

With regards to legal recognition of community forest, all participants (100%) as well as the village head assistant and the former village head unanimously agreed that the community members did not have any formal recognition or title document to the community forest (Figure 33). As voiced in the discussion of the older younger male and older female group, the community committee filed a request for a title document to the community forest a few years ago but the members did not notice any progress. All the community members (100%) as well as the village head assistant and the former village head collectively agreed that there

was no change regarding their legal recognition to their land as a result of the project, although the former village head often asked the staff for help on the issue (Figure 33).

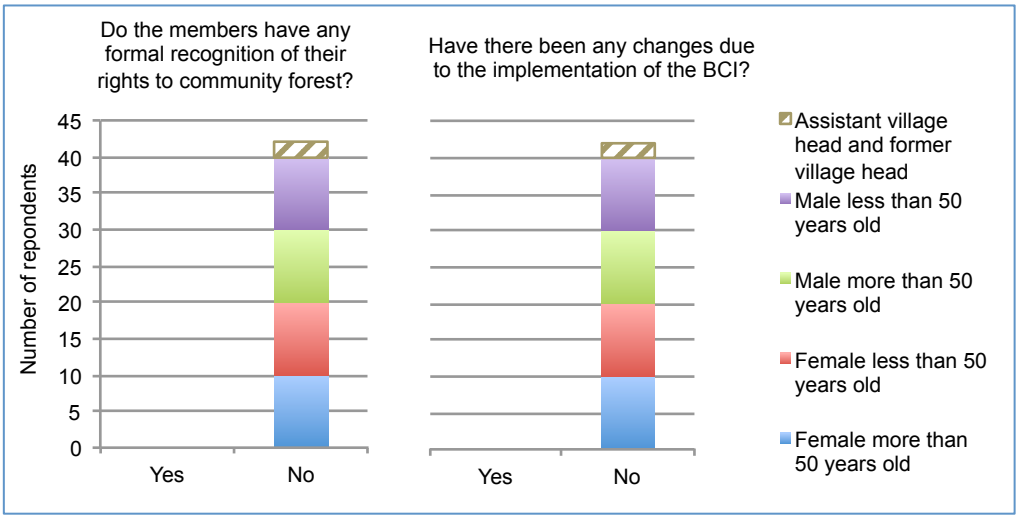


Figure 33 Legal recognition of community forest of Ton Mamuang community

6.5. Present tenure situation of Bongti Noi community

The community members had used its surrounding forest as its community forest, which encompassed the NP and NFR designation, without any proper demarcation. The members seemed to have rights to access, to use with some restrictions and to transfer these rights to the next generation. However, the members were believed to not possess the rights to exclude incompatible use and to manage the surrounding forest. The members did not have any title document to the surrounding forest and therefore remained with the fear of potential eviction and withdrawal of rights to the forest. These rights appeared to be unchanged as a result of the BCI implementation.

6.5.1.1. Rights to access and to withdraw

With respect to rights to enter and use, 100% of the participants as well as the village head and his assistant identified that the community members could enter and gather non-timber forest products from their community forest at their convenience for household consumption (Figure 34). Most participants disclosed that the members usually gathered star gooseberry, medicinal plants, mushroom and bamboo shoots and collection of non-edible forest products

were not allowed. An individual contested the notion during the younger male focus group discussion by mentioning that the restriction varied depending on the official encountered, e.g. wild orchids collection was allowed by some officials but not others. As expressed by all participants (100%), the community members could gather forest product for commercial purpose without official permission. Most respondents explained that specifically for bamboo shoots the RFD and DNP officials in collaboration with the district office and the middlemen regulated the timeframe for collection, ranging sixty to seventy-five days each year (Figure 34). A few individuals of the younger female group explained that after the period, no members could gather the bamboo shoots for sale, only for household consumption. After the period, the members usually stopped collecting due to limited market access; the middlemen would refuse to buy more products after the allowed period. Many older female group participants viewed the action positively, as it ensured that the bamboo shoots would have sufficient time to grow and can later be used for weaving by summer.

As regards hunting, about 85% of the respondents as well as the village head and his assistant believed that hunting animals was not allowed (Figure 34). According to the discussion of the younger male group, the authorities established and imposed such regulations and if violated, the authorities would arrest the wrongdoer, as voiced in all focus groups. The minority of 15% led by the younger male group participants understood that hunting small animals was allowed although with certain risks of being apprehended by the officials.

Concern with timber, most respondents (85%) revealed that the members could not use timber from the surrounding forest without official permission (Figure 34). According to a few younger male participants, it was one of the regulations imposed by the RFD and DNP officials. If violated, the DNP or RFD officials, as voiced in all focus groups, would prosecute the violators. A small number of six respondents (15%) that believed that the members could use timber products from the forest reasoned that some members could collect timber without official permission. As explained by a few of them, given that the permission was usually not granted, some community members illegally fell trees for household use without the awareness of the officials. All respondents (100%) as well as the village head assistant and the former village head collectively disclosed no change in their rights to access and to withdraw forest products due to the project (Figure 34).

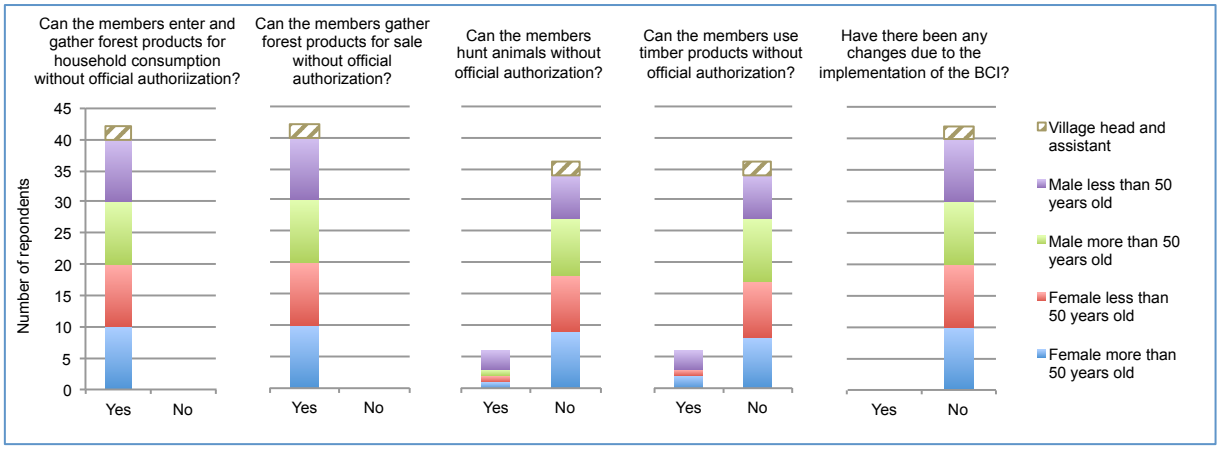


Figure 34 Access and withdrawal rights of Bongti Noi community

6.5.1.2. Rights to manage

With regards to management rights, close to 70% of the respondents as well as the village head and his assistant stated that the community had not been responsible for maintaining or managing the neighboring forest that the community used as a community forest (Figure 35). According to a few participants of the younger male and older male groups, the members assisted the officials in firebreak construction and reforestation activities in the surrounding forest from time to time in exchange with monetary return of 200 THB per person per day. As mentioned in the younger female focus group, the members were not allowed to do anything inside the surrounding forest except for collecting forest products. Otherwise, the officials might arrest the members.

Indeed, the majority of the participants (85%) believed that the RFD and DNP officials had been responsible for managing and maintaining the surrounding forest (Figure 35). Over half of the older male respondents explained that other than forest product gathering, the members were not allowed to conduct other activities in the area without the official permission. A small minority of 15% was either uncertain of the answer or believed that the officials had not been actively maintaining the surrounding forest. Vis-à-vis the BCI project, all respondents (100%) as well as the village head and his assistant unanimously agreed that no change in their rights to manage occurred as a result of the project (Figure 35).

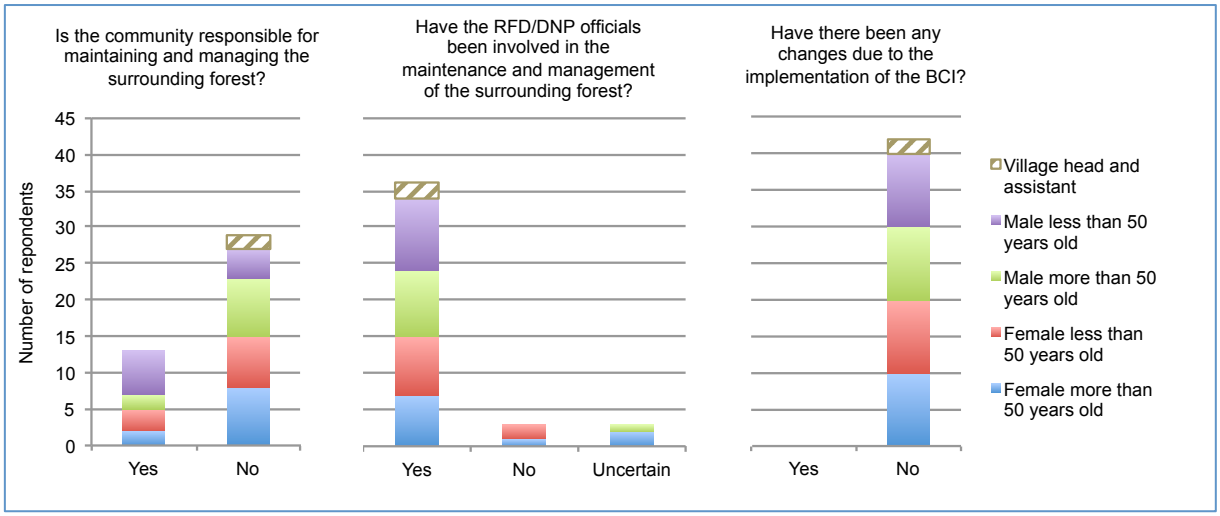


Figure 35 Management rights of Bongti Noi community

6.5.1.3. Rights to exclude

About the rights to exclude incompatible use of the community forest land, about 80% of the respondents as well as the village head and his assistant indicated that the community members could not prevent any incompatible use of the community forest land if the competitive land user had been a villager from other communities or an investor (Figure 36). Over half of the younger female respondents disclosed that the members from other villages usually gathered forest products from the community's surrounding forest and vice versa. As voiced in all focus groups, anyone can access and use the forest. In the case of complete different in land-use such as conversion to agriculture or hotels, most respondents believed that the members could not prevent the incompatible use because they were not the owner of such land.

In the case that the DNP or RFD officials were the incompatible land-users, 93% of the respondents expressed that the members could not exclude them (Figure 36). Common reasoning provided was the fact that the DNP and RFD was the legal owner of the forest land. Only a small minority of 7% expressed an opposing view. A few individuals forming the minority trusted that the members could resist as some landless members gathered forest products for a living. Concern with the BCI project, all respondents (100%) as well as the village head and his assistant collectively agreed that no change in their rights to exclude occurred as a result of the project (Figure 36).

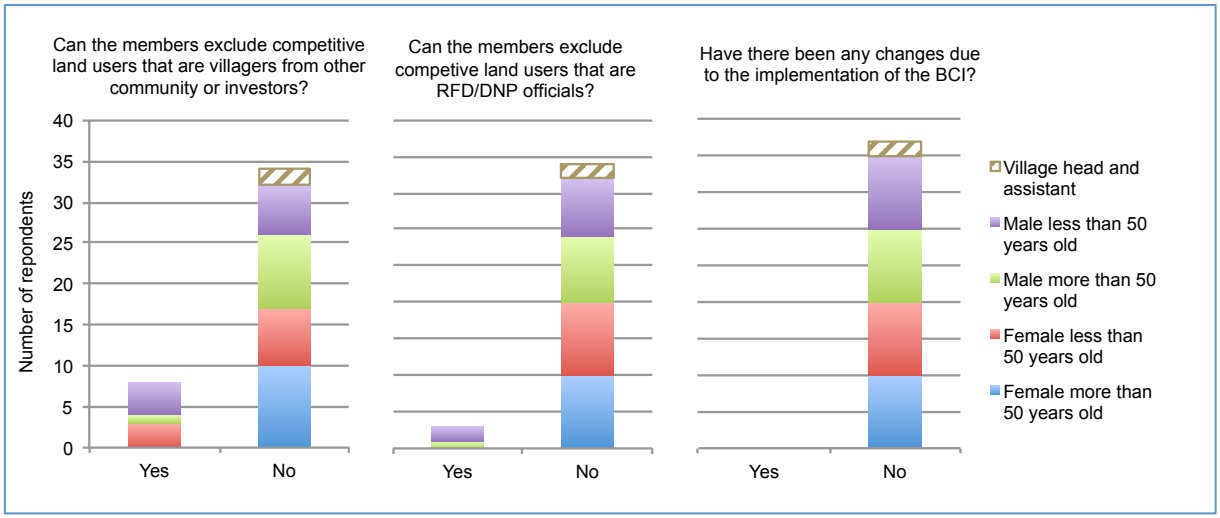


Figure 36 Exclusion rights of Bongti Noi community

6.5.1.4. Rights to alienate

With regards to the ability to transfer the rights to community forest or neighboring forest, the response of the participants and the village head as well as his assistant was rather mixed. Just over half of the respondents (53%) believed that the members could transfer the rights to the community forest to the next generation of the community members (Figure 37). Over half of the older female and older male participants suggested that the community members had used the surround forest area for many generations and therefore it should be possible to transfer the rights to the next generation as well. The minority of fourteen respondents (35%), principally comprising of the younger male group, appeared to be more skeptical. Some of them reasoned the belief with the lack of legal document proving their rights to use the land in combined, while others reasoned with the potential change in local officials and henceforth the policy governing the use of surrounding forests (Figure 37).

Unanimously, all the respondents (100%) agreed that the surrounding forest land could not be sold. Prime reason echoed in all group discussions was the fact that the DNP and RFD were the owner of the land, not the community members. If anyone attempts to sell, as noted by the village head, the DNP and RFD would prosecute them. About the BCI, all respondents (100%) as well as the village head and his assistant agreed that there was no change in their rights to alienate as a result of the project (Figure 37).

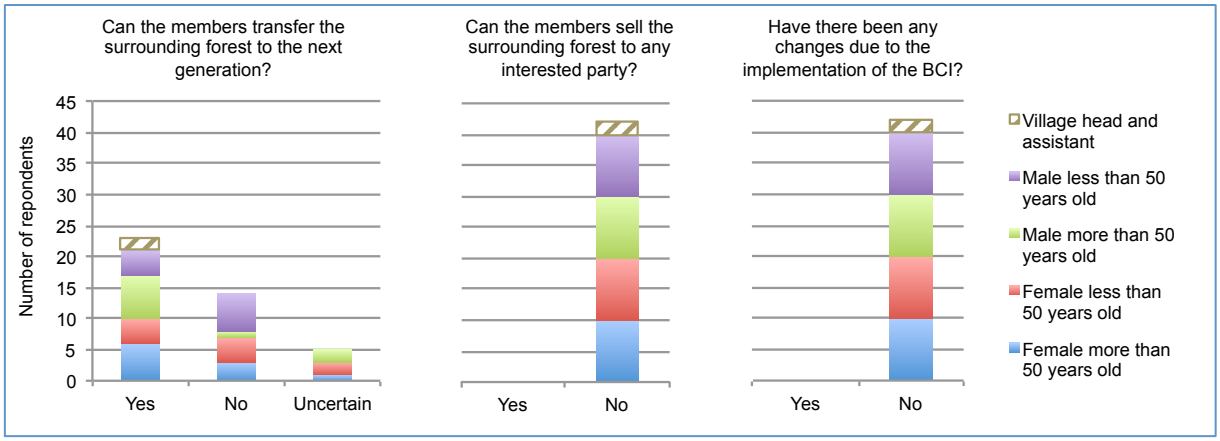


Figure 37 Alienation rights of Bongti Noi community

6.5.1.5. Fear of eviction or withdrawal of rights

Concerning the fear of eviction and withdrawal of rights to the community forest, a 75% majority of the participants revealed the fear (Figure 38). A great portion of the younger female participants mentioned that some community members had on-going conflicts with the RFD and FIO officials and henceforth believed that the increased limitation of rights of the community members to forest would be highly possible. Over half of the younger male participants reasoned their fear with the lack of attestation of their rights and potential change in forest product use restriction in light of change in policy or officials. As illustrated in Figure 38, the minority of 25% principally comprising of older male participants was more optimistic and trusted that the community had used the surrounding forest for decades and therefore could win the fight against the withdrawal of rights. If not, the members lose the income that they gained from selling forest products, according to a few older male individuals. All respondents (100%) as well as the village head and his assistant unanimously agreed that there was no change to the fear of withdrawal of rights to community forest occurred as a result of the project (Figure 38).

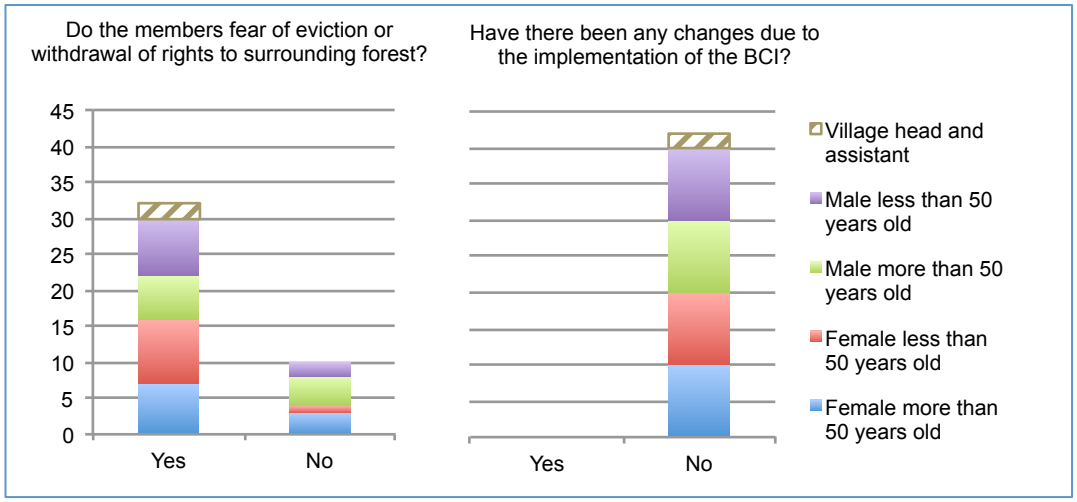


Figure 38 Fear of eviction or withdrawal of rights to community forest of Bongti Noi community

6.5.1.6. Legal recognition

When discussing about the legal recognition, the respondents (100%) as well as the village head and his assistant concurrently agreed that the community had no formal recognition of their rights to the surrounding forest, where they have relied on for forest products gathering (Figure 39). According to the village head, the community did not make any request for any legal recognition. All the community members (100%) as well as the village head and his assistant collectively agreed that there was no change regarding their legal recognition to their land as a result of the project (Figure 39).

