Community Involvement in Monitoring Carbon Stock: the Possibility for REDD+ Implementation in Thailand*

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Abstract

This research aims to propose possible reform directions for involving community in monitoring carbon stock in REDD+ implementation in Thailand. Engaging community in monitoring carbon stock in forest could help ensure more effective REDD+ implementation both in terms of carbon sequestration and improving the livelihoods of, particularly, forestry communities in REDD+ implementation.

This research employed doctrinal methods and documentary analysis, which mainly involved reviewing literature from a wide range of secondary sources including articles, research reports, books, website, and government documents.

The literature review emphasised that legal framework of Thailand fails to enable effective community involvement in monitoring carbon stock for REDD+ implementation. This research, therefore, makes some suggestions to enable effective community involvement in monitoring carbon stock for REDD+ implementation in Thailand.

Keywords: REDD+/ Community-based Monitoring/ Carbon Sequestration/ Thailand

Introduction

Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+) is a mechanism for reducing emissions from deforestation and forest degradation, and for conservation and other values in developing countries (UN-REDD Programme, 2016). The 'plus' in REDD+ refers to conservation and sustainable management of forests, forest restoration and reforestation, as well as the enhancement of forest carbon sequestration (Climate Change Media Partnership (CCMP), the Center for International Forestry Research (CIFOR), and the UN-REDD Programme, 2009). A key component of REDD+ is that carbon units accredited to a developing country will be 'traded' to offset emissions from developed country sources (Rishi R. Bastakoti and Conny Davidsen, 2017). However, it is also to enhance social justice, economic opportunity, improving livelihoods of, particularly, forestry communities in developing countries (Larson, 2011, p. 540.)

Given the intention and definition of REDD+, it requires various legal and institutional arrangements (Korhonen-Kurki et al, 2012, p. 94 and 97 and Wertz-Kanounnikoff and Angelsen, 2009, p. 19-20). Monitoring, reporting, and verification (MRV) is one of these arrangements. The MRV ensures the reduction of emissions and also that the countries hosting REDD+ projects will be paid only if they can prove that they prevent the emissions of forest-based carbon into the atmosphere. MRV is

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linked to complex legal and institutional arrangements (Korhonen-Kurki et al, 2012, p. 94 and 97 and Wertz-Kanounnikoff and Angelsen, 2009, p. 19-20), for example, formulating national standards, in line with the Intergovernmental Panel on Climate Change *Good Practice Guide (IPCC GPG)*, to measure changes in forest-based carbon; obtaining and managing a large amount of information, including causes of deforestation; the size of forest areas; the species and the numbers of trees; land use data (such as land use maps); and measuring the amount of greenhouse gas (GHG) emissions and forest loss (changes in forest areas) (Korhonen-Kurki et al, 2012, p. 97).

Effective MRV is therefore needed to ensure that changes in forest-based carbon are measured accurately (Sunderlin and Atmadja, 2009, p. 50.).

It has increasingly been recognised that local communities can play a crucial role in contributing to and in strengthening carbon sequestration monitoring systems in REDD+ implementation (Forest Carbon Partnership Facility (FCPF), 2011). Community involvement in forest carbon monitoring will increase the likelihood of long-term emission reduction and the benefit to communities (Danielsen et al, 2013). The capacity and knowledge gained from being involved in measuring carbon stock in forests would make communities become a much stronger position to understand the trade-off of alternative forest uses and to negotiate with outsiders, such as carbon professionals.

Thailand participated in the REDD+ partnership in 2010 (REDD+Partnership, 2010). Then in the same year, the Office of Natural Resources and Environmental Policy and Planning under the Ministry of Natural Resources and Environment (MNRE) prepared a draft ten-year (2010–2019) national master plan on climate change. This master plan encompasses three strategies and one of them directly refers to the promotion of REDD+ activities (Work Plan 2.2.2(5) (Asia Indeginous Peoples CCMIN, 2012).

Thailand recognizes the necessity for involving community in MRV as an important component of REDD+. The Sustainable Mekong Research Network (Sumernet) study conducted between 2010 and 2013 in three districts of Thailand on implementing an integrated community-based participatory and remote sensing measurement and monitoring system for REDD+ noted that community engagement in monitoring carbon stock is essential for REDD+ implementation(Sustainable Mekong Research Network,2013).

Given the current REDD+ implementation in Thailand, it is doubtful whether community can be involved in monitoring carbon stock in forests and if so how and to what extent they can be involved. This article, therefore, aims to identify the problems of and to propose possible reform directions for involving community in monitoring carbon stock in REDD+ implementation in Thailand. The paper begins with an introduction of definition of REDD+ and then discusses how this research has been conducted through the section of research methodology. The paper goes on to the finding part of the research which includes: the details of governance structure of MRV followed by discussion of the REDD+ implementation in Thailand. Then, the paper concludes with suggestions about how to increase the effective implementation

of the law of community involvement in carbon stock monitoring for REDD+ implementation in Thailand.

Research Methodology

The paper aims to study to what extent do laws and institutions ensure community involvement in monitoring carbon stock for REDD+ implementation in Thailand and then to propose possible reform directions for involving community in monitoring carbon stock in REDD+ implementation in Thailand.