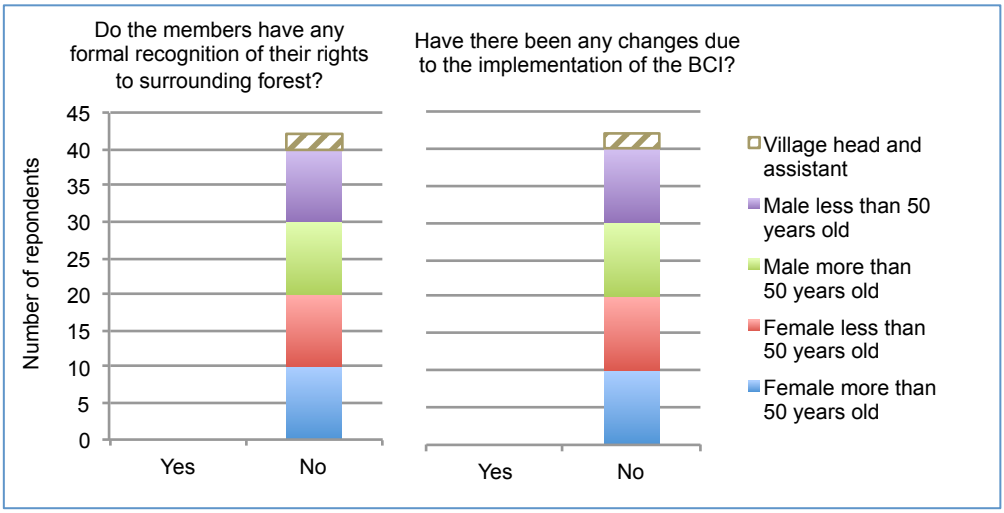


Figure 39 Legal recognition of community forest of Bongti Noi community

6.6. Pressing concern and tenure preference

This section covers the issue of present concerns of the two communities. Moreover it discusses about tenure type preferences of the community members to their agricultural and community forest land as well as willingness to sell land upon receiving formal tenure recognition.

6.6.1. Pressing concern

When being asked about the top three urgent concerns in the communities, the issue of on-going tenure conflicts with the officials was reflected in all focus groups of both communities although in different ranking. In Ton Mamuang community, a number of land dispossessions that occurred throughout the past decade were mentioned by each focus group as the prime cause of concern. A few younger male participants noted the NP expansion that began about three to four years ago that incorporated certain agricultural plots of another participant of the focus group and the DNP officials had yet to return them. About ten years ago, the RFD appropriated agricultural plots of the members for the PTT reforestation project, according to the discussion of older male group. The former village head suggested that successive appropriation of land in combined with the rejection to transfer the PTT reforested site to the community as the community forest was likely due to the lack of trust of the officials that the members were able to conserve the forest. Another cause of concern for future tenure conflicts, as mentioned in the older male group, was the potential changes in the official head to the one who would strictly enforce the laws. Other concerns of the community included limited water supply, high education-related expenditure, low price of agricultural produce and infertile land after consecutive cultivation (Figure 40).

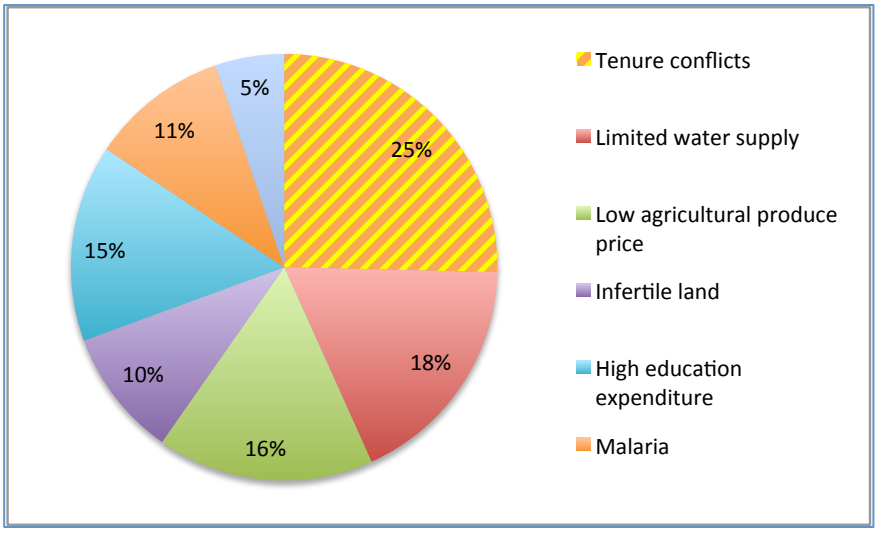


Figure 40 Pressing concern of Ton Mamuang community

For Bongti Noi community, a few individuals of the younger and older male groups revealed the concern of frequent change in the head of the local forestry officials, which each change often resulted in considerably stricter enforcement of laws and thereby attempt to challenge the rights to use agricultural land of the members. As mentioned in the younger female group discussion, two members were being on trial on the ground of encroachment on Forest Park located inside the national forest reserve designation. An individual of the older member suggested that to certain extent the conflicts were also based on the use of past satellite images, which were inappropriate material to prove for historical use of land in the case of shifting cultivation. Other problems included elephant disturbances in plantation, high expenditure for children's higher education and non-asphalt road that became easily damaged by heavy rain (Figure 41).

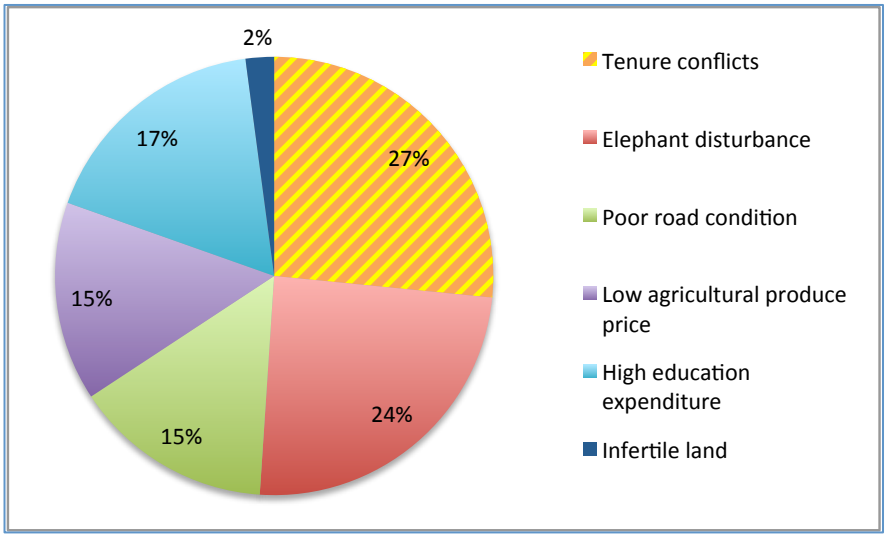


Figure 41 Pressing concern of Bongti Noi community

6.6.2. Tenure preference

When being asked whether the community members would like to have a formal recognition to their rights to land, all of the participants harmoniously replied yes. Primarily, the reason frequently voiced among all groups to substantiate such desire was to enhance the community's tenure security to the land and to assure that the members at present and in the future would not have to confront with the officials over land tenure. The question then further divided into the preferable format of tenure for the community forest as well as agricultural land.

For community forest land of Ton Mamuang community, approximately 93% of the respondents disclosed the preference for communal tenure, as opposed to individual tenure, for the community forest. The choice of communal tenure to community forest land was related to the fact that the community forest belonged to all community members, not only a group or individual members, as described by over half of the older male group. As mentioned by a few individuals of the older female group, the communal title was desirable tenure for all communal property, such as community forest, temple and school. Doing so would ensure that the community forest would not be sold by any individual member for short-term monetary gain. Only three respondents preferred individual title to the community forest land, as it was deemed to have more flexibility with regards to land-use decision-making. It should be noted however that the former village head mentioned that if the community could obtain the reforested PTT land as the community forest, the community would not sell but might use the area for other communal purposes, such as building a football field and creating garbage disposal site. This implies the possible conversion of community forest upon receiving title document.

For Bongti Noi community, ideally communal tenure is also a desirable option to almost all respondents (98%). Common explanation for the desire for communal title deed was the wish to prevent potential withdrawal of rights to the community forest. The choice of communal tenure as opposed to individual tenure, as voiced by a great portion of the older female participants, was due to the fact that the community forest should be collectively owned, managed and maintained and should be accessible to all community members. Only one member appeared to believe that the individual tenure to the land was a better option, as he understood that having an individual tenure implied that the land could be sold in time of need.

6.7. Summary

In the past, forest conservation policies planning and implementation in Thailand largely relied on the forest without people paradigm that simply excluded local forest-dependent communities from any meaningful role. The establishment of Wangyai Maenam Noi national forest reserve in 1969, Sai Yok national park in 1980 and Sai Yok forest park in 1983 was conducted without public consultation or consent overlaying the customary territory. Since the 1980s, rapid expansion of conserved forest area and stringent enforcement of forest conservation laws was noticeable. Consequently, various pressures were exerted on the communities residing inside the newly demarcated conservation forests. The Karen origin Bongti Noi and its neighboring Thai ethnic Ton Mamuang communities subsequently lived under insecure rights to forest land and resources without any legal recognition and were unremittingly exposed to threats of arbitrary arrest by the authorities and widespread fear of eviction in the past.

In response to a large number of arrests and lawsuits against the community members as well as occasional land dispossession by the authorities on the ground of using State-owned forest land following the NP and NFR Acts[14], the two communities requested for title document from the local authorities in order to enhance their tenure security. Perhaps owing to the lack of community-initiated forest conservation activities exhibiting forest conservation capability and weak collective action as well as insufficient negotiation skills, as of 2013, the request of both communities remained pending. REDD+ measures as described in the R-PIN 2009 were expected to bring greater tenure security to the participating communities. The results from the Ton Mamuang and Bongti Noi communities however revealed no observable impacts on tenure. The communities reported asking the BCI project developers on several occasions to act as mediator between the communities and the local authorities in order to enhance *de facto* tenure security. The demand was nevertheless not responded. Moreover, as part of the planned REDD+ measures as described in R-PIN of 2009, the expansion of Sai Yok national park was initiated and a community member already reported having his land prepared for agriculture dispossessed in light of the expansion.

Concerning *de facto* tenure situation, Ton Mamuang and Bongti Noi communities appeared to have rather insecure tenure due to the following reasons. Firstly, ability of the

[14] According to the Sai Yok Forest Park officer, the NFR Act has been used to cope with any violation occurred in Forest Park area, as opposed to Reafforestation Act.

communities to access, use and withdraw forest products from the community forests in other words the communities' rights to community forest seem to be designed, imposed and regulated by the authorities, as opposed to community-initiated rules. Secondly, the communities disclosed that they remained without exclusionary rights vis-à-vis local authorities. Prime reasoning provided was the fact that the authorities were the owner of the land[15]. Thirdly, the majority of the members remained with the fear of eviction or withdrawal of rights to both agricultural land and community forest, as their rights were challenged consistently particularly with the change of the chief of the local authorities. Correspondingly, when being asked about the communities' pressing concerns, on-going tenure conflicts ranked as the first issue of concern. The illustration of tenure analysis of Ton Mamuang and Bongti Noi communities is shown in Figure 42.

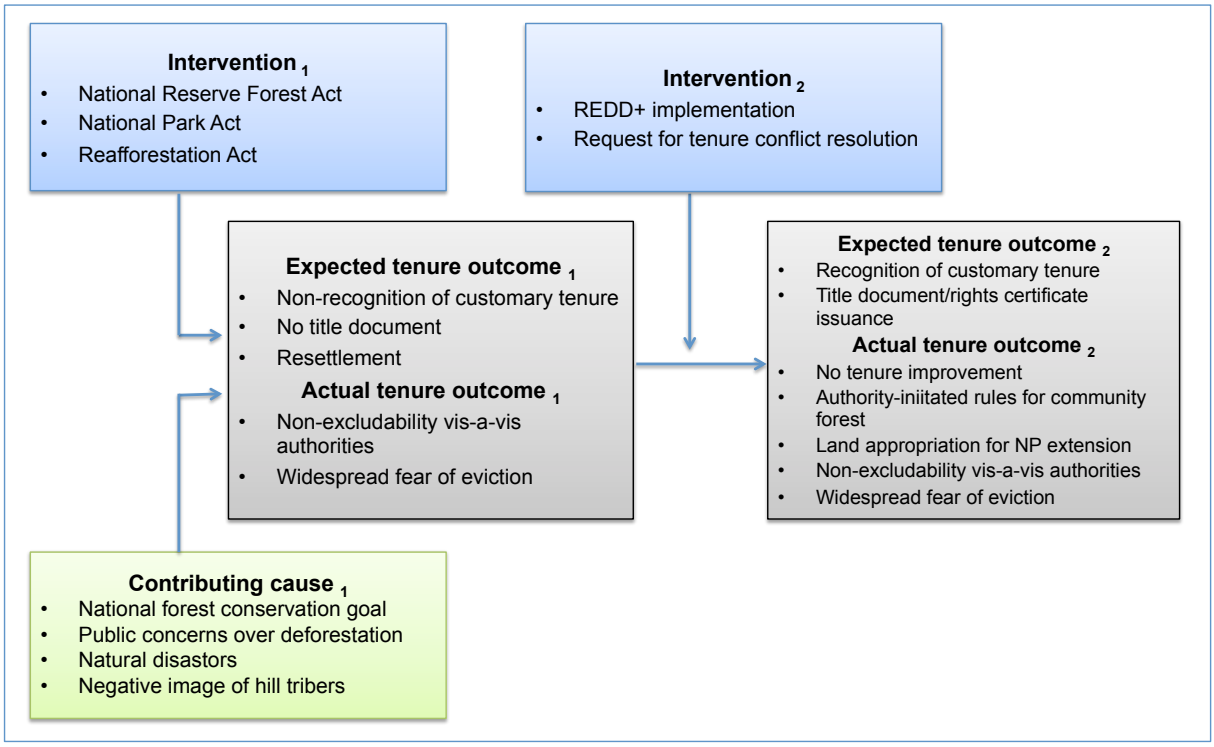


Figure 42 Tenure impacts analysis of Ton Mamuang and Bongti Noi communities

[15] This reflects the perception of the local communities. However, to be legally correct, these organizations namely the RFD or the DNP are representatives of the government responsible for managing the national forest reserve and national park designation. It is the State, who has the ownership rights to the forest land.

CHAPTER 7 DISCUSSION

This chapter reflects on the major findings of the research in terms of its contribution to the literature regarding the linkage between tenure and REDD+. The literature review suggests that tenure has been a significant underlying issue for REDD+ and particularly for whether REDD+ would present more risks or opportunities for forest-dependent communities. This chapter provides the discussion, which attempts to enrich the following topics: legal framework and tenure, tenure and deforestation and tenure clarification and REDD+ competing agendas.

7.1. Legal framework and tenure

The findings complement the existing literature of tenure security in Thailand on the aspect that the prevailing tenure-related legal framework negatively affected *de facto* tenure security of, most if not all, local forest-dependent communities in the past. Additionally, the findings inform the existing body of knowledge that the *de facto* tenure security reality at present became more complex and context-dependent, even without significant changes in the legal framework. Some communities remain having rather low level of *de facto* tenure security, when compared to other communities. The principal sources of such *de facto* tenure security were believed to come from local context namely characteristics of strong collective action, strategic response to tenure insecurity and assistance of local mediators.

7.1.1. Tenure of local communities in Thailand

A number of notable works related to tenure conflicts with specific relevance to Thailand generally depicts tenure insecurity among local forest-dependent communities as a result of overlapping claims made by the government. Even though the conventional wisdom dominates discussion of tenure security of local forest-dependent in Thailand. Local activities to enhance *de facto* tenure security by certain communities that were observed by Ganchanapan (2000), Neef (2001), Walker (2001) Lasimbang and Luithui (2005) and Lasimbang (2006). In combined with Feder and Onchan (1987) that suggest relatively secure *de facto* tenure of communities inside State-owned forestland due to low eviction probability,

this implies that the present *de facto* tenure security may be different from the dominant idea of prevalent *de jure* and *de facto* tenure security in the country. In a similar vein, this study confirmed such implication as well as the hypothesis that different local communities have different level of *de facto* tenure and security at present. The findings, on the one hand, partially conform to the mainstream literature about the negative impacts of legal framework on tenure of local forest-dependent communities in Thailand. In all of the four communities from the Northern and Western regions of Thailand studied, the community members mostly remained without any formal title document or legal recognition to their rights to land on the ground that the settlements are located inside State-owned forest land designation. In the past, all of the four communities experienced high level of tenure conflicts vis-à-vis local authorities and often resulted in arbitrary arrest and prosecution of the community members as well as violent retaliation. The members were arrested on the ground of residing and using the land inside the NFR or DNP designation for agriculture or forest product gathering. The members of four communities commonly feared of forced relocation in the past, as resettlement programs were being implemented nation-wide.

At present, the access and withdrawal rights to community forest of the two communities in the Western region were imposed and enforced by the authorities. The members largely remained without *de facto* excludability vis-à-vis authorities, justifying that the authorities were the legal owner of their land. The members also revealed the fear of forced eviction, as a few land appropriation occurrences was observed during the last decades and as their perceived rights to land were constantly challenged upon the changes of the local authorities' chief. Correspondingly, in such communities, on-going tenure conflicts in other words tenure insecurity were reported as one of the pressing concerns with highest priority. On the other hand, these findings enrich the traditional mainstream understanding of tenure situation of local forest-dependent communities in Thailand with updated information on the changes of *de facto* tenure security recently occurred in some communities. The findings suggest that tenure situation of local forest-dependent communities evolved over time and became more complex and diverse, depending on the local contexts. As oppose to the two communities in the Western region who reported relatively low level of *de facto* exclusionary rights, fear of eviction and authority-initiated community rights to community forest, the two communities in the Northern region reported having community-initiated rules as well as local enforcement in relation to the rights to access, withdraw and manage community forest, having *de facto* exclusionary rights vis-à-vis local authorities and not having the fear of forced eviction. Undoubtedly, tenure insecurity was not reported as one of the top three pressing

concerns of the two communities. To this extent, these findings support the analysis of Feder and Ochan (1987) by providing updated empirical evidences that highlights *de facto* tenure security in certain local communities in Thailand even without any legal recognition. In the context of REDD+, based on the suggestions made by Wunder (2005) and (2007), such local forest-dependent communities as the Northern ones with sufficient *de facto* rights therefore have potential to participate in REDD+ implementation in the form of PES in Thailand. Even without *de jure* tenure, such communities have capacity to engage in long-term and successful forest conservation activities.

7.1.2. De facto tenure security without titles

Conventional wisdom with specific relevance to Thailand associates tenure insecurity as a result the absence of individualized land title (Walker 2001; Walker 2004). Formal titles that are recognized and enforced by the government implies security of land claim (Alston, Libecap et al. 1994). In other words, individualized land title equates tenure security (de Soto 2000). International development organizations such as the World Bank also had advocated this assumption (Whitehead and Tsikata 2003; Peters 2007). Reservations nonetheless have been expressed about the conventional concept of tenure security that also underlies the Bank's position. Titling projects however often failed principally due to the lack of harmonization with customary laws (Ganjanapan 2000; van Asperen 2007)[16]. Wrote by Platteau (1996); (2000) among others, beneficial effects of individualized titling are over-estimated. Similarly, recent research shows that existing tenure arrangement without any formalization could offer tenure security (Bomuhangi, Doss et al. 2011).

Indeed, the findings obtained from the two communities in the Northern region of Thailand provide additional empirical evidences to substantiate the concept of perceived tenure security even without formalization of rights, as suggested by Bomuhangi, Doss et al. (2011) and implicitly by Feder and Onchan (1987). The two communities in the Northern region reported having perceived or *de facto* tenure security against the backdrop of local tenure arrangements without any title document. Both communities trusted that they could exclude incompatible use of agricultural and community forest land vis-à-vis other villages, investors and the government officials. They mostly did not fear of forced eviction from their settlement, even though the National Park and National forest reserve Acts explicitly

[16] Ganjanapan (2000) suggested that land titling caused land disputes in Thailand due to contradictions between traditional practices and legal principles in relation to inheritance, demarcation of land boundaries and land transaction.

prohibited illegal occupation and the Constitution offers no protection of rights to the illegal squatters inside State-owned forest land. Moreover, they successfully negotiated with the authorities to accept the community-initiated rules governing the rights to access, use and manage community forest of the communities. The communities also enforced these rules themselves and collaborated with the authorities only when needed.

In relation to the factors contributing to such *de facto* security, Bomuhangi, Doss et al. (2011) did not discuss in their study, whilst Feder and Onchan (1987) suggest the political infeasibility of relocation program as the primary cause of enhanced security. However, such reason was not found to be highly relevant in case of the two Northern communities studied. Instead, the findings demonstrate three principal local factors contributing to *de facto* tenure security in these communities, which include strong collective action, strategic response to tenure insecurity and assistance from local mediators. These factors were not observed in the Western communities studied.

Firstly, under the similar condition of no legal recognition of tenure in all of the four communities studied, this implies that the authorities had leverage to apply the law at their convenience. In the two Northern communities, where there is a strong collective community initiative, this ambiguity allows them to negotiate their rights to land with the local authorities. To elaborate, on the one hand the two Northern communities were able to collectively and successfully conserve the forest and to negotiate with the local authorities to recognize the community rules governing the rights of the communities to access, withdraw forest products and manage the community forest. On the other hand, the communities in the Western region with weak collective action left rooms for the authorities to establish and enforce rules governing the communities' rights to access, withdraw and manage the community forest to a much greater extent than in the two Hmong communities in the North. Strong collective action is deep rooted in the Hmong culture (Helsel, Mochel et al. 2004). Despite the acculturation pressures, Hmong families and clans continue to be close-knit (Thao, Leite et al. 2010). In combined with certain negotiation skills, the Hmong communities successfully harnessed their collective power and negotiate with the authorities for recognition of the local system of forest resources use and management. The negotiation skills are suspected to stem from their past experiences in opium trade. As noted in Chouvy (2009) and Lee and Tapp (2010), after the national opium ban in 1958 in Thailand, opium cultivation continued for over two more decades. For being allowed to cultivate opium, many Hmong households negotiated and at times bribed some local authorities (Chouvy 2009; Lee and Tapp 2010).

Another key factor leading to *de facto* tenure security is strategic response to tenure insecurity. Rather than continuous or further degradation of forest in response to increased threats of eviction and tenure insecurity, the communities opted for forest conservation activities to exhibit their conservation capability. These activities include the establishment of natural conservation group, the creation of conservation and community forests, the continued management and maintenance of communal forest and the frequent participation in reforestation activities. These activities generated trust that the communities could conserve the forest and resulted in greater collaboration between the authorities and the communities in forest conservation and forest fire prevention. Mutual trust and collaboration were incrementally strengthened and eventually led to a number of elements signifying informal tenure recognition, such as the verbal agreements between the communities and the authorities to allocate rights and responsibilities to the community forest to the community, GPS maps of the settlements encompassing both individual agricultural plots and communal community forest and demarcation of the settlements by the authorities. These elements were commonly voiced by the members of the Northern communities as principal reasons for the absence of fear of eviction or withdrawal of rights to their land. Despite the fact that the occupation and use of land inside the National Park and National forest reserve remain unlawful, strong involvement of the authorities in plot allocation, settlement demarcation and GPS map creation principally translated to perceived tenure security among the community members.

Assistance of the local mediators is also found helpful in creating *de facto* tenure security. Unlike the two communities in the West, the Northern communities collaborated with a number of research institutes and NGOs, which provided both indirect and direct backing to enhance tenure security of the communities. Indirectly they instilled the concept of forest conservation as means to enhance *de facto* tenure security and to gain trust from the officials. The Royal Project Foundation encouraged and facilitated the communities to local cultivation approach towards the one regarded more positively by the authorities as less destructive to forests. By doing so, the communities learned that one of the potential avenues to gain acceptance and lower tenure conflicts with the authorities are to adopt environmental-friendly approach to cultivation and/or forest conservation activities. Along the same line, FORRU provided the communities with opportunities to demonstrate their willingness and capacity to conserve the forest. The organization was also helpful in conveying scientific evidences of positive conservation outcome of the communities to the authorities as well as the public. Secondly, directly, a number of organizations entered into negotiations with local

authorities to enhance tenure security of the communities. The Royal Project Foundation initiated the demarcation of agricultural area of participating community members and negotiated for the use of land on behalf of its members with the local authorities. Similar role of the Royal Project Foundation in other communities in Thailand was also reported (Heyd and Neef 2004). The Uplands Program, an international collaborative research program conducted in the communities, together with its Thai partners also negotiated with the local DNP authorities for the two communities to have the rights to permanently settle in their present location (Neef 2012).

7.2. Tenure security and deforestation

The findings of the two Northern communities confirm Angelsen (2007) theory associating somehow tenure insecurity with forest protection. Against the backdrop of rising tenure insecurity, the members of the two communities responded by enhancing their forest conservation effort among other things. Additionally, the findings suggest that types of tenure might be a critical component that determines the linkage between tenure insecurity and forest conservation. Moreover, the preference of certain type of tenure over another represents a self-constraint behavior that could be explained by sociological theory referred to as "Ulysses and the Sirens", suggesting that, sometimes, people may benefit collectively from being constrained in their options.

7.2.1. Confirmation of Angelsen theory

The two Northern communities are located inside reserve forest, national park as well as watershed class 1A designation. Following the NFR and NP Acts and Resolution on Watershed Classification that forbid living inside or utilizing resources, the local community henceforth became illegal settlers. Their rights to land were consequently limited and were challenged by the authorities, who represented the *de jure* legal owner of the forest land. Furthermore, fear of eviction became a phenomenon that the communities often came across.

Tenure of the communities began to be severely affected after the demarcation of the national park. Many community members were arrested and prosecuted on the ground of using land inside the national park designation. Moreover, threats of forced eviction became increasingly pronounced, as other local communities similarly located inside the NP and Watershed class 1A designation in the region were being relocated. Driven by strict

enforcement of the laws and possibility of eviction, the community used several strategies to enhance their tenure security over their settlement and nearby forest land.

Among the first conservation efforts was the formation of Natural Resources Conservation Group comprising influential key village committees in late 1980s. The Group built a community-wide consensus towards the creation of conservation forest. The conservation forest had been maintained and strictly protected. Community rules created by the Natural Resource Conservation Group limited the use and prescribed punishment for any violator. The community members normally entered the area only for the Forest Ordination ceremony and to construct firebreaks[17]. According to the community rules, gathering forest products or hunting was not allowed in the area. Anyone who violated the rules would be fined.

With the evidence for improved condition of the conservation forest area, the local DNP officials began to change their negative attitude towards the communities. Discussion and negotiation between the two parties then became possible, as they collaborated on forest conservation activities. In addition to the conservation and community forest, in collaboration with the Forest Restoration Research Unit (FORRU), the community also helped prepare experimental forest restoration plots in its vicinity, which expanded continuously. Combined with the conservation forest initiative, the community's conservation effort was well-received by the officials.

Applying the Angelsen theory to the case, under a situation of rising tenure insecurity with the emerging fear of forced eviction and absence of legal title document in the past, the community members responded by increasing their efforts to conserve the forest rather than clearing it. The land used for reforestation had previously been cleared and used for agriculture and therefore most likely would have remained agricultural land had the conservation forest not been established. The counter argument of the land degradation-deforestation hypothesis as described in Angelsen's paper asserting that insecure tenure usually leads to deforestation to replace the degraded land does not apply here for two reasons. Firstly, tenure insecurity led not only to reforestation but also to a strong initiative to increase the productivity of the remaining agricultural land instead of continuously clearing new land for agriculture. This contradicts, at least formally, the conventional wisdom

[17] In addition to the conservation forest, the community has a community forest where they can gather forest products for household consumption and timber for communal use in events or ceremonies. As of 2013, the community forest covered an area of about 4.8 hectares. The community forest was formerly an agricultural area. It was given up after the community's majority vote approving the creation of a community forest to be used as after being reforested.

associating plantation and investment in land productivity with individual land titles. Secondly, with support for improvement of agricultural techniques, the possibility to sell agricultural produce on the regional and national market, and the construction of infrastructure by the Royal Foundation project[18] and by other organizations, the community could neither be described as having poor infrastructure nor lack of market access.

7.2.2. Additional layer of tenure types

It is noteworthy that the decision to create the conservation forest, which implied the withdrawal of land from individual ownership and management, expresses a preference for communal tenure over individual tenure with regards to forest protection of the community. Also, when the community members were asked about their preference for a type of tenure for their conservation forest, the majority of the respondents in Mae Sa Mai community (98%) and Mae Sa Noi community (100%) revealed their preference for communal tenure for the communal community forest. The explanation for the choice of communal tenure over individual tenure given by all the groups was linked to the long-term ability to conserve the forest. One of the most frequent explanations put forward for this preference was that the communal tenure would prevent a situation in which communal forest land could be sold by a member of the community in pursuit of personal wealth. This type of comment most likely stems from the fact that illegal sales of forest land located inside the NP or NFR generally to investors for building resorts and holiday homes, by local individuals without an eligible title document has been a commonplace throughout the country in past decades, including in the Northern region. Although the occurrence of illegal sales of state-owned forest land was somewhat reduced thanks to active confiscation and prosecution in recent years, it was only logical to assume that the community associates communal tenure with the high likelihood of conserving the forest.

On the other hand, the community also associates the idea of individual tenure with the likelihood of the land being sold and/or cleared and used for agriculture. This implies that had the conservation and community forest depended on an individual tenure system, against a backdrop of tenure insecurity, it could also lead to a continuous clearance of forest land for agriculture or sale of forest land with subsequent conversion to resorts, instead of forest conservation. In this sense, the type of tenure was indeed a critical component that linked

[18] The Royal Project Foundation office was founded in Mae Sa Mai vicinity in 1974 with the purpose of promoting the cultivation of cash crops to replace opium. The Foundation collaborated with Mae Jo University through research on cash crop seeds improvement in order to support the local community.

tenure insecurity to successful forest conservation, a situation predicted by using Angelsen's (2007) framework. However, Angelsen (2007) does not discuss this aspect of his framework further.

An emerging body of literature documents the role of community and collective actions to prevent degradation of common pool resources such as forests. Agrawal (2008) pointed out that the bigger the forested area under community ownership, the higher the likelihood of better forest outcomes. In the same line of thought, Hyde, Belcher et al. (2003), reported increased forest cover in some parts of China where local communities manage the forest. Similarly, Van Laerhoven (2010) emphasized the role of community in forest management as an important predictor of forest stability. On the other hand, based on a review of over one hundred empirical cases, Robinson, Holland et al. (2011) reported mixed outcomes for the forest of communal tenure type. By and large, the literature suggests that the relationship between communal tenure and forest outcomes are context specific and can therefore be either negative or positive. However, only a limited number of studies explored the relationship between communal tenure and forest outcomes against the backdrop of tenure insecurity. De Koning, Capistrano et al. (2008) found that insecure community tenure could lead to deforestation and conflicts, as forests are exploited for short-term benefits. The findings reached by De Koning, Capistrano et al. (2008) nonetheless contradict the empirical data we collected in the two Northern communities. The results of this paper therefore suggest that greater attention needs to be paid to the effect that different tenure types have on forests where tenure is insecure.

7.2.3. Self-constraint behavior of local community members

Interestingly, when faced with the choice between individual and communal tenure for their conservation forest, the majority of the community members preferred the latter. In the same way, concerning their agricultural land, the community with the majority vote set up a community rule that if any member sold their agricultural land to an outside party (non-relative, non-community member), the transaction would be annulled by the community committee. The rationale behind this choice was to prevent the sale of the land to an outside party for short-term monetary gain, which could result in members becoming landless and possibly in changes in land-use patterns, among other undesirable impacts on the community. This choice expresses a self-constraint behavior that fits the sociological theory of Ulysses

and the Sirens. In book XII of the Odyssey, Ulysses and his crew must pass the Siren's island. Knowing that anyone who heard their song would be irresistibly drawn to them and killed, Ulysses asked the sailors to plug their ears with wax and to bind him: " …*you must bind me hard and fast, so that I cannot stir from the spot where you will stand me... and if I beg you to release me, you must tighten and add to my bonds*" (the Odyssey). As Elster (2000) framed it, this represents a situation where a rational agent constrains his actions at some future time because he is afraid that he would be less rational when that time arrives. Based on a similar line of thinking, the members preferred communal tenure, which was understood to be relatively difficult to sell, to the individual tenure (tying themselves down) to avoid being tempted by a short-term desire for money (Siren's song). A desire for money among the community members is generally triggered by the need to survive or by social/capitalist pressure, e.g. new phone, electrical appliance, motorcycle or other vehicle. In so doing, they would be protected against being tempted by a short-term monetary gain (the sale of their land) and would keep their land for their descendants in the future. Their assumption of what could happen (sale of land) after obtaining the individualized title deed was largely based on the situation they observed in nearby villages, where most individual title holders immediately sold their land in exchange for short-term monetary gain. Without proper financial management, many of those individuals generally became landless and had to work as labor or rent their former land for agriculture.

7.3. Tenure clarification and competing agenda

The findings of this study do not support the previous research suggesting positive outcome on tenure of local communities. Instead, they provide empirical evidences that REDD+ might not be sufficient to expedite tenure reform. These findings also discusses about tenure reform in light of REDD+ and pinpoint the likely cause of the absence of strong political will of the government to support tenure clarification and REDD+, which are incompatible government agendas.

7.3.1. Tenure insecurity impact on REDD+

In contrast to the literature e.g. Larson et al. (2010), Evans *et al*. (2012) and Larson *et al.* (2013), the results of implementation of the REDD+ in this study revealed that REDD+ did not provide adequate incentives for the government to accelerate tenure clarification for the local forest-dependent communities. In the context of the study, the government was reluctant to transfer forest rights to local communities and all local community stakeholders recognized that the land tenure system was not clear. Due to the embedded risks in tenure insecurity, financial investment for REDD+ was discouraged and later withdrawn. As explained by Cotula and Mayers (2009), the absence of tenure clarity could lead to removal of REDD+ investment. In addition to reputational risk (i.e. being associated with projects with, or perceived as having, adverse social costs) mentioned by Cotula and Mayers (2009), the findings suggest another potential source of concern to investors: the risk of non-permanence (reversal of emission removals in the future due to activities performed by the local communities who are the actual land users).

As a result of the lack of funding, REDD+ activities planned for the project were not completed and consequently no significant impacts of REDD+ on tenure were observed. However, a few planned REDD+ measures (as identified in the 2009 R-PIN) were actually implemented: reforestation, construction of a dam, estimation of potential carbon sequestration capacity, and preliminary steps for the expansion of the national park, although these were not considered as REDD+ measures by the project developers. It is worth mentioning that, even though with limitations, the preliminary results reveal signs of negative impacts on tenure of local communities, as the expanded national park area included land that had already been cleared and prepared for cultivation by one of the community members of Ton Mamuang. If such activity were to be included and completed as REDD+ activities in the future, the present study therefore reveals a potential tendency that is in agreement with the reports in the literature suggesting negative REDD+ impact on tenure of local communities in cases where forest land tenure is not clear, e.g. Eraker (2000), Adger *et al*. (2004) and Jindal *et al.* (2008). This notion remains to be confirmed by further studies during the second stage of project implementation, when REDD+ measures are expected to be fully implemented.

7.3.2. Tenure reform

The findings suggest that tenure reform with positive tenure outcome for local forest-dependent communities is at heart of the long-term success of REDD+ particularly in the

context of Thailand. Even though there is a tendency in REDD+ policy discussions to equate comprehensive legal reforms of regulations, policies and laws related to land tenure with improved community forest tenure security and hence improved enabling conditions for REDD+, tenure reforms are embedded with a number of challenges. Firstly, national tenure reforms are often a lengthy process with high complexity (Bolin, Lawrence et al. 2013; Rothe and Munro-Faure 2013). The necessary careful preparation and institutional development to accommodate the reform is likely to take decades (Adams, Sibanda et al. 1999). Secondly, the resources available for REDD+ readiness are generally not sufficient to carry out national tenure reforms (Rothe and Munro-Faure 2013). Such tenure reforms most likely need to be associated with a wider and bigger initiative to tenure by the government with long-term budgetary commitment (Adams, Sibanda et al. 1999; Rothe and Munro-Faure 2013). Thirdly, tenure reforms are generally highly contested processes that do not always produce the expected outcomes (Nelson 2010), and in several cases efforts to clarify tenure actually heightened conflicts (Deininger and Feder 2009; Wainwright and Bryan 2009).

In the case of Thailand, one of the major tenure reforms in the past was the land titling program in 1984 with the support from the World Bank and Australian government. While its proponents note that the program increased land values and tenure security (Feder, Onchan et al. 1988), civil rights groups claim that the program did not recognize community property resources and led to elite capture of land at the expense of poor rural population (Leonard and Narintakrakul na Ayutthaya 2002). Ganajanapan (2000) similarly suggests that the traditional practices of tenure arrangements, which the land titling replaced, already provided tenure security to the land users. Contradictions were found between customary practices and legal principles in relation to inheritance, demarcation and alienation of land (Ganjanapan 2000). The land titling led to land disputes among heirs, families and relatives, rather than greater tenure security as anticipated (Ganjanapan 2000). Even if the reform is designed to be in complimentary to the customary tenure arrangement *de jure*, the reforms do not necessarily change *de facto* tenure if the enforcement of the newly established legal rights is weak (Bolin, Lawrence et al. 2013). More importantly, many of the causes of tenure insecurity are driven by political and economic factors with an interest in maintaining business as usual practices (Bolin, Lawrence et al. 2013).

The findings of Thailand disprove the initial assumption made at the outset that there would be strong engagement and ownership within the government towards REDD+ given its potential role in sustainable development and potential financial flows. In fact, a more cautious approach has been expressed by the Thai government, who appeared to adopt a “wait

and see" position, until more substantial progress has been achieved on reaching an international REDD+ agreement and certainty in future finance. Consequently, the government avoided making considerable changes in the current legal framework and priorities, including the ones that are inconsistent with REDD+ objective from the perspective of tenure and deforestation, even in light of REDD+ pilot implementation.