To reach the objectives of the paper, documentary research was employed. A literature review (Minichiello, Aroni and Hays, 2008, p.28-32) was the starting point to gain the relevant information. The information reviewed is related to governance of REDD+ implementation in Thailand and other jurisdictions, as well as literature on the evolution of the understanding of effective involvement of community in carbon stock monitoring. The literature used was diverse encompassing: policy research papers; government reports; journals; newspapers; websites; and books about involving community in monitoring carbon stock for REDD+ implementation, governance, law and institutions. The literature review aimed to: inform the researcher about the key issues of involving community in monitoring carbon stock for REDD+ implementation; see how forestry laws affect the involving community in monitoring carbon stock for REDD+ implementation; understand to what extent laws address the issues of involving community in monitoring carbon stock for REDD+ implementation; examine the successes and failures of legislation; and see how legislation was enforced and implemented, and who has been affected.

Then system thinking was also used to help to identify all elements in a system of community involvement in carbon stock monitoring and to identify the connection between those elements. The result of an investigation using systems thinking is likely to be more holistic, and the proposals for reform more likely to simultaneously address different aspects of the problem being examined. This should generate a more reliable and relevant reform program (Martin and Verbeek, 2000, p.14).

The failure of involving community in monitoring carbon stock for REDD+ implementation is far from unique to Thailand. Experience from other countries was also considered. Comparative study enables the researcher to consider international pressures for improving REDD+ governance, and what have been the responses of other jurisdictions to similar types of challenges. This would better inform the researcher on how to reform to achieve effective community involvement in carbon stock monitoring in REDD+ implementation in Thailand. Thus, the research also employed comparative study as part of research methodology as well.

Results

Well-functioning governance plays a key role in ensuring successful REDD+ implementation.

REDD+ governance requires various legal and institutional arrangements including: measuring Reporting and Verification (MRV); benefit sharing and

financial mechanism to manage or to equitably allocate such money to fully achieve the emissions offset goal; enabling public participation and to respect or recognise the rights of people to REDD+ implementation (particularly rights of customary forestry communities); ensuring holistic ecological and social objectives (co-benefits of forest conservation and poverty alleviation; clearly define rights to forests and land; carefully designing land use management; establishing mechanisms for long-term dealing with different interests related to REDD+, and establishing insurance systems that account for potential variables occurring from REDD+ implementation (Korhonen-Kurki et al, 2012 and Wertz-Kanounnikoff and Angelsen, 2009). This paper focuses on the topic of MRV and to encourage community to be involved in MRV effectively for REDD+ implementation in Thailand. The details of the relevant topis are described as follow.

The governance structure of MRV

The Measuring Reporting and Verification (MRV) is a key aspect of REDD+. It is that the payments will be based on performance. The countries or REDD+ projects will be paid (compensated) only if they can prove that they prevent the emissions of forest-based carbon into the atmosphere. The MRV is therefore the system being established to ensure that reductions and increases in forest-based carbon are measured accurately and rewarded accordingly (Korhonen-Kurki et al, 2012, p. 94 and 97 and Wertz-Kanounnikoff and Angelsen, 2009, p. 19-20). The MRV relates to various complex legal and institutional arrangements including:

(a) Formulating national standards, in line with the Intergovernmental Panel on Climate Change Good Practice Guide (IPCC GPG), to measure changes in forest-based carbon;

(b) MRV (particularly the reporting process) may require a large amount of information, so establishing the system for gathering all relevant information for MRV across levels would be necessary. The information required for the MRV would include: the cause of deforestation; the size of forest areas; the species and the numbers of trees; the land use data (such as land use map); and the amount of greenhouse gas (GHG) emissions and forest loss (changes in forest areas). As much information relevant to MRV is required, laws and institutions for coordination and collaboration among the relevant agencies or those that are in a position to provide this information would be needed. Some information, such as the information about calculating carbon stock or about remote sensing and ground verification, will need technical capacity such as Map Engine and geographic information system (GIS), so the organisations that have responsibility for such technology may have to be involved.

For the monitoring and reporting process, there would also need to be laws ensuring that all relevant information is publicly available to all stakeholders.

For the reporting process, there is also the need to report leakage which occurs when interventions to reduce emissions in one area lead to higher emissions in another area. This is to avoid the overestimation of reported emission reductions. Reporting leakage is helpful for identifying the need for financial compensation

between the sub national leakage source (where emission reductions occur) and the sink (where emissions are displaced).

(c) Establishing an independent national organisation for monitoring (such as overseeing that MRV for carbon is implemented in accordance with national and international standards) and verifying that required information, or verifying or certifying emission reductions to be credited in the voluntary or compliance markets, or to be rewarded by national or international funds (Korhonen-Kurki et al, 2012 and Wertz-Kanounnikoff and Angelsen, 2009).