7.3.3. Competing agenda

Additional to the "wait and see" position of the government, another potential cause of the absence of strong political will to promote REDD+ in Thailand could as well be the competing government agenda – policies or priorities that are inconsistent with REDD+. In the context of this thesis, the relevant agenda includes the ones related to tenure and deforestation.

One of the lasting effects of the colonial forestry system in contemporary Thai forestry is the forest politics that enabled the government to own the vast forest area of the country, while criminalizing the local communities residing inside the land legally classified as protected areas. For the past decades, Thai government has been reluctant to give up control of forest area with valuable timber resources to the local communities and has limited response to the grassroots movement calling for legal recognition of community rights to forest land that was initiated since the 1990s. The Community Forest draft Act had been the source of national debate as well as the heart of the community forest movement for over two decades. While the light green NGOs[19] and academics proposed evidences that the communities are able to protect and sustainably use the forest resources, the dark green NGOs and other conservationists including the conservative fractions of government authorities denied the ability of local communities to sustainably manage the forest resources and promote exclusion of people from forests (Brenner, Buergin et al. 1999; Sumarlan 2004). After undergoing a number of rewrites, the draft Act was rejected, passed and eventually rescinded. A more recent example relates to the Prime Minister's Office on the issuance of Community Land Title Deed that provides temporary use and management rights to local communities inside State-owned forests. Even though the issue was regarded as one of the government priorities by the Prime Minister's office, it met with strong resistance from forestry departments namely the RFD and the DNP, who generally viewed the policy as

[19] The terms light green and dark green refer to different ideologies of NGOs with relevance to environmental issues in Thailand. The light green NGOs emphasize on social issues, whilst the dark green NGOs concentrate on conservation objectives.

means to legalize the illegal squatters and as encouragement for further forest encroachment (Boonchai 2013). Since 2011, additional Community Title Deed is yet to be issued despite the calls for its continuity by the Land Reform Network and academics.

Regarding deforestation, one of the fundamental government policies[20] that have been in competition with forest conservation in Thailand rests within agricultural sector. A number of studies discloses a strong linkage between the promotion of cash crop cultivation and deforestation in Thailand for the past decades (Dembner 1989; Dearden 1995; Hirsch 2000; Lang 2003; Entwisle, Walsh et al. 2005; Lorsiririat and Maita 2006). In a similar vein, the national REDD Readiness Preparation Proposal (R-PP) submitted to the FCPF in 2013 suggests that the conversion of natural forest area to agriculture is categorized as one of the prominent and direct causes of deforestation in Thailand (GoT 2013). Since its establishment in 1959, Thailand's National Economic and Social Development Board, which has been responsible for all public investment planning, is a major promoter of cash crop cultivation for export (Lang 2003). Thai agribusiness companies had a strong influence on national agricultural policies (Levin and Panyakul 1993). Agribusiness involving in the production of cash-crops often received financial help from the government through the Bank of Agriculture and Agricultural Co-operatives, tax breaks, duty privileges and other promotional measures (Delang 2002). During the mid-1960s, the returns of cash crop exports played a major role in the national balance of payments, fueling the replacement of forest land by cash crop production further (Phongpaichit and Baker 2002). Phongpaichit and Baker (2002) reported 44 times increase in maize cultivation area during 1950-1990 and 24 times increase in soybean cultivation area during 1950-1990, whilst ARDA (2013) reported doubling of palm oil cultivation area in the country during 2004-2009. In 2003, the government announced the campaign to establish the country as the kitchen of the world, which to some extent encouraged agricultural production further (Murray 2007).

Moreover, contract farming has been a key element of Thai government's development plan reflecting a strategy of private-led integrated agricultural development (Singh 2005; Sriboonchitta and Wiboonpoongse 2008). Guaranteed prices for certain cash crops for food, timber (eucalyptus)[21] In 2008, allegedly incentivized by Charoen Phokaphan (CP) Group, one of the largest agribusiness companies in Thailand, through provision of

[20] For discussion of other causes of deforestation occurred in Thailand, please see Delang (2002) and Phongpaichit and Baker 2002) and the R-PP (2013 version) for more recent discussions on the issue.

[21] Contract farming has become an important arrangement for eucalyptus production in Thailand (Boulay and Tacconi 2012). Forest industry companies generally provide low price seedlings, fertilizer, technical advice and training as well as guarantee the purchase of the timber at a fixed price for mature trees (Boulay and Tacconi 2012).

seedling, fertilizer and pesticide without upfront payment and unofficial promise to buy the produce, about 25% of national forest reserve in Petchaboon province was encroached for cultivating cassava, sugar cane and maize (Tansettakij 2008) and about 50% of forest in watershed area of Nan province was cleared for maize cultivation (Wangsap 2012). Similar occurrences of forest clearance were reported in Chiang Mai province for maize cultivation in 2008 (Noonsong 2008) and in Kanchanaburi for rubber, cassava, sugar cane and animal feed maize cultivation in 2013 (Poojadkarn 2014). It should be noted that soybean and maize are one of the main ingredients to produce animal feed, in response to the growing number of contract farming for poultry, livestock and aquaculture production in the country. By 2011, rubber, canned chicken[22], sugar, cassava, pet food, palm oil and maize were amongst the top twenty agricultural export items of Thailand (FAO 2011).

Over the past decades, agricultural intensification – increasing agricultural inputs to improve production rather than expanding land under cultivation – has been widely adopted in Thailand. The technique is often posited as a strategy for reducing forest encroachment. Empirical analyses nevertheless show weak relationship between intensification and reduced deforestation (Ewers, Scharlemann et al. 2009; DeFries, Rudel et al. 2010). One of the explanations includes the fact that intensification modifies land rents as yields and surpluses increase, thus generating financial incentive for further forest clearance for agricultural expansion (Phelps, Carrasco et al. 2013). Unless there is an adjustment in the competing agricultural policies, the potential financial incentives from REDD+ will have little chance in outweighing lucrative forest uses for commercial agriculture.

By virtue of the prevailing absence of resolute political support for REDD+ and the existence of competing government agenda, the eventual convergence and alignment of government agenda and policies seem implausible in Thailand. Unless REDD+ becomes the government's prime agenda, it is foreseeable that the existing or future contradictory policies could work against the effort to reduce emissions from forest sector or worse entail forest conversion at a scale which would make a difference in national emissions (Karsenty 2012). Under such circumstances, the shortfalls embedded in the project-based and nested approaches to REDD+ architecture could create negative implication on the emission reduction efforts. Depending on national ramification of the project-based and nested approaches, REDD+ projects with verified reduced deforestation could potentially be credited without taking into account the subsequent total national deforestation level. Such situation

[22] Canned chicken refers to tinned and fully retorted chicken meat, which has had prolonged exposure to high temperature while in its container.

may henceforth lead to an overall increase in national, regional or global emissions from deforestation due to indirect land-use displacement outside project boundaries. However this does not necessarily conclude that REDD+ implementation under project-based approach or nested approach in Thailand would have no contribution. Indeed, other co-benefits of REDD+ beyond carbon sequestration, namely biodiversity improvement from such project could possibly be immense. The latter has greater importance to local communities in form of food security and medicine (GoT 2013).

CHAPTER 8 POLICY IMPLICATIONS AND CONCLUSION

This chapter presents the major policy implications that were drawn from the study. This chapter then concludes the study by summarizing important findings, criticizing major limitations of the thesis and proposing several avenues for further research.

8.1. Policy implications

The case study of Thailand clearly highlights that clear and secure tenure is necessary as one of the enabling conditions for the long-term success of REDD+ for sustainable forest management and improved livelihoods. A comprehensive tenure reform to formally recognize communal tenure ideally with conditionality of forest conservation performance should be considered. The reforms may encompass the re-introduction of the Community Forest draft with certain modification on the constraints of local communities' rights and their potential role in forest management or active implementation of the Regulation of the Prime Minister Office on the Issuance of Community Title Deed. In parallel, this requires existing legal framework with conflicting implications on communal tenure and local livelihoods in State-owned forestland to be streamlined, the National Park Act, National forest reserve Act, Resolution on watershed classification and Land Code and Promulgation Act for instance.

However, tenure reforms without effective enforcement could engender risks to the success of future REDD+ implementation, while exacerbating current inequality in the tenure arrangement as well as future REDD+ benefits. Essentially, the prevailing absence of strong political will implies that the legal reform of tenure would likely to be sluggish, expensive and might not offer the anticipated outcome on tenure security of local forest-dependent communities. In other words, while delivering enforceable tenure to forest-dependent communities could be one of the long-term measures, REDD+ also requires immediate actions to enable rapid implementation in a short to medium term, as on-going economic pressures to convert forest land to other uses namely agricultural production threaten to out-compete the possible future financial incentives offered by REDD+. Potential short to medium term measures include:

Firstly, existing national policies and legal framework as well as government priorities could be assessed for their consistency with REDD+ objectives. This encompasses policies across sectors with relevance to deforestation, such as agriculture, mining, forestry and infrastructure development. Consequently, policies and laws with perverse incentives, legal loopholes or conflicting priorities that has implications on deforestation as well as tenure of local forest-dependent communities could be identified. Corresponding interim measures to halt unsustainable development or temporary tenure arrangements could be provided, while the government priorities are re-assessed. Even though comprehensive legal changes and tenure reforms are needed in the long-term, the identification of policy inconsistency and implementation of interim measures might also reduce deforestation rapidly and facilitate REDD+ development within existing legal framework.

Secondly, in light of the absence of *de jure* tenure clarity for local forest-dependent communities and carbon ownership clarification, REDD+ pilots could be conducted as PES projects in short-term, with the aim to expand into national PES scheme in a long-term. PES is believed to be the more preferable apparatus given the current context of Thailand, compared to REDD+ for several reasons. Firstly, PES is a result-based scheme that involves payments to managers of land or other natural resources for activities conducted. In other words, actions anticipated to deliver ecosystem services are used as proxies, e.g. respect of contractually agreed land use plans, reforestation activities, restoration of degraded ecosystem etc. Rather than using carbon as proxy, high carbon-related costs associated with REDD+ regarding carbon measurement, verification, validation and sales (the so-called 'carbon infrastructure') could be avoided. Secondly, tenure formalization is regarded by NGOs and CSOs in Thailand as one of the most important pre-conditions for REDD+, as expressed in the 2013 national R-PP public consultation and in-depth interviews (Pornpana Kuaycharoen, personal communication, 12 July 2013; Kittisak Rattanakrajangsri, personal communication 1 August 2013; Somsak Soonthornnawaphat, personal communication, 1 August 2013). Local communities with sufficient *de facto* management and exclusionary rights are deemed acceptable to be included and for benefiting from PES, even without formal title document both in theory (Wunder 2005) and in the context of Thailand (Pornpana Kuaycharoen, personal communication, 12 July 2013; Somsak Soonthornnawaphat, personal communication, 1 August 2013). Thirdly, the political support for PES from government authorities appears to be clearer, attributable to a clearly defined concept, tangible domestic financial sources, success stories in other countries, greater awareness among the relevant government authorities and compliance with existing laws (Amphorn Pammongkol, personal

communication, 10 August 2012; Charnwit Puangchan, personal communication, 11 August 2012). Moreover, a number of PES-like activities – such as the private sector-funded reforestation and forest maintenance projects inside State-owned forest land with local communities as main implementers and beneficiaries via the local authorities – was conducted in Thailand in the past. In line with the proposal, one of the key organizations related to REDD+ development in Thailand, notably the Lowering Emissions from Asia's Forest or LEAF program, decided to conduct their REDD+ pilot in Thailand in form of PES. In agreement with relevant government officials, the principal source of finance would derive domestically from national companies' corporate social responsibility programs (Somsak Soonthornnawaphat, personal communication, 1 August 2013).

The findings furthermore suggest that the two Northern communities studied appear to have *de facto* management and exclusionary rights and able to complete long-term forest protection even without formal tenure recognition aside from GPS maps produced by the officials. The communities were found to possess the following attributes:

- Proven forest conservation capability, e.g. continuous community-initiated/managed reforestation or forest conservation activities and evidences of positive forest outcome
- Strong collective action, e.g. enforcement of community rules governing the management of community forest
- *De facto* management and exclusionary rights, e.g. autonomy and main responsibility in maintaining and managing the community forest, excludability vis-à-vis all incompatible land users including the State authorities and GPS map of the settlement conducted by the local authorities implying informal tenure recognition
- Good relationship with authorities, e.g. collaboration and mutual trust between the community and local authorities in forest management and enforcement of the laws.

Communities possessing the prescribed attributes should not be neglected as potential participants to REDD+ scheme, against the backdrop of no upfront tenure clarification. Their on-going conservation efforts and practices of sustainable management of forests should be encouraged and be eligible as REDD+ activities. For communities without the prescribed attributes, engaging them in REDD+ or long-term forest conservation contractual agreement prior to the formalization of their customary tenure might have lower chances of success. Weak collective action and lack of proven capability of forest conservation of such communities cast doubts on whether they would be capable of conserving the forest. Without minimum *de facto* rights to exclude or manage, the permanence of long-term forest protection

activities could not be ensured. Having on-going conflicts with the authorities and low mutual trust would prevent the communities from entering into any contractual agreement with the authorities, particularly the one with the promised rewards after project completion rather than upfront.

Ideally, the community title document encompassing both community forest area and individual agricultural plots of the community members in accordance with Regulation of the Prime Minister Office on the Issuances of Community Land Title Deed could be provided as REDD+ rewards upon the completion of the project. Such in-kind reward should be provided because PES payments alone may not be sufficient to incentivize land use changes (Neef 2012). The title document providing use and management rights to the community over community forest and agricultural land could potentially be revoked if the community forest is not well-maintained or if any community member sells the agricultural land to external party (Anand Ganjanapan, personal communication, 13 May 2012). In parallel, this implies modification of several contradictory laws in order to make such concept feasible.

REDD+ activities could then be regarded as reforestation or forest maintenance activities and be conducted in collaboration with local authorities, which would transfer the payment and implementation responsibilities to the local communities in accordance with the NP and NFR Acts. Under existing legal framework, this suggestion is feasible based on the similar project of the Petroleum Authority of Thailand (PTT) conducted. The project funded reforestation activities performed by Mae Sa Mai and Mae Sa Noi communities via local DNP authorities. It is important to note that PES or REDD as a financial incentive alone can only be a part of the solution to reverse deforestation and forest degradation in a limited timeframe. However, if REDD+/PES benefits are entangled with resources to acquire capital needed to implement new skills, training, agricultural techniques and market, the effort to reduce reliance on forest products as well as incentives for forest conversion is likely to sustain, even after the termination of REDD+ compensation. Based on the BCI model, the REDD/PES model of Karsenty (2011), FORRU (Stephen Elliot, personal communication, 2 August 2013) and the Village Development Partnership of the PDA (Samnan Chaikot, personal communication, 8 October 2013), one of the potential models for REDD+ in Thailand prior to forest land tenure clarification is illustrated in Figure 43.

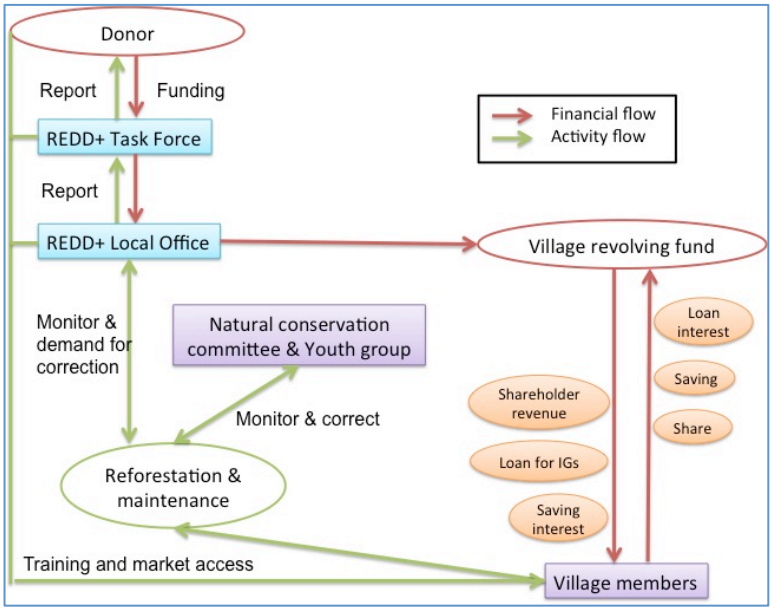


Figure 43 Proposed REDD+/PES model in Thailand

Following the REDD+ national and local institutional structures prescribed in Thailand R-PP of 2013, the REDD+ Task Force could distribute monetary benefits of REDD+ to the participating communities through the REDD+ local offices. The local office would also be responsible for carbon monitoring and reporting conservation performance in collaboration with the local actors, namely community committee members and youth group, on a frequent basis. The payment to the community could be made in sequences throughout the project duration through the village revolving fund. The collective payment should be conditional to the conservation performance and corrective action of the community, e.g. replacement of dead trees with seedlings a few months after reforestation activity.

In the case of loan default, no further loan would be issued to other members unless the default is corrected. Furthermore, the REDD+ local offices, Task Force and donor should contribute to training of skills for income generating activities and enhanced market access in correspond with the community members' interest. Then aside from paying for saving interests and shareholder revenue and adding on to the fund, certain percentages of the interest gained from the loan could be used for communal activities and improvement such as firebreak preparation, education and healthcare. It is noteworthy to mention that each REDD+ project should have an MoU with clear deliverables as well as terms and conditions of the village revolving fund agreed and signed by both parties. Any breach of the terms agreed should only result in termination of the project. This study does not claim however that such model is a one-size-fits-all framework for all forest communities in Thailand. Rather, it intends to illustrate one of the potential models that is feasible to enable REDD+

implementation within existing legal framework and can generate lessons learned for future REDD+ development in the country.

Thirdly, in relation to the REDD+ Task Force, as described by the R-PP submitted to the FCPF in 2013 appeared to already be multi-ministerial and multi-sectoral, yet several improvements could be made. Additional ministerial members with relevance to deforestation and hence stakes in REDD+ such as Royal Irrigation Department (dam construction), Department of Primary Industries and Mines (mining) and Tourism Authority of Thailand (tourism) could be included. Private sector alike, additional leading players in agribusiness in food, energy and pulp and paper industry, notably Charoen Pokphand Foods, United Palm Oil, Mitr Phol Group, Betagro Group, Univanich, Sritrang Agro Industry, Double A should also be incorporated, given that their roles in the REDD+ Task Force are well-defined. Rather than being a separate body, the REDD+ Task Force could be part of the National Climate Change Committee[23] in order to participate in national climate change policy making and ensure that the preparation of the policy was conduced in a coherent manner to REDD+. Moreover, the Committee is chaired by the Prime Minister, which in turn could provide the REDD+ Task Force with robust authority when facing contradictory policy or legal framework. Likewise, close coordination between the REDD+ Task Force and the GHG inventory unit (TGO) should be secured. To ensure that the GHG inventory would be completed within the given timeframe, legal instruments with flexibility such as MoU, contracts or formal agreements, could be considered. Ideally, the GHG inventory team for agriculture, forestry and other land uses sector should have permanent positions to assure that technical skills and institutional memory are not lost and to support the continuity in GHG inventory cycles.

8.2. Conclusion

This section summarizes important findings and its significance in contributing to the debate on tenure and REDD+ relationship. It also revisits the primary research questions and hypotheses. It furthermore describes the main limitations of the study and provides direction and areas for future research.

[23] Ideally, Thailand Greenhouse Gas Organization or TGO (GHG inventory unit and Clean Development Mechanism Designated National Entity), Nationally Appropriate Mitigation Actions (NAMAs) Authorities alongside other representatives from relevant ministries should be part of the Committee as well.

8.2.1. Summary of findings

Despite the issue of tenure and REDD+ was raised by a number of scholars, limited filed research has been conducted. This study aims to fill some of those gaps through research in four local communities in two different location in Thailand, one is where REDD+ pilot project was supposedly implemented and another is where REDD+ project is likely to be implemented. The findings suggest that in general where forest land tenure remained insecure, the effect of the relationship between tenure and REDD+ could potentially be significant. To elaborate, the two research questions and hypotheses were revisited.

The first research question asks, "Does the present legal framework with non-recognized customary rights produce similar *de facto* impacts in all communities at present?" and the corresponding hypothesis is "Communities reveal different *de facto* impacts due to different local context." The findings confirm the hypothesis. Two major findings emerged from this study in relation to the first research question. They contribute to the existing knowledge of *de facto* tenure security in a setting, where the statutory and customary tenure systems co-exist without any formal linkages in two ways. Firstly, they provide evidences that in some communities the legal framework resulted in *de facto* tenure insecurity of local communities and secondly provide alternative evidences that in other communities, the similar legal framework implementation in fact resulted in *de facto* tenure security. Additionally, the findings offer insights into potential explanation of the diverse level of *de facto* tenure security among local forest-dependent communities.

The first findings are that in the past all of the four communities reported that their *de facto* tenure security was negatively affected by the legal framework particularly the National Park Act and the National forest reserve Act. Without any prior public consultation, the designation of National Parks and National forest reserves was declared nation-wide as part of the government's effort to conserve the forests. Most of the established national parks and national forest reserves nevertheless largely overlapped with existing settlements of many local forest-dependent communities. Both Acts prohibited the occupation and use of land inside the designation and therefore made the local forest-dependent communities illegal settlers. By overlaying formal institutions onto informal arrangements, tenure of those communities residing inside the State-owned forest land namely the four communities studied was challenged and threats of forced eviction became vocal as a consequence of the legal framework. The overlapping claims made by both the State and the local communities led to frequent confrontation and bitterness between the two parties as well as violent retaliation by

the communities at times in the past. Although the *de facto* tenure situation evolved over time and certain conflict resolution measures were implemented, at present the two communities in the Western region generally remained without excludability vis-à-vis the authorities and commonly with the fear of forced eviction. Moreover, the local authorities initiated and regulated the communities' ability to access and withdraw forest products from the community forest. These findings are found to be in consistent with the literature suggesting the negative impacts of legal framework *de facto* tenure security of the local forest-dependent communities in Thailand at present.

The second major findings related to the first research question are that currently *de facto* tenure of some local communities has improved, even without significant improvement to the legal framework. Even without any legal recognition of their tenure or title document, the results show that the two communities in the Northern region felt generally secured. The communities understood that they had *de facto* exclusionary rights against any incompatible user, including the State authorities. Furthermore, the members mostly did not fear of forced eviction from the settlements. Moreover, the rules governing the access, withdrawal and management of community forest were initiated and enforced by the communities, rather than being imposed by the authority. These findings henceforth introduce certain nuances into the on-going debate about tenure security of local forest-dependent communities in Thailand. At the same time, the findings enrich the international discussion on the tenure security of local tenure arrangements by providing empirical evidences demonstrating the presence of *de facto* tenure security of local communities even without legal tenure recognition. Furthermore, the study proposes that the local context of strong collective action, strategic response to tenure insecurity and assistance of local mediators were contributing factors linking local tenure arrangements to *de facto* tenure security, where customary tenure is not legally recognized.

The second research question asks "How does REDD+ implementation affect both *de jure* and *de facto* tenure security of local forest dependent communities?" and the hypothesis is that REDD+ project activities positively impact tenure security of local forest communities. The findings do not confirm the hypothesis. Two major findings emerged from this study related to the second research question. These findings contribute to the discussion of REDD+ impacts on tenure of local communities, by providing empirical evidences on the limited ability of REDD+ to push forward tenure improvement, as opposed to the expectations expressed by certain literature. Additionally, the study pinpoints a more concerning obstacle to REDD+, the competing government agendas.

The first major findings related to the second research question are in contrast to a growing body of literature that proposes acceleration of tenure reforms as a result of REDD+. On the one hand, the findings of the REDD+ pilot in Thailand suggest that REDD+ may not be able to provide sufficient incentives to expedite tenure reforms or to improve tenure security for local forest-dependent communities. In fact, the findings reveal that *de jure* tenure, the *de facto* tenure security of the two communities in the Western region that participated the BCI was by and large unaffected, despite the request of the participating communities for tenure security enhancement through the project. These findings show that the Thai government did not embark on tenure clarification in view of REDD+ implementation. On the other hand, the findings also disclosed the direct impact of tenure insecurity on REDD+. The unresolved forest tenure conflicts and potential exclusion of the local communities are embedded with a number of risks, namely reputational risk (being perceived as involved in projects with adverse social costs) and non-permanence risk (higher emission in the future due to incompatible activities by the actual land users). Consequently, investment risks associated with tenure insecurity resulted in withdrawal of REDD+ investment and hence prevented the complete implementation of REDD+. In this context, the prevailing tenure insecurity in forest land therefore represents an issue that could jeopardize the long-term success of REDD+. Returning to the hypothesis posed, these findings do not confirm the hypothesis asserting tenure security enhancement as a result of REDD+ scheme.

The second major findings related to the second research question are that the existence of REDD+ competing agenda might be one of the explanation for the absence of strong political will to embark on tenure reform in light of REDD+ and hence influencing the long-term success of REDD+. The lack of strong political will and commitment to push forward tenure clarification has been observable during the past decades. For the past decades, Thai government has been reluctant to give up control of forest area with valuable timber resources to the local communities and has limited response to the grassroots movement calling for legal recognition of community rights to forest land that was initiated since the 1990s. This tends to continue in recent years, even in the view of REDD+. Similarly, the efforts to tackle deforestation in light of REDD+ as seen in the rationale for pilot site selection, in the case of the BCI and LEAF program for instance, were deemed limited. This most likely could be explained by the existence of government competing agendas. Amongst a number of government policies and priorities that have been in competition with forest conservation in Thailand, the fundamental policies rest within

agricultural sector. A number of studies disclose a strong linkage between the promotion of cash crop cultivation and deforestation in Thailand for the past decades. Unless these competing agendas are revisited, by virtue of the prevailing absence of resolute political support for REDD+ and the existence of competing government agenda, the eventual convergence and alignment of government agenda and policies seem implausible in Thailand. In such case, it is foreseeable that the existing or future contradictory policies could work against the effort to reduce emissions from forest sector or worse entail forest conversion at a scale, which would make a difference in national emissions under certain REDD+ architecture.

In relation to policy implication, this study suggests that clear and secure tenure through a comprehensive tenure reform is desirable prior to any REDD+ implementation. However, it is widely accepted that such national tenure reform a time-consuming process that involves a comprehensive reform of policies and laws surrounding land tenure issue. Furthermore, it requires strong political will, which the country currently lacks of, to embark on such national reform. While delivering enforceable tenure to forest-dependent communities could be one of the long-term measures, REDD+ also requires immediate action to enable quick implementation in a short to medium term, as on-going economic pressures to convert forest land to other uses namely agricultural production threaten to out-compete the possible future financial incentives offered by REDD+. Potential short to medium term measures include: the assessment of government policies consistency, pilot implementation as PES in communities with *de facto* management and exclusionary rights and improvement of REDD+ institutional structure. Firstly, existing national policies and legal frameworks could be assessed for their consistency with REDD+ objectives. Policies or government priorities that has implications on deforestation as well as tenure of local forest-dependent communities could be identified. Corresponding interim measures to halt unsustainable development or temporary tenure arrangements could be provided, while the government priorities are re-assessed. Secondly, REDD+ pilots could be conducted as PES in coherent with existing legal framework on communities with sufficient *de facto* management and exclusionary rights. The findings reveal that some forest-dependent communities with specific attributes could successfully conserve the forests even without any formal recognition of their tenure. In a long-term, such PES implementation of REDD+ could be scale up to the national level. Lastly, institutional setting for REDD+ could be improved. Additional stakeholders with high relevance to deforestation should be included in the task force. The task force should become

part of the national climate change committee to directly participate in climate change policy-making and obtain robust authority when facing contradictory policy or legal framework.

These policy implications nevertheless remain with limitations. Firstly, the tenure reform, the reassessment of competing government agendas and policies and the provision of enhanced tenure security as rewards all need certain level of political support to become feasible. REDD+ funding up to this stage does not appear to be sufficient, as an incentive for generating strong political will to enhance tenure security of local forest-dependent communities in Thailand. However, it is noteworthy to mention that the previous governing political party expressed strong political will and prioritized community title as their flagship policy, resulting in the implementation of the Prime Minister Office on Community Title Deed followed by the issuance of community title deeds for pilot communities in Thailand. This implies that the change in governing political party to the one with tenure reform as one of their priorities might be one of the potential factors that could adequately generate strong political will to make these policy recommendations feasible. Additionally, public pressure pushing for tenure reform could also play role in igniting strong political will of the government. The recent public protests against Mae Wong dam construction project in 2013 with expected large-scale forest and wildlife loss, which resulted in the halt and re-assessment of the project's environmental impacts, serves as a good example. Secondly, the proposed conditionality of the community title document, despite the aim to guarantee continuous forest conservation performance, could make the communities expose to subjectivity of the judgment by the officials. Thirdly, the PES implementation suggestion might have limited application ability at present, as only forest-dependent communities with certain *de facto* rights are eligible and such communities may be limited in number at the national scale. Lessons learned from the application could nonetheless provide useful insights for further REDD+ development.

8.2.2. Research limitations

As with most survey research, this study is embedded with several noteworthy limitations. The limitations include the following:

Firstly, due to relatively small sample of case studies in selected regions for assessing tenure situation and for assessing REDD+ pilot impacts. A larger sample would have provided us with a more powerful test to our hypotheses and lessened the possibility of

erroneous results. For this reason, disproportionate stratified sampling technique was used in order to increase precision gains and reduce estimation bias of the results.

Secondly, any synthesis of an active program is bound to be highly subjective. The assessment of REDD+ pilot site is no exception. In combined with limited prior assessment of the pilot program, concentrating only on forest tenure impacts could overlook many other important aspects of the program. Despite such limitations, however, the study may still be useful to the current state of knowledge in this field.

Thirdly, the reliance on qualitative data obtained from focus groups, interviews and survey questionnaires is embedded with potential sources of bias. The sources perhaps include subjective memory and exaggeration to name a few. Moreover, the data on the past tenure conflicts and resolution was collected retrospectively. Additionally, the participants were recruited on a voluntary basis. They may henceforth have had recent experiences of bias or conflicts with the authorities and were looking for a venue to express their frustrations. Even so, the nature of qualitative studies is such that the perceptions of individuals who voluntarily share such information are represented. Consequently, at times, accuracy of responses regarding involvement and positive contribution of the authorities in community forest maintenance was under-reported, perhaps blinded by bias. In response, various measures were taken in order to crosscheck the information, e.g. interview with local key informants and relevant authorities.

Fourthly, another limitation is the possibility of response bias in that participants may not have felt comfortable expressing their sincere opinions or concerns in a focus group setting. However, this limitation is unlikely since the participants usually shared information and experiences that were extremely personal and often emotionally charged in most focus groups conducted.

Lastly, language barrier was found rather problematic with the older female groups of the Northern region. Even with facilitation by the local translator, such barrier impeded the dynamics of the discussion. Data gathering was completed. The process however consumed comparatively more time than the groups without language barrier.

8.2.3. Suggestions for future research

Based on the limitations described, the study raised some issues and questions that could be considered for future investigations. These suggested research areas could promote the improved understanding of the complex relationship between tenure and REDD+.

Firstly, as the findings reveal that *de facto* tenure security of local communities evolved over time and potentially into diverse direction. Further studies encapsulating the longitudinal effects of the tenure evolution could provide a more comprehensive development of *de facto* tenure security and the corresponding drivers of change. Moreover, future studies should contain a larger sample from State-owned forest area in all regions to demonstrate the generalization of this study's results. By doing so, the broader pattern of *de facto* tenure changes as well as their drivers could be identified.

Secondly, the assessment of *de jure* and *de facto* tenure impacts from REDD+ pilot could be performed in a longer timespan with a larger number of participating communities. Ideally the sample could cover communities with various level of *de facto* tenure security in order to compare the REDD+ impacts in different tenure settings. The study could also attempt to examine other socio-economic outcomes of REDD+ activities and enrich the present understanding of REDD+ impacts on local communities.

Lastly, given the issue of government competing agendas, the politics of REDD+ in national setting, in other words, the interplay between REDD+ policies and measures and other development agendas including the incompatible ones should be considered as an issue for future studies.

CHAPTER 9 REFERENCES

Adams, M., S. Sibanda, et al. (1999). "Land Tenure Reform and Rural Livelihoods in Southern Africa." Natural Resources Perspective **39** (February 1999).

AIPP (2012). Indigenous Peoples in Asia-Pacific Call for a Strengthened Role in REDD+. UN-REDD Programme Newsletter. Bangkok, Thailand. **32**.

Akaakara, S. (2002). "Special Report on Forest Fire." International Forest Fire News **26** (January 2002): 100-105.

ALRO (2012). Summary of 2011 achievement of Agricultural Land Reform Office. Bangkok, Agricultural Land Reform Office.

Alston, L. J., G. Libecap, et al. (1994). "An Analysis of Property Rights, Land Rents and Agricultural Investment on Two Frontiers in Brazil." Discussion Paper of University of Arizona **94** (2).

Amano, M. A., K. Noochdumrong, et al. (1996). Historical Changes of Forested Area in Thailand. Proceeding of the FORTROP'96: Tropical forestry in the 21st Century. Bangkok, Kasetsart University.

ARDA (2013). "Statistics of Palm Oil Plantation in Thailand by Agricultural Research Development Agency." Retrieved 4 December, 2013, from http://www.arda.or.th/kasetinfo/south/palm/trends/01-04.php

Aulin, G., S. Buhl, et al. (2011). Navigating in Forest Policies in Northen Thailand: A field study of forest policies' effect onlivelihood strategies in Ban Mae Ka Piang. SLUSE Program. Copenhagen, University of Copenhagen**:** 106.

Baker, C. (2000). "Thailand's Assembly of the Poor." South East Asia Research **8** (1): 5-29.

Balestino, R., P. Bilinsky, et al. (2008). Field Test of LTPR Impact Assessment Tool: Successes, challenges and recommendations. Washington DC, United States Agency for International Development**:** 50.

Barney, K. (2005). At the Supply Edge: Thailand's forest policies, plantation sector and commodity export links with China, Washington DC, Forest Trends**:** 86.

Barton, G. A. and B. M. Bennet (2010). "Forestry as Foriegn Policy: Anglo-Siamnese Relations and the Origins of Britian's Informal Empire in the Teak Forests of Northern Siam, 1883-1925." Intinerario **XXXIV** (2): 65-86.

Bazoglu, N., R. Sietchiping, et al. (2011). Monitoring Security of Tenure in Cities: People, land and policies. Nairobi, United Nations Human Settlements Programme**:** 63.

Bolin, A., L. Lawrence, et al. (2013). Land Tenure and Fast-tracking REDD+: Time to reframe the debate? Oxford, Global Canopy Programme.

Bomuhangi, A., C. Doss, et al. (2011). "Who Owns the Land? Perspectives from Rurla Ugandans and Implications for Land Acqusitions." International Food Policy Research Institute (IFPRI) Discussion Paper: 28.

Boonchai, K. (2013). Community Title Deed: Suggestions for policy implementation by Land Reform Network of Thailand (in Thai). Social Equity and Health. Bangkok, Social Research Institute of Chulalongkorn University.

Bornman, E. (2009). Questionnaire Surveys in Media Research. Juta, Lansdowne.

BoT (2012). "Information of Thai Economy." Retrieved 2 December, 2013, from http://www.bot.or.th/Thai/EconomicConditions/Thai/genecon/Pages/index.aspx.

Boulay, A. and L. Tacconi (2012). "The Drivers of Contract Eucalypt Farming in Thailand. " International Forestry Review **14** (1): 1-12.

Brenner, V., R. Buergin, et al. (1999). Thailand's Community Forest Bill: U-turn or Roundabout in Forest Policy? Socio-Economics of Forest Use in the Tropics and Subtropics Working Paper. T. Krings, G. Oesten, S. Seitz and R. Buergin. Freiburg, University of Freiburg.

Brockington, D. (2002). Fortress Conservation: The preservation of Mkomazi Game Reserve, Tanzania. Indiana, Indiana University Press.

Broegaard, R. (2005). "Land Tenure Insecurity and Inequality in Nicaragua." Development and Change **36**: 845-864.

Brown, I. (1988). The Elite and the Economy in Siam, c. 1890-1920. New York, Oxford University Press.

Brown, K., N. Adger, et al. (2004). How do CDM Projects Contribute to Sustainable Development? Tyndall Centre for Climate Change Research Technical Report 16.

Bryant, R. L. (1997). The Political Ecology of Forestry in Burma, 1824-1994. London, Hurst and Company.

Buergin, R. and C. Kessler (2000). "Intrusions and Exclusions: Democratization in Thailand in the Context of Environmental Discourses and Resource Conflicts." GeoJournal **52** (1): 71-80.

Chambliss, D. F. and R. K. Schutt (2012). Making Sense of the Social World: Methods of investigation. California, SAGE Publications.

Charuppat, T. (1998). Forest Situation in the Past 37 years (1961-1998). Bangkok, Royal Forestry Department.

Chauveau, J., J. Colin, et al. (2006). Changes in Land Access and Governance in West Africa: Markets, social mediations and public policies Results of the CLAIMS Research Project. London, UK, International Institute for Environment and Development**:** 74.

Check, J. and R. K. Schutt (2012). Research Methods in Education. California, SAGE Publications.

Childress, M. (2004). Regional Study on Land Administration, Land Markets and Collateralized Lending. Rural Development and Natural Resources East Asia and Pacific Region Washington DC, World Bank.

Chouvy, P. (2009). Opium: Uncovering the Politics of the PoppyOpium: Uncovering the Politics of the Poppy. New York, I.B.Tauris & Co. Ltd.

Clark, B., M. Back, et al. (2008). Forest Fires in Northern Thailand: Ecology, management and socio-economic aspect. Tropical Forest Landscape Restoration in Southeast Asia, Bangkok, Helsinki University.

Colchester, M. (2007). Beyond Tenure: Rights-based approaches to people and forests International Conference on Poverty Reduction in Forests: Tenure, markets and policy reforms. Bangkok, Forest People Programme.

Colchester, M., S. Chao, et al. (2013). Updates from Indonesia, Thailand, Philippines, Malaysia, Cambodia,Timor-Leste and Burma. S. Chao. Moreto-in-Marsh, England**:** 156.

Creswell, J. (2002). Research Design: Qualitative, quantitative and mixed method approaches. California, SAGE Publications.

Cropper, M., C. W. Griffiths, et al. (1997). Roads, Population Pressures and Deforestation in Thailand 1976-89. World Bank Policy Research Working Paper No.1726.

Daniel, J. (2012). Sampling Essentials: Practical guidelines for making sampling choices California, SAGE Publications.

De Koninck, R., J. Rigg, et al. (2012). A Half Century of Agrarian Transformation in Southeast Asia, 1960-2010. Revisiting Rural Places: Pathways to poverty and prosperity in Southeast Asia. J. Rigg and P. Vandergeest. Singapore, National University of Singapore Press**:** 25-37.

De Koning, R., D. Capistrano, et al. (2008). Forest-related Conflict: Impacts, links and measures to mitigate. Washington DC, Rights and Resources Initiative**:** 43.

de Soto, H. (2000). The Mystery of Capital: Why capitalism triumphs in the West and fails everywhere else? New York, Basic Books.

Dearden, P. (1995). Development, the Environment and Social Deifferentiation in Northern Thailand. Counting the Costs: Environmental Growth and Economic Change. J. Rigg. Singapore, ISEAS**:** 111-130.

DeFries R.S., T. Rudel, et al. (2010). " Deforestation Driven by Urban Population Growth and Agricultural Trade in the Twenty-first Century. " Nature Geoscience. **2010** (3): 178–181.

Deininger, K. and G. Feder (2009). "Land Registration, Governance and Development: Evidence and implications for policy." The World Bank Research Observer **24** (233-266).

Delang, C. O. (2002). "Deforestation in Northern Thailand: The result of Hmong farming practices or Thai development strategies?" Society and Natural Resources **15**: 483-501.

Delang, C. O. (2005). "The Political Ecology of Deforestation in Thailand." Geography **90** (3): 225-237.

Dembner, S. A. (1989). Forestland for the People: A forest village project in Northeast Thailand. Bangkok, Food and Agriculture Organization of the United Nations.

Dicicco-Bloom, B. and B. F. Crabtree (2006). "The Qualitative Research Interview." Medical Education **40**: 314-321.

DNP (2010). "Watershed Classification." Retrieved 10 June, 2012, from http://www.dnp.go.th/watershed/class.htm.

DNP (2011). Report on Statistical Data. Forest Statistics. Bangkok, Department of National Parks, Wildlife and Plant Conservation.

DNP (2013). Forest Fire Statistics. Bangkok, Department of National Parks, Wildlife and Plant Conservation.

DNP (2013). "Sai Yok National Park (in Thai)." Retrieved 25 June, 2013, from http://www.dnp.go.th/parkreserve/asp/style1/default.asp?npid=111&lg=1.

Duangsathaporn, K. (2013). Mae Wong Dam: Forest academic perspective (in Thai). Bangkok, Kasetsart University.

Edwards, J., M. D. Thomas, et al. (1996). How To Conduct Organizational Surveys: A Step-by-Step Guide. California, SAGE Publications.

EIA (2012). Appetite for Destruction: China's trade in illegal timber. London, Environmental Investigation Agency**:** 29.

EIA (2014). Routes of Extinction : The corruption and violence destroying Siamese rosewood in the Mekong. London, Environmental Investigation Agency**:** 28.

Elder, S. (2009). ILO School-to-work Transition Survey: A methodological guide. Geneva, Youth Employment Programme International Labour Office of the International Labour Organization. **Module 3**.

Elster, J. (2000). Ulysses Unbound: Studies in rationality, precommitment and constraints, Massachusetts, Cambridge University Press.

Engel, D. (1978). Code and Custom in a Thai Provincial Court: The interaction of formal and informal systems of justice. Arizona, University of Arizona Press.

Entwisle, B., S. J. Walsh, et al. (2005). "Population and Upland Crop Production in Nang Rong, Thailand." Population and Environment **26** (6): 449-470.

Eraker, H. (2000). "CO2lonialism in Uganda." Norwatch Newsletter **5**(2000).

Erni, C. (2010, May 21). "Community Land Title Law Passed in Thailand." News. Retrieved 3 March, 2012, from http://www.iwgia.org/news/search-news?news_id=128.

Escalada, M. and K. L. Heong (2009). Focus Group Discussion. ADB-IRRI Rice Planthopper Projects, ADB-IRRI Rice Planthopper Projects.

Evans, T., M. Arpels, et al. (2012). Pilot REDD Acticities in Cambodia are Expected to Improve Access to Forest Resource Use Rights and Land Tenure for Local Communities. Lessons about Land Tenure, Forest Governance and REDD+: Case studies from Africa, Asia and Latin America. L. Naughton-Treves and C. Day, USAID and University of Wisconsin-Madison**:** 73-82.

Ewers, E.M., J.P.W. Scharlemann, et al. (2009) "Do Increases in Agricultural Yield Spare Land for Nature. " Global Change Biology. **15** (7): 1716–1726.
FAO (1990). The Community's Toolbox: The idea, methods and tools for participatory assessment, monitoring and evaluation in community forestry. Rome, Food and Agriculture Organization of the United Nations.

FAO (1997). Women's Participation in National Forest Programmes. Technical Note. Rome, Food and Agriculture Organization of the United Nations.

FAO (1998). Asia-Pacific forestry towards 2010. Report of the Asia-Pacific Forestry Sector Outlook Study. Rome, Food and Agriculture Organization of the United Nations.

FAO (2011). "FAO Statistics Exports." FAOSTAT. Retrieved 6 June, 2014, from http://faostat.fao.org/desktopdefault.aspx?pageid=342&lang=en&country=216.

FAOSTAT (2013). "Agricultural area of Thailand 1961-2011." Retrieved 8 June, 2014, from http://faostat.fao.org/site/377/DesktopDefault.aspx?PageID=377#ancor

FCPF (2013). "FCPF Dashboard." Retrieved 8 December, 2013, from http://www.forestcarbonpartnership.org/sites/fcp/files/2013/june2013/FCPF Readiness Progress_June 15_PC15.pdf.

FCPF (2013). "REDD Readiness Fact Sheet." Retrieved 8 December, 2013, from http://www.forestcarbonpartnership.org/sites/fcp/files/2013/Oct2013/Thailand FCPF Readiness Progress Sheet_October 2013.pdf.

Feder, G. and D. Feeny (1991). "Land Tenure and Property Rights: Theory and implications for development policy." The World Bank Economic Review **5** (1): 135-153.

Feder, G. and T. Onchan (1987). "Land Ownership Security and Farm Investment in Thailand." American Journal of Agricultural Economics **69** (3): 311-320.

Feder, G., T. Onchan, et al. (1988). Land Policies and Farm Productivity in Thailand. Maryland, World Bank.

Fey, C. (2007). Review of Legal Frameworks for Community- based Natural Resource Management in Selected Asian Countries. Bogor, World Agroforestry Center.

Fisher, R. J., S. Srimongkontip, et al. (1997). People and Forests in Asia and the Pacific: Situation and prospects. Asia-Pacific Forestry Sector Outlook Study. Bangkok, Food and Agriculture Organization of the United Nations.

FORRU (2009). "Forest Landscape Restoration: Mae Sa Mai - A model community." Retrieved 18 May, 2013, from http://www.forru.org/FORRUEng_Website/Pages/engmodelcommunity.htm.

Forsyth, T., Walker, A. (2008). Forest Guardians, Forest Destroyers. Washington, University of Washington Press.

Galudra, G., M. van Noordwijk, et al. (2011). "Hot Sport of Confusion: Contested policies and competing carbon claims in the peatlands of Central Kalimantan, Indonesia." International Forestry Review **13** (4): 431-441.

Ganjanapan, A. (2000). Local Control of Land and Forest: Cultural dimensions of resource management in Northern Thailand. Regional center for Social Science and Sustainable Development (RCSD). Chiang Mai: 235.

Geddes, W. R. (1976). Migrants of the mountains. The cultural ecology of the Blue Miao (Hmong Njua) of Thailand. Oxford, Clarendon Press.

Giné, X. (2005). Cultivate or Rent Out? Land Security in Rural Thailand. Policy Research Working Papers, World Bank.

Given, L. M. (2008). The Sage Encyclopedia of Qualitative Research Methods. California, Sage Publication.

Goldtooth, T. and A. Miller (2009). From the United Nations Framework Convention on Climate Change - Bangkok Climate Change Talks 2009, Bangkok, Indigenous Environmental Network.

Goldtooth, T. and A. Miller (2009). Indigenous People Fret Over Talks. Indigenous Environmental Network Online News, Indigenous Environmental Network.

GoT (1941). Forest Act B.E. 2484. Bangkok, Government of Thailand.

GoT (1954). Act Promulgating the Land Code B.E. 2497. Bangkok, Government of Thailand.

GoT (1985). First National Forest Policy of 1985. Bangkok, Royal Forest Department.

GoT (1992). Reforestation Act B.E. 2535. Bangkok, Government of Thailand.

GoT (1998). Cabinet Resolution of 30th June 1998 Measures and Solutions to Conflicts in Forested Area (in Thai). Bangkok, Government of Thailand.

GoT (2008). Forest Carbon Partnership Facility (FCPF): Readiness plan idea note (R-PIN) External Bank Review Form. Washington CD, World Bank**:** 5.

GoT (2013). Readiness Preparation Proposal (R-PP) Bangkok, Government of Thailand**:** 170.

GoT and GoV (2013). Inclusion of Dalbergia cochinchinensis Pierre in Appendix II Proposals for amendment of Appendices I and II for the Sixteenth meeting of the Conference of the Parties of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Bangkok, Government of Thailand and Government of Vietnam.

Guion, L. A., D. C. Diehl, et al. (2011). Conducting an In-depth Interview. IFAS Extension. Florida, Institute of Food and Agricultural Sciences of the University of Florida (IFAS).

Hart, O. and J. Moore (1990). "Property Rights and the Theory of the Firm." Journal of Political Economy **98** (6): 1119-1158.

Hearn, R. M. (1974). Thai Government Programs: In Refugee Relocation and Resettlement in Northern Thailand. New York, Thailand Books.

Helsel, D. G., M. Mochel, et al. (2004). "Shamans in a Hmong American Community." Alternative and Complementary Medicine **10** (6): 933-938.

Heyd, H. and A. Neef (2004). Participation of Local People in Water Management: Evidence from the Mae Sa Watershed, Northern Thailand. Environment and Proeduction Technology Division Discussion Paper No. 128. Washington DC, International Food Policy Research Institute**:** 46.

Hirsch, P. (2000). Underlying Causes of Deforestation in the Mekong Region. Regional Workshop on Forest Management Strategies in the Mekong Region. Vientiane, National University of Laos.

Hyde, W. F., B. Belcher, et al. (2003). China's Forests: Global lessons and market reforms. Bogor, Resources for the Future and Center for International Forestry Research.

ICEM (2003). Thailand National Report on Protected Areas and Development: Review of Protected Areas and Development in the Lower Mekong River Region. Queensland, International Centre for Environmental Management: 131.

IFAD (2010). Technical Guidelines APR Workshop 2010 International Fund for Agricultural Development.

Igoe, J. (2004). Fortress Conservation: A social history of national parks. Conservation and Globalization: A study of national parks and indigenous communities from East Africa to South Dakota. J. A. Young. California, Wadsworth/Thompson Learning.

ITTO (2005). Report on the Development of the Thai Rubberwood Industry: Promotion of the Thai rubberwood industry in the years 2002-2005. ITTO Project: PD 51/00 Rev.2 (I, M)

Improvement of Rubberwood Utilization and Marketing in Thailand. Bangkok, International Tropical Timber Organization.

ITTO (2005). Status of Tropical Forest Management 2005. ITTO Technical Series No 24, International Tropical Timber Organization**:** 305.

IWGIA (2009). REDD+ and Indigenous Peoples: A briefing paper for policy makers on REDD+ and Indigenous Peoples. Copenhagen, Denmark, International Work Group for Indigenous Affairs.

Jantakad, P. and D. Gilmour (1999). Forest Rehabilitation Policy and Practice in Thailand. Rehabilitation of Degraded Forest Ecosystems in the Lower Mekong Basin: Assessments of rehabilitation policy and practice in Thailand. Chiang Mai.

Jindal, R., B. Swallow, et al. (2008). "Forestry-based Carbon Sequestration Projects in Africa: Potential benefits and challenges." Natural Resources Forum **32**: 116-130.

Jonsson, H. (2010). "Mimetic Minorities: National identity and desire on Thailand's fringe." Global Studies in Cultural and Power **17** (2010): 108-130.

Jupp, V. (2006). The SAGE Dictionary of Social Research Methods. London, SAGE Publication.

Karsenty, A. (2012). Financing Options to Support REDD+ Activities: Based on a review of the literature. Brussels, CIRAD and European Commission.

Karsenty, A., A. Vogel, et al. (2013). Note de synthèse : Payer pour l'environnement ? Le mécanisme REDD+ et les Paiements pour Services Environnementaux permettront-ils de s'attaquer aux causes sous-jacentes de la déforestation ? Payer pour l'environnement ? REDD+ et paiements pour services environnemen- taux : entre marchandisation et développement équitable CIRAD.

Kelley, K., B. Clark, et al. (2003). "Good Practice in Conducting and Reporting Servey Research." International Journal for Quality in Health Care **15** (3): 261-266.

Kesmanee, C. and P. Trakansuphakorn (2008). An Assessment of the Implementation of the Thai Government International Commitments on Traditional Forest-related Knowledge from the Perspective of Indigenous Peoples. Oregon, Akha Heritage Foundation**:** 24.

Killmann, W. and L. T. Hong (2000). "Rubberwood - the succsss of an agricultural by-product." Unasylva **201**: 66-72.

King, B. (2009). "Conservaiton Geographies in Sub-Saharan Africa: The politics of national parks, community conservation and peace parks." Geography Compass **3** (2009): 1-14.

Knox, A., C. Caron, et al. (2011). "Land Tenure and Payment for Envornmental Services: Challenges and opportunities for REDD+." 40.

Krairapanond, N. and A. Atkinson (1998). "Watershed Management in Thailand: Concepts, problems and implementation." Regulated Rivers: Research and Management **14** (1998): 485-498.

Kumar, K. (1987). Conducting Focus Group Interviews in Developing Countries. A.I.D. Program Design and Evaluation Methodology Report Number 8. Washington DC, USA, United States Agency for International Development (USAID).

Lakanavichian, S. (1995). The State and Buddhist philosophy in resource conflicts and conservation in northern Thailand. California, USA, University of California at Berkeley. **Doctoral**.

Lakanavichian, S. (2001). Impacts and Effectiveness of Logging Bans in Natural Forests: Thailand. Forests Out of Bounds: Impacts and effectiveness of logging bans in natural forests in Asia-Pacific. P. B. Durst, T. R. Waggener, T. Enters and T. L. Cheng. Bangkok, Food and Agriculture Organization of the United Nations.

Lakanavichian, S. (2006). Trends in Forest Ownership, Forest Resource Tenure and Institutional Arrangements: Are they contributing to better forest management and poverty reduction? A case study from Thailand. Case Studies in South and East Asia: Forest ownership, forest resource tenure and sustainable forest management. Bangkok, Food and Agriculture Organization of the United Nations.

Lang, C. (2003). "Thailand: Eucalyptus, encroachment, deforestation and pollution linked to pulp and paper company." World Rainforest Movement Bulletin **70**.

Larson, A. M., D. Barry, et al. (2010). Tenure Change in the Global South. Forests for People: Community rights and forest tenure reform. A. M. Larson. London, Earthscan.

Larson, A. M., M. Brockhaus, et al. (2013). "Land Tenure and REDD+: The good, the bad and the ugly." Global Environmental Change **23** (2013): 678-689.

Larson, A. M., E. Corbera, et al. (2010). "Rights to Forest and Carbon under REDD+ Initiative in Latin America." CIFOR Info Brief **November 2010** (33).

Lasimbang, J. (2006). UNDP-RIPP National Resource Management Country Studies: Regional synthesis paper. Bangkok, United Nations Development Program**:** 30.

Lasimbang, J. and C. Luithui (2005). Natural Resource Management Country Studies: Thailand. Regional Indigenous Peoples' Programme. Bangkok, United Nations Development Programme Regional Centre in Bangkok.

Lawlor, K., A. Jenkins, et al. (2010). Expanding the Scope of International Terrestrial Carbon Options: Implications of REDD+ and beyond. Nicholas Institute Report. North Carolina, Nicholas Institute for Environmental Policy Solutions of Duke University**:** 34.

Le Billon, P. 2000. "The Political Ecology of Transition in Cambodia 1989-1999: War, peace and forest exploitation. " Development and Change **31** (4): 785-805.

Le Quéré, C., G. P. Peters, et al. (2013). "Global Carbon Budget 2013." Earth System Science Data Discussion(6): 689-760.

Le Roy, E. (1995). La Sécurité Foncière dans un Contexte Africain de Marchandisation Imparfaite de la Terre. Terres, Terroirs, Territoires. C. Blanc-Pamard and L. Cambrezy. Paris, ORSTOM**:** 455-472.

Leblond, J.P. (2010). "Population Displacement and Forest Management in Thailand." Challenges of the Agrarian Transition in Southeast Asia (ChATSEA) Working Paper no.8 **March 2010**

Leblond, J. P. and T. H. Pham (2013). "Recent Forest Expansion in Thailand: A methodological artifact?" Land Use Sciences.

Lee, G. Y. and N. Tapp (2010). Culture and Customs of the Hmong. California, Greenwood.

Leepreecha, P. (2005). The Politics of Ethnic Tourism in Northern Thailand. Mekong Tourism: Learning across borders. Siem Reap, Social Research Institute of Chiang Mai University.

Leonard, R. and K. Narintakrakul na Ayutthaya (2002). "Taking Land from the Poor, giving land to the rich." Watershed **8** (2): 14-25.

Levin, P. and V. R. Panyakul (1993). Agriculture or Agribusiness? Thai farmers search for viable alternatives. ILEIA Newsletter Wageningen, Centre for Learning on Sustainable Agriculture**:** 11-12.

Lewis-Beck, M.S., A. Bryman, et al. (2004). Encyclopedia of Social Science Research Methods. California, SAGE Publications.

Liamputtong, P. (2011). Focus Group Methodology: Principle and practice. London, SAGE Publications.

Liswanti, N., B. Shantiko, et al. (2012). Practical Guide for Socio-economic Livelihood, Land tenure and Rights surveys for Use in Collaborative Ecosystem- based Land Use Planning. Bogor, Center for International Forestry Research**:** 16.

Lohman, L. (1995). "Land, power and forest colonization in Thailand." Global Ecology and Biogeography Letters **1993** (3): 180-191.

Lohman, L. (1999). Forest Cleansing: Racial Oppression in Scientific Nature Conservation. Corner House Briefing 13, The Corner House.

Lorsirirat, K. and H. Maita (2006). Soil Erosion Problems in Northeast Thailand: A case study from the view of agricultural development in a rural community near Khon Kaen. Disaster Mitigation of Debris Flows, Slope Failures and Landslides. H. Marui. Tokyo, Universal Academy Press**:** 675-686.

MFA (2013). Thailand's Economic Fact Sheet 2013. Thailand's Economic Fact Sheet. Bangkok, Ministry of Foreign Affairs of the Kingdom of Thailand.

MNRE (2008). Reducing Emissions from Deforestation and Forest Degradation in the Tenasserim Biodiversity Corridor and National Capacity Building for Benchmarking and Monitoring (REDD Readiness Plan): Submitted to the Forest Carbon Partnership Facility. Bangkok**:** 42.

MNRE (2009). The Forest Carbon Partnership Facility (FCPF) Readiness Plan Idea Note (R-PIN) Template: R-PIN format of the Kingdom of Thailand version of March 8, 2008. The Forest Carbon Partnership Facility (FCPF) Readiness Plan Idea Note (R-PIN) Bangkok, Ministry of Natural Resources and Environment.

MoAC (2004). Agricultural Statistics 2004, Bangkok, Ministry of Agriculture and Cooperatives.

MoAC (2007). Agricultural Statistics 2007. Bangkok, Ministry of Agriculture and Cooperatives.

Moinuddin, H., S. Pokhrel, et al. (2012). Biodiversity Conservation Corridors Initiative (BCI) Report 2006-2011. S. Katz and N. Crishna. Bangkok, Asian Development Bank (ADB)**:** 216.

Morgan, D. L. (1996). Focus Groups as Qualitative Research. London, SAGE Publications.

Murray, E. V. (2007). Thailand-The Kitchen of the World: Origin and growth of the Thai food industry and lessons for India. CAB CALLING. **April-June 2007:** 16-26.

Naughton-Treves, L. and C. Day (2012). Lessons about Land Tenure, Forest Governance and REDD+: Case studies from Africa, Asia and Latin America. Wisconsin, University of Wisconsin-Madison Land Tenure Center**:** 112.

NDF (2012). Climate Change, Trees and Livelihood: A case study on the carbon footprint of a Karen Community in Northern Thailand. Chiang Mai, Thailand, Northern Development Foundation (NDF), Huay Hin Lad Community, Oxfam-GB, Asia Indigenous Peoples Pact, International Work Group for Indegenous Affairs, Norwegian Agency for Development Cooperation**:** 28.

Neef, A. (2001). Land Tenure and Soil Conservation Practices - Evidence from West Africa and Southeast Asia. Sustaining the Global Farming: Selected papers from the 10th International Soil Conservation Organization Meeting 24-29 May 1999 at Purdue University and the USDA-ARS National Soil Erosion Research Laboratory. D. E. Stott, R. H. Mohtar and G. C. Steinhardt**:** 125-130.

Neef, A. (2012). "Fostering Incentive-Based Policies and Partnerships for Integrated Watershed Management in the Southeast Asian Uplands." Southeast Asian Studies **1**(2): 247-271.

Neef, A., T. Onchan, et al. (2003). "Access to Natural Resoruces in Mainland Southeast Asia and Implications for Sustaining Rural Livelihoods - The case of Thailand." Quarterly Jounral of International Agriculture **42**(3): 23.

Neef, A. and R. Schwarzmeier (2001). Land Tenure Systems and Rights in Trees and Forests: Interdependencies, dynamics and the role of development cooperation, case studies from mainland Southeast Asia. Importance of Land Policy and Land Tenure in Developing Countries. Eschborn, German Technical Cooperation Agency.

Nellemann, C. (2012). Green Carbon, Black Trade: Illegal logging, tax fraud and laundering in the worlds tropical forests. Arendal, United Nations Environment Programme GRID-Arendal and INTERPOL Environmental Crime Programme**:** 68.

Nelson, F. (2010). Community Rights, Conservation and Contested Land: The politics of natural resource governance in Africa. London, Earthscan.

NESDB (1961). The First National Economic and Social Development Plan Bangkok, Office of National Economic and Social Development Board.

NESDB (1991). The Sixth National Social and Economic Development Plan (2002-2006). Bangkok, Office of the National Economic and Social Development Board.

NESDB (2011). The Eleventh National Economic and Social Development Plan (2012-2016). Bangkok, Office of National Economic and Social Development Board.

Noonsong, A. (2008). "CP Maize Led to Forest Encroachment (in Thai)." Retrieved 6 June, 2014, from http://prachatai.com/journal/2008/04/23814.

NSO (2011). 2010 Population and Housing Cencus Population and Housing Census. Bangkok, National Statistical Office, Ministry of Information and Communication Technology.

ONEP (2011). National Master Plan on Climate Change of Thailand (in Thai). Bangkok, Office of Natural Resources and Environmental Policy and Plan**:** 102.

ONEP (2011). Thailand's Second National Communication under the United Nations Framework Convention on Climate Change. National Communication. Bangkok, Office of Natural Resources and Environmental Policy and Planning of the Ministry of Natural Resources and Environment.

ONEP (2013). "Watershed Classification." Retrieved 18 December, 2013, from http://tachin.onep.go.th/?main=tachin&sub=7.

Ostrom, E. (2000). Private and Common Property Rights. Civil Law and Economics: Encyclopedia of Law and Economics. B. Bouckaert and G. DeGeest. Cheltenham, Elgar. **2**.

Panayotou, T. and S. Sungsuwan (1989). An Econometric Study of the Cause of Tropical Deforestation: The case of Northeastern Thailand. Development Discussion Paper No. 284. Massachusetts, USA, Harvard Institute for International Development.

Pattanavibool, R. and H. Moinuddin (2009). Implementing REDD in the Tenasserim: Thailand's Biodiversity Conservation Corridor. Regional Forum on the Mekong River Commission on Climate Change and Adaptation Initiative, 2-3 February 2009. Bangkok, Asian Development Bank.

Pearmsak, M. (2000). "The Evolution of the Policy-making Process: Will there ever be a community forestry bill?" Asia-Pacific Community Forestry Newsletter **13**(2): 58-62.

Peluso, N. L. (1992). Rich Forests, Poor People: Resource control and resistance in Java. California, University of California.

Peters, P. E. (2007). "Challenges in Land Tenure and Land Reform in Africa: An antropological perspective." Center for International Development at Harvard University Working Papers **141**.

Phelps, J., L.R. Carrasco, et al. (2013). "Agricultural Intensification Escalates Future Conservation Costs." Proceedings of the National Academy of Sciences. **2013** (110): 7601-7606.

Phongpaichit, P. and C. Baker (2002). Thailand: Economy and politics. Oxford, Oxford University Press.

Pitisombat, N. (2011). "Policy Related to Climate Change in Thailand." Fifth Regional Meeting of Southeast Asia Network of Climate Change Focal Points, 21-22 September 2011, Bangkok, Thailand. Retrieved 18 November, 2012, from http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/5th Regional Network Meeting/S3_Highlights_Thailand.pdf.

Platteau, J. (1996). "The Evolutionary Theory of Land Rights as Applied to Sub-Saharan Africa: A Critical Assessment." Development and Change **27**(1): 29-86.

Platteau, J. (2000). Does Africa Need Land Reform? Evolving Land Rights, Policy and Tenure in Africa. C. Toulmin and J. Quan. London, DFID/IIED/NRI.

Poojadkarn (2014). "Forest Encroachment in Kanchanaburi for Rubber Cultivation (in Thai)." Retrieved 6 June, 2014, from http://www.manager.co.th/Local/ViewNews.aspx?NewsID=9570000012251.

Pongtepupathum, W. (2003). Development of Roller Compacted Concrete Dam in Thailand. Roller Compacted Concrete Dams. L. Berga, J.M. Buil, C. Jofré and S. Chonggang. Lisse, Swets and Zeitinger: 339-353

Pragtong, K. (2000). Recent Decentralization Plans of the Royal Forest Department and its Implications for Forest Management in Thailand. Decentralization and Devolution of Forest Management in Asia and the Pacific T. Enters, P. B. Durst and M. Victor. Bangkok, Food and Agriculture Organization of the United Nations and Regional Community Forestry Training Center.

Pragtong, K. and D. E. Thomas (1990). Evolving Management Systems in Thailand. Keepers of the Forest: Land management alternatives in Southeast Asia. M. Poffenberger. Connecticut, Kumarian Press: 167-186.

Rabiee, F. (2004). "Focus-group Interview and Data Analysis." Proceedings of the Nutrition Society **63**: 655-660.

Rakyutidharm, A. (2002). Forest Fire in the Context of Territorial Rights in Northern Thailand. Communities in Flames: Proceedings of an International Conference on Community Involvement in Fire Management. P. Moor, D. Ganz, L. C. Tan, T. Enters and P. B. Durst. Bangkok, Food and Agriculture Organizaiton of the United Nations.

Ratanakhon, S. (1978). Legal Aspects of Land Occupation and Development. Farmers in the Forest. P. Kunstadter, E. C. Chapman and S. Sbhasri. Honolulu, Hawaii, East West Center.

Renard, R. D. (1997). The making of a problem: Narcotics in mainland Southeast Asia. Development or domestication? Indigenous peoples of Southeast Asia,. D. McCaskill and K. Kampe. Chiang Mai, Silkworm Books**:** 307-328.

RFD (1999). Forest Statistical Data 2542*1999. Forest Statistical Data. Bangkok, Royal Forest Department.

RFD (2003). Forestry Statistical Data 2546*2003. Forest Statistical Data. Bangkok, Royal Forest Department.

RFD (2005). Reforestation in Thailand: Past, present and future. Bangkok, Royal Forestry Department**:** 21.

RFD (2005). "Watershed Management Division." Retrieved 24 December, 2013, from http://www.forest.go.th/nrco/english/wshmd.htm.

RFD (2007). Forestry Statistical Data 2550*2007. Forestry Statistical Data. Bangkok, Royal Forest Department.

RFD (2008). Forestry Statistical Data 2551*2008. Forestry Statistical Data. Bangkok, Royal Forest Department.

RFD (2008). "Land Allocation Programme of Sor Tor Kor (in Thai)." Retrieved 12 July, 2012, from http://www.frm7.com/v.2/landforest/ld_sitti/stk.htm.

RFD (2009). Forestry Statistical Data 2552*2009. Forestry Statistical Data Bangkok, Royal Forest Department.

Richardson, L. and F. Rabiee (2001). "A Question of Access - An exploration of the factors influencing the health of young males aged 15-19 living in Corby and their use of health care services." Health Education Journal **60**: 3-6.

Ridmontri, C. (1998). New Forestry Cheif Rules Out Man and Nature Coexistence. Bangkok Post. Bangkok, Bangkok Post.

Rigg, J. and S. Nattapoolwat (2001). "Embracing the Global in Thailand: Activism and pragmatism in an era of deagrarianization." World Development **29**(6): 945-960.

Robinson, B. E., M. B. Holland, et al. (2011). Does Secure Land Tenure Save Forests? A review of the relationship between land tenure and tropical deforestation. CCAFS Working

Paper. Copenhagen, CGIAR Research Program on Climate Change, Agriculture and Food Security.

Robinson, D. (2008). "Sui Generis Plant Variety Protection Systems: Liability rules and non-UPOV systems of protection." Journal of Intellectural Property Law and Practice **3**(10): 659-665.

Rock, F. (2004). Comparative Study on Practices and Lessons in Land Use Planning and Land Allocation in Cambodia, Lao PDR, Thailand and Viet Nam. MRC-GTZ Copperation Program on Agriculture, Irrigation and Forestry Working Paper number 5. Plascassier, Mekong River Commission for Sustainable Development and German Technical Assistance.

Rosander, M. N. (2008). Illegal Logging: Current issues and opportunities for Sida/SENSA engagement in Southeast Asia. Bangkok, Thailand, Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC) and Swedish Environmental Secretariat for Asia (SENSA)**:** 60.

Roth, R. (2004). Fixing the Forest: The Spatial Reorganization of Inhabited Landscapes in Mae Tho National Park, Thailand. Massachusetts, Clark University. **Doctoral**.

Rothe, A. and P. Munro-Faure (2013). "Tenure and REDD+`: Developing enabling tenure conditions for REDD+." UN-REDD Policy Brief(6): 18.

Scheyvens, H., A. Kothari, et al. (2011). A Critical Reviw of Selected Forest-related Regulatory Initiatives: Applying a rights perspecitve. Forest Conservation Project. H. Scheyvens. Kanagawa, Institute for Global Environmental Strategies.

Schlager, E. and E. Ostrom (1992). "Property Rights Regimes and Natural Resources: A conceptual analysis." Land Economics **68**: 249-262.

SDC (2009). "Meo (in Thai)." Hill Tribe information by Social Development Center, Unit 43 of Mae Hong Son province. Retrieved 16 March, 2012, from http://www.mhsdc.org/interest12.htm.

Siamwalla, A., A. Setboonsarng, et al. (1991). Thai Agriculture: Resources, institutions and policies. Bangkok, Thailand Development Research Institute.

Sikor, T., J. Stahl, et al. (2010). "REDD-plus, Forest People's Rights and Nested Climate Governance." Global Environmental Change **20**: 423-425.

Singh, S. (2005). State, Agribusiness Firms, and Farmers in Thailand: A study of contract farming system. Corporate Agribusiness - concepts and cases. M. G. Deepkia and S. Rajagopalan. Hyderabad, ICFAI University Press.

Siscawati, M. and A. Mahaningtyas (2012). Gender Justice: Forest tenure and forest governance in Indonesia. Washington DC, Rights and Resources Initiative**:** 20.

Sjaastad, E. and D. Bromley (2000). "The Prejudices of Property Rights: On individualism specificity and security in property regimes." Development Policy Review **18**: 365-389.

Sriboonchitta, S. and A. Wiboonpoongse (2008). Overview of Contract Farming in Thailnad: Lessons learned. ADB Institute Discussion Paper No. 112. Tokyo, Asian Development Bank.

Srivijittakar, E. (2012). Thai Experts Push for Forest and Land Tenure Policy Reforms. Bangkok, The Center for People and Forests.

Stern, N. (2007). The Economics of Climate Change: The Stern review. Cambridge, Cambridge University Press.

Sumarlan, Y. (2004). How Participatory Is Thailand's Forestry Policy? Policy Trend Report 2004. K. Harada and M. Nanang. Kanagawa, Institute for Global Environmental Strategies (IGES)**:** 45-49.

Sun, Y., E. Mwangi, et al. (2012). "Forests: Gender, property rights and access." CIFOR Info Brief **47**(February 2012): 6.

Sunderlin, W. D., A. M. Larson, et al. (2009). Forest Tenure Rights and REDD+: From intertia to policy solutions. Realising REDD+: National strategy and policy options. A. Angelsen. Bogor, Center for International Forestry Research (CIFOR).

Tansettakij (2008). CP Declared Not Behind Illegal Forest Encroachement in Thailand (in Thai), Tansettakij newspaper, 30 June.

Tantiwiroon, N. and P. Samootsakorn (1986). Thailand's Dam Building Programme: Past, present and future. The Social and Environmental Effects of Large Dams. E. Goldsmith and N. Hildyard. Camford, Wadebridge Ecological Centre. **2**.

TDRI (2004). Thai Natural Resources and Environment: Two decades of changes. Looking forward: Twenty years of Thai economy, Cholburi, Thailand Development Research Institute.

TetraTech (2012). Land Tenure and Property Rights (LTPR): Impact assessment tool. Washington DC, United States Agency for International Development.

Thao, M., A. Leite, et al. (2010). "Hmong Mental Health: An assessment of mental health needs and services for the Hmong community in Ramsey County." 87.

Thomas, D., H. Weyerhaeuser, et al. (2000). Negotiated Land Use Patterns to Meet Local and Societal Needs. Links Between Cultures and Biodiversity: Proceedings of the Cultures and Biodiversity Congress 20-30 July 2000, Yunna, China. X. Jianchu. Yunnan, Yunna Science and Technology Press**:** 414-433.

Totrakul, D. (2003). Politics of Representation of Environmental Management of Hmong Community: A case study of Mae Sa Mai village, Mae Rim district, Chiang Mai province (in Thai). Liberal Arts Department. Chiang Mai, Chiang Mai University. **Master degree**: 108.

TUL-SEA (2003). Rapid Land Tenure Assessment (RaTA): A tool for identifying the nature of land tenure conflicts. Bogor, Trees in Multi-Use Landscapes in Southeast Asia (TUL-SEA)

UN (2008). "Thailand Info." Retrieved 17 March, 2012, from http://www.un.or.th/thailand/geography.html.

UNFCCC (2006). Report of the Conference of the Parties on its eleventh session, held at Montreal from 28 November to 10 December 2005. Eleventh Conference of the Parties to the UNFCCC at Montreal, Papua New Guinea. Bonn.

UNFCCC (2008). Report of the Conference of the Parties on its Thirteenth Session held in Bali, Indonesia from 3-15 December 2007. Bonn, United Nations Framework Convention on Climate Change.

UNFCCC (2009). Copenhagen Accord: Draft Decision. Fifteen Conferences of the Parties to the UNFCCC at Copenhagen, Denmark. Bonn, United Nations Framework Convention on Climate Change.

UNFCCC (2010). Outcome of the work of the Ad Hoc Working Group on long-term Cooperative Action under the Convention. Sixteenth Conferences of the Parties to the UNFCCC at Cancun, Mexico. Bonn, United Nations Framework Convention on Climate Change.

UNFCCC (2013). "Governments in Warsaw Make Breakthrough in Agreements to Cut Greenhouse Gas Emissions from Deforestation." Retrieved 9 December, 2013, from http://unfccc.int/files/press/news_room/press_releases_and_advisories/application/pdf/131122_pr_forests.pdf.

Unruh, J. D. (2008). "Carbon Sequestration in Africa: The land tenure problem." Global Environmental Change **18**: 700-707.

USAID (2010). Thailand - Property rights and resources government profile. USAID Country Profile, United States Agency International Development**:** 19.

Usher, A. D. (2009). Thai Forestry: A critical history. Chiang Mai, Silkworm Books.

Van Asperen, P. C. M. (2007). Effects of multiple land tenure regimes on tenure security: African cases. Second European Conference on African Studies. Leiden, AEGIS - African Studies in Europe.

Van den Brink, R., G. Thomas, et al. (2006). Concensus, Confusion and Controversy: Selected land reform issues in Sub-Saharan Africa. World Bank Pulications. Washington DC, World Bank.

Van Laerhoven, F. (2010). "Governing Community Forests and the Challenge of Solving Two-level Collective Action Dilemmas - A large-N perspective." Global Environmental Change **20**: 539-546.

Waggener, T. R. (2001). Logging Bans in Asia and the Pacific: An overview. Forests Out of Bounds: Impacts and effectiveness of logging bans in natural forests in Asia-Pacific. P. B. Durst, T. R. Waggener, T. Enters and T. L. Cheng. Bangkok, Food and Agriculture Organization of the United Nations

Wainwright, J. and J. Bryan (2009). "Cartography, Territory, Property: Postcolonial reflections on indigenous counter-mapping in Nicaragua and Belize." Cultural Geographies **16**: 153-178.

Walker, A. (2001). "The 'Karen Consensus', Ethnic Politics and Resource-use Legitimacy in Northern Thailand." Asian Ethnicity **2**(2): 145-162.

Walker, A. (2004). "Seeing Farmers for the Trees: Community forestry and the arborealisation of agriculture in northern Thailand." Asia-Pacific Viewpoint **45**: 311-324.

Wangsap, N. (2012). Big Agribusiness and Watershed Criris. Krungthepturakij newspaper, 27 February.

Wardell, A., A. Reenberg, et al. (2003). Proceedings of Negotiated Frontiers in Sudano-Sahelian Landscapes Workshop: Implication for natural resource management strategies. SEREIN-PETREA Workshop Copenhagen, Denmark, University of Copenhagen.

Warr, P. and A. Kohpaiboon (2007). Distortions to Agricultural Incentives in Thailand. Agricultural Distortions Research Project Working Paper, World Bank.

WB (2013). "Thailand Overview." Retrieved 7 December 2013, from http://www.worldbank.org/en/country/thailand/overview.

Weatherby, M. and S. Soonthornwong (2008). "The Thailand Community Forest Bill." Rights and Tenure in the News. Retrieved 26 February, 2012, from http://www.rightsandresources.org/blog.php?id=34.

Whitehead, A. and D. Tsikata (2003). "Policy Discourses on Women's Land Rights in Sub-Saharan Africa: the Implications of the Re-turn to the Customary." Journal of Agrarian Change **3**(1& 2): 67-112.

Wunder, S. (2005). Payments for Environmental Services: Some nuts and bolts. CIFOR Occasional Paper. Bogor Barat, Center for International Forestry Research. **42**.

Wunder, S. (2007). "The Efficiency of Payments for Environmental Services in Tropical Conservation." Conservation Biology **21**(1): 48-58.

Yano, T. (1968). "Land Tenure in Thailand." Asian Survey **8**(10): 853-863.

Yin, R. K. (2003). Case Study Research: Design and methods. California, SAGE Publications.

Zurcher, S. (2005). "Public Participation in Community Forest Policy in Thailand: The influence of academics as brokers." Danish Journal of Geography **105**(1): 77-88.

CHAPTER 10 APPENDICES

Appendix 1 List of questions for Mae Sa Mai and Mae Sa Noi communities

1. Community forest

1.1 Rights to access and withdraw

1.1.1 Can the members enter and gather forest products for household consumption without official permission?

1.1.2 Can the members gather forest products for commercial purpose without official permission?

1.1.3 Can the members hunt animals without official permission?

1.1.4 Can the members use timber products without official permission?

1.2 Rights to manage

1.2.1 Is the community responsible for maintaining and managing the community forest?

1.2.2 Have the RFD/DNP officials been involved in the maintenance and management of the community forest?

1.3 Rights to exclude

1.3.1 Can the members exclude competitive land users that are villagers from other communities or investors?

1.3.2 Can the members exclude competitive land users that are RFD/DNP officials?

1.4 Rights to alienate

1.4.1 Can the members transfer the community forest via inheritance?

1.4.2 Can the members sell the community forest to any interested party?

1.5 Fear of eviction

1.5.1 Do the members fear of eviction or withdrawal of rights to community forest?

1.6 Legal recognition

1.6.1 Do the members have any formal recognition of their rights to community forest?

2. Pressing concerns

2.1 Please list your top three concerns at present

3. Tenure preference

3.1 Would you like to receive title document to your communal forest land?

3.2 If yes, what type of tenure would you prefer, i.e. communal or individual? And why?

Appendix 2 List of questions for Ton Mamuang and Bongti Noi communities

1. Community forest

1.1 Rights to access and withdraw

1.1.1 Can the members enter and gather forest products for household consumption without official authorization?

1.1.2 Can the members gather forest products for sale without official authorization?

1.1.3 Can the members hunt animals without official authorization?

1.1.4 Can the members use timber products without official authorization?

1.1.5 Have there been any changes due to the BCI project implementation?

1.2 Rights to manage

1.2.1 Is the community responsible for maintaining and managing the community forest?

1.2.2 Have the RFD/DNP officials been involved in the maintenance and management of the community forest?

1.2.3 Have there been any changes due to the BCI project implementation?

1.3 Rights to exclude

1.3.1 Can the members exclude competitive land users that are villagers from other communities or investors?

1.3.2 Can the members exclude competitive land users that are RFD/DNP officials?

1.3.3 Have there been any changes due to the BCI project implementation?

1.4 Rights to alienate

1.4.1 Can the members transfer the community forest via inheritance?

1.4.2 Can the members sell the community forest to any interested party?

1.4.3 Have there been any changes due to the BCI project implementation?

1.5 Fear of eviction

1.5.1 Do the members fear of eviction or withdrawal of rights to community forest?

1.5.2 Have there been any changes due to the BCI project implementation?

1.6 Legal recognition

1.6.1 Do the members have any formal recognition of their rights to community forest?

1.6.2 Have there been any changes due to the BCI project implementation?

2. Pressing concerns

2.1 Please list your top three concerns at present?

3. Tenure preference

3.1 Would you like to receive title document to your communal forest land?

3.2 If yes, what type of tenure would you prefer, i.e. communal or individual? And why?

Appendix 3 List of questions regarding REDD+ implementation for NGOs, donor organizations and government authorities

1. From your perspective, what is the current situation related to tenure security of forest land in Thailand?
2. Has the tenure security situation in Thailand improved or worsened, in your view?
3. What have been the major events or influences of tenure security situation in Thailand?
4. Please describe REDD+ from your understanding.
    - Activities?
    - Project level or national level?
    - Government/Department of National Parks or community as project developer?
    - Protected area or community forest?
    - Benefit-sharing structures?
5. Is Thailand suitable for REDD+ development and vice versa?
    - If not, why and what are the appropriate alternatives for Thailand? PES?
6. What should be the criteria for choosing REDD+ project site in your opinion?
    - Which level of pressure of deforestation should it have high/low/in between?
7. In which location or region in your view are suitable for REDD+ development?
    - Why not other location or region?
8. What are the main driving forces for REDD+ development in Thailand?
9. What are the main obstacles for REDD+ development in Thailand?
10. Is Thailand ready for REDD+ development?
    - If yes, why?
    - If not, please list three most urgent issues to be addressed in order to facilitate REDD+ development in Thailand.
11. How do you perceive the relationship between land tenure and REDD+ in Thailand?
12. How should tenure security/use rights be restructured to facilitate REDD+ development in Thailand?
    - Securing individual rights or collective rights?
    - How, e.g. individual land titling, communal land titling, a combination of individual and communal land titling, mapping of rights, ad-hoc agreements?

Appendix 4 List of questions regarding REDD+ implementation for project developers and local key informants

1. From your perspective, what are the key BCI project's objectives?
2. What are the BCI activities implemented?
3. What are the legal frameworks related to forest tenure that have been implemented in the local communities and what are their impacts?
4. From your perspective, what is the current situation related to tenure security of forest land in the local communities?
5. What are the causes of the tenure conflicts in forest land at present?
6. What are the impacts of the project on tenure security of the community?
7. Did the project meet your expectation? If not, why?
8. What were the main obstacles of the project?
9. How do you think the project could be improved?

Appendix 5 List of interviewees regarding REDD+ implementation

Number	Name	Organization	Type of organization
1	Justin Foster	World Wildlife Fund	International NGO/donor
2	Kantinan Peawsa-ad	Department of National Park, Wildlife and Plant Conservation	Government organization/ project developer
3	Kittisak Rattanakrajangsri	Indigenous Peoples' Foundation for Education and Environment	National NGO
4	Pornpana Kuaycharoen	Thai Climate Justice Group	National NGO
5	Prasert Tubaiyam	Bongti Noi community	Community committee
6	Regan Suzuki	RECOFTC	International NGO
7	Rungnapar Patanavibool	Department of National Park, Wildlife and Plant Conservation	Government organization/ project developer
8	Sakol Kunapitak	Suan Phung sub-district	Community committee
9	Somchai Lima	Ton Mamuang community	Community committee
10	Somchat Teerasuwanajak	Sai Yok district office	Local public organization
11	Somsak Soonthornnawaphat	LEAF/Winrock International	International NGO/Donor
12	Stephen Elliot	Forest Restoration Research Unit of Chiang Mai University	International NGO/Research institute
13	Sumit Pokhrel	Asian Development Bank	Donor/project developer
14	Yongyuth Surbthayat	Hmong Association	National NGO
15	Wirat Polrangsit	Border Patrol Police school	Local public organization

Appendix 6 List of questions regarding tenure-related legal framework implementation for local NGOs and local government authorities

1. What is your role in relation to the local communities?
2. What are the legal frameworks related to forest tenure that have been implemented in the local communities?
3. What are the impacts of such legal framework implementation on tenure of the local communities?
4. What were the main obstacles to implement the legal framework?
5. From your perspective, what is the current situation related to tenure security of forest land in the local communities?
6. Has the local tenure security situation improved or worsened, in your view?
7. What are the causes of the tenure conflicts in forest land at present?
8. How could tenure conflicts be alleviated?

Appendix 7 List of interviewees regarding tenure-related legal framework implementation

Number	Name	Organization	Type of organization
1	Amphorn Pammongkol	Suthep-Pui National Park	Government organization
2	Anand Ganjanapan	Chiang Mai University	Research institution
3	Bunrongsak Sainoi	Royal Project Foundation of Mae Sa Mai	Local NGO
4	Chaowit Chomketkaew	Department of National Park, Wildlife and Plant Conservation Regional Office 16	Government organization
5	Charnwit Puangchan	Land Office of Chiang Mai province	Government organization
6	Direk Jirachawalwisut	Chao Poh Luang 7 school	Local public organization
7	Kaew Mon-ut	Pong Yeang sub-district	Local organization
8	Pavinee Kumpetch	Queen Sirikit Botanical Garden	Local public organization
9	Phnom Jaikeaw	Suthep-Pui National Park	Government organization
10	Samutcha Ratchapukeaw	Sai Yok Forest Park	Government organization
11	Taweesak Kornjiratikarn	Mae Sa Mai community	Community committee
12	Duangjun Sansuya	Pong Yaeng Tambon Administration Organization	Local public organization
13	Vichai Pusiripattanon	Mae Sa Noi community	Community committee
14	Wichian Nantasinghareuk	Land Office of Mae Rim district	Government organization

Appendix 8 Response of Mae Sa Mai community

Question	Female > 50 years old			Female < 50 years old			Male > 50 years old			Male < 50 years old			Village head and his assistant			Total		
COMMUNITY FOREST																		
Rights to access and to use	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**
Can the members enter and gather forest products for household consumption without official authorization?	10	0	0	10	0	0	9	0	0	10	0	0	2	0	0	**39**	**0**	**0**
Can the members gather forest products for sale without official authorization?	0	10	0	0	10	0	0	9	0	0	10	0	0	2	0	**0**	**39**	**0**
Can the members hunt animals without official authorization?	2	8	0	0	10	0	0	9	0	3	7	0	0	2	0	**5**	**34**	**0**
Can the members use timber products without official authorization?	8	2	0	9	1	0	9	0	0	10	0	0	2	0	0	**36**	**3**	**0**
Rights to manage																		
Is the community responsible for maintaining and managing the community forest?	10	0	0	10	0	0	9	0	0	10	0	0	2	0	0	**39**	**0**	**0**
Have the RFD/DNP officials been involved in the maintenance and management of the community forest?	0	10	0	0	3	7	6	2	2	7	3	0	2	0	0	**13**	**18**	**9**
Rights to exclude																		
Can the members exclude competitive land users that are villagers from other community or investors?	9	1	0	8	2	0	9	0	0	10	0	0	2	0	0	**36**	**3**	**0**
Can the members exclude competitive land users that are RFD/DNP officials?	7	3	0	7	3	0	9	0	0	10	0	0	2	0	0	**33**	**6**	**0**
Rights to alienate																		
Can the members transfer the community forest to the next generation?	10	0	0	10	0	0	9	0	0	10	0	0	2	0	0	**39**	**0**	**0**
Can the members sell the community forest to any interested party?	0	10	0	0	10	0	0	9	0	0	10	0	0	2	0	**0**	**39**	**0**
Fear of eviction																		
Do the members fear of forced eviction or withdrawal of rights to community forest?	2	8	0	1	9	0	3	6	0	2	8	0	0	2	0	**8**	**31**	**0**
Legal recognition																		
Do the members have any formal recognition of their rights to community forest?	0	10	0	0	10	0	0	9	0	0	10	0	0	2	0	**0**	**39**	**0**

Appendix 9 Response of Mae Sa Noi community

Question	Female > 50 years old			Female < 50 years old			Male > 50 years old			Male < 50 years old			Village head and his assistant			Total		
COMMUNITY FOREST																		
Rights to access and to use	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**
Can the members enter and gather forest products for household consumption without official authorization?	10	0	0	10	0	0	10	0	0	10	0	0	2	0	0	**40**	**0**	**0**
Can the members gather forest products for sale without official authorization?	0	8	2	0	8	2	0	10	0	0	9	1	0	2	0	**0**	**35**	**5**
Can the members hunt animals without official authorization?	0	10	0	1	9	0	0	10	0	3	7	0	0	2	0	**4**	**36**	**0**
Can the members use timber products without official authorization?	4	6	0	9	1	0	10	0	0	10	0	0	2	0	0	**33**	**7**	**0**
Rights to manage																		
Is the community responsible for maintaining and managing the community forest?	10	0	0	10	0	0	10	0	0	10	0	0	2	0	0	**40**	**0**	**0**
Have the RFD/DNP officials been involved in the maintenance and management of the community forest?	0	6	4	0	7	3	5	5	0	2	8	0	2	0	0	**7**	**26**	**7**
Rights to exclude																		
Can the members exclude competitive land users that are villagers from other community or investors?	10	0	0	10	0	0	10	0	0	9	0	1	2	0	0	**39**	**0**	**1**
Can the members exclude competitive land users that are RFD/DNP officials?	3	7	0	8	2	0	10	0	0	10	0	0	2	0	0	**31**	**9**	**0**
Rights to alienate																		
Can the members transfer the community forest to the next generation?	10	0	0	10	0	0	10	0	0	10	0	0	2	0	0	**40**	**0**	**0**
Can the members sell the community forest to any interested party?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Fear of eviction																		
Do the members fear of forced eviction or withdrawal of rights to community forest?	4	6	0	0	10	0	1	9	0	2	8	0	0	2	0	**7**	**33**	**0**
Legal recognition																		
Do the members have any formal recognition of their rights to community forest?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**

Appendix 10 Response of Ton Mamuang community

Question	Female > 50 years old			Female < 50 years old			Male > 50 years old			Male < 50 years old			Village head and his assistant			Total		
COMMUNITY FOREST																		
Rights to access and to use	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**
Can the members enter and gather forest products for household consumption without official authorization?	10	0	0	10	0	0	10	0	0	10	0	0	2	0	0	**40**	**0**	**0**
Can the members gather forest products for sale without official authorization?	10	0	0	10	0	0	10	0	0	10	0	0	2	0	0	**40**	**0**	**0**
Can the members hunt animals without official authorization?	2	8	0	1	9	0	0	10	0	2	8	0	0	2	0	**5**	**35**	**0**
Can the members use timber products without official authorization?	0	10	0	0	10	0	0	10	0	2	8	0	0	2	0	**2**	**38**	**0**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Rights to manage																		
Is the community responsible for maintaining and managing the community forest?	4	6	0	2	8	0	8	2	0	10	0	0	2	0	0	**24**	**16**	**0**
Have the RFD/DNP officials been involved in the maintenance and management of the community forest?	3	5	2	0	10	0	1	8	1	2	8	0	2	0	0	**6**	**31**	**3**
Have there been any changes due to the BCI project implementation?	0	10		0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Rights to exclude																		
Can the members exclude competitive land users that are villagers from other community or investors?	7	3	0	8	2	0	10	0	0	10	0	0	2	0	0	**35**	**5**	**0**
Can the members exclude competitive land users that are RFD/DNP officials?	0	10	0	2	8	0	1	9	0	0	10	0	0	2	0	**3**	**37**	**0**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Rights to alienate																		
Can the members transfer the community forest via inheritance?	10	0	0	10	0	0	10	0	0	10	0	0	2	0	0	**40**	**-**	**0**
Can the members sell the community forest to any interested party?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Fear of eviction																		
Do the members fear of forced eviction or withdrawal of rights to community forest?	10	0	0	10	0	0	6	4	0	4	6	0	1	1	0	**30**	**10**	**0**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Legal recognition																		
Do the members have any formal recognition of their rights to community forest?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**

Appendix 11 Response of Bongti Noi community

Question	Female > 50 years old			Female < 50 years old			Male > 50 years old			Male < 50 years old			Village head and his assistant			Total		
COMMUNITY FOREST																		
Rights to access and to use	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**	**Yes**	**No**	**Uncertain**
Can the members enter and gather forest products for household consumption without official authorization?	10	0	0	10	0	0	10	0	0	10	0	0	2	0	0	**40**	**0**	**0**
Can the members gather forest products for sale without official authorization?	10	0	0	10	0	0	10	0	0	10	0	0	2	0	0	**40**	**0**	**0**
Can the members hunt animals without official authorization?	1	9	0	1	9	0	1	9	0	3	7	0	0	2	0	**6**	**34**	**0**
Can the members use timber products without official authorization?	2	8	0	1	9	0	0	10	0	3	7	0	0	2	0	**6**	**34**	**0**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Rights to manage																		
Is the community responsible for maintaining and managing the community forest?	2	8	0	3	7	0	2	8	0	6	4	0	0	2	0	**13**	**27**	**0**
Have the RFD/DNP officials been involved in the maintenance and management of the community forest?	7	1	2	8	2	0	9		1	10	0	0	2	0	0	**34**	**3**	**3**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Rights to exclude																		
Can the members exclude competitive land users that are villagers from other community or investors?	0	10	0	3	7	0	1	9	0	4	6	0	0	2	0	**8**	**32**	**0**
Can the members exclude competitive land users that are RFD/DNP officials?	0	10	0	0	10	0	1	9	0	2	8	0	0	2	0	**3**	**37**	**0**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Rights to alienate																		
Can the members transfer the community forest via inheritance?	6	3	1	4	4	2	7	1	2	4	6	0	2	0	0	**21**	**14**	**5**
Can the members sell the community forest to any interested party?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Fear of eviction																		
Do the members fear of forced eviction or withdrawal of rights to community forest?	7	3	0	9	1	0	6	4	0	8	2	0	2	0	0	**30**	**10**	**0**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Legal recognition																		
Do the members have any formal recognition of their rights to community forest?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**
Have there been any changes due to the BCI project implementation?	0	10	0	0	10	0	0	10	0	0	10	0	0	2	0	**0**	**40**	**0**