While MRV is a key component of REDD+, there is growing evidence that engaging community in monitoring carbon stock in forests could help ensure more effective MRV both in terms of strengthening carbon sequestration monitoring systems and improving the livelihoods of and ensuring inclusion for, particularly, forestry communities and indigenous people(Forest Carbon Partnership Facility (FCPF), 2011). Community-based carbon stock monitoring provides a reliable, cost-effective, culturally relevant and sustainable approach to data gathering for REDD+. There is a clear opportunity from some case studies to involve local people in the design of local indicators that can be used both for local management and to help guide REDD+ implementation, particularly with respect to ensuring the social and environmental integrity of the system (Community Forest Monitoring and REDD+-,2012).

An importance of community involvement in carbon stock monitoring for MRV
Involving community in carbon stock monitoring is, therefore, needed for MRV because:

1) Involving community in forest monitoring is clearly articulated by the high level policy (Global Canopy Program, 2012).

2) Community involvement can strengthen accuracy and cooperation in developing national forest monitoring systems. Greater accessibility to forest areas allows communities to conduct more regular monitoring of required REDD+ data, which helps improve the statistical and scientific reliability of the results and can sharpen estimates on the rates of change in forest degradation and enhancement (Bradley et al, 2013).

3) Involving community in carbon stock monitoring helps strengthen the social capital required for the REDD+ mechanism to work. For example, experiences with piloting community monitoring in Vietnam found that ‘collaboration between the team members in monitoring carbon stock in an REDD+ pilot project could promote a culture of cooperation between forest owners/communities, local and national government officers (UN-REDD Programme Vietnam, 2011). This is a key dynamic for pursuing successful REDD+ implementation.

4) Involving community in carbon stock monitoring can be cost effective. A research study, reported in 2014, examined trends in accuracy and costs of local forest monitoring over time. The measurements by community members and professional foresters of 289 plots over two years in four countries in Southeast Asia were analysed. The study highlighted that for the first time, with repeated measurements, community members’ biomass measurements become increasingly accurate and costs decline and are less than those done by professional forester. The

research used actual costs incurred for local transport, salaries, and materials during the training, re-fresher training, and fieldwork at each study site in year 2 to calculate the costs (Søren Brofeldt et al, 2014).

Similarly, ground truthing biomass assessments require professional foresters which can incur significant costs for REDD+. Training and involving local people can be an important alternative for reducing costs of REDD+ implementation (Pratihast and Herold, 2011).

5) Involving community in carbon stock monitoring could increase local ownership. Ensuring that there is strong local involvement in the use of national forest monitoring systems can help build the sense of trust and responsibility that local communities have towards REDD+ implementation. It can also enhance the relevance of the data that is being generated and the communities' ownership over this data and the overall monitoring process.

6) Involving community in carbon stock monitoring can improve local livelihoods. Involvement of communities in carbon stock monitoring provides an opportunity for them to be employed and earn additional income (Forest Carbon Partnership Facility (FCPF), 2011).

7) Involving community in carbon stock monitoring can help change their attitude toward more environmentally sustainable resource management. It can be concluded that when communities are involved in the monitoring of carbon for REDD+, then they can understand the context and the rationales behind REDD+ better. This consequently could lead them to adjust or change their attitude towards more environmentally sustainable resource management (Danielsen, Burgess, and Balmford, 2005).

REDD+ implementation in Thailand

The literature suggested that whilst there may be increasing evidence supporting community involvement in carbon stock monitoring in REDD+ implementation, Thailand is at the very early stage of REDD+ implementation.

Forest management in Thailand has been developed based on the concept of state-owned forests. All forest areas in Thailand are owned by the state; legislation to use, access and manage forests is determined by the State. Only trees on private land are counted as privately owned forests. These are mostly plantation forests.

The implementations of forest laws under the concept of 'state-owned forests' has limited community to be involved in monitoring carbon stock in REDD+ implementation. Then there have been efforts to involve traditional forest dependants in forest governance, with significant efforts to pass the *Community Forest Bill*. However, this law have not been put into effect on constitutional grounds and it was rejected by the Constitution Court reasoning that the process of drafting the law is violating the provision of the *Constitution*.

Forest management in Thailand is currently regulated by six keys forestry Acts: the Forest Act (1941); the National Reserved Forest Act (1964); the Wildlife Conservation and Protection Act, (1992) the National Park Act (1961); the Forest Plantation Act (1992); and the Chainsaw Act (2002). However, the country has no laws that directly and clearly administer REDD+ resulting in there is no law which clearly enables community being involved in monitoring carbon stock for REDD+ implementation. Considered from the provision of the Constitution, there is the recognition of rights of community to forest management enshrined in the Constitution where it could be possible that community can be involved in monitoring carbon stock in REDD+. However, the provision of the Constitution itself is still doubtful and this is resolved by empowering the Constitution Court to interpret and having subordinate laws to implement the doubtful provision, but these have been ineffectively designed or poorly implemented. For instance, Sections 66 and 67 of the Constitution year 2007 provide 'rights to participate in management, maintenance, and utilising of natural resources including biodiversity in a sustainable manner'(*Constitution 2007* s 66 (Thailand)). From this sentence, it can be concluded that community rights to forests exist, but it is not clear what those rights are. In addition, the term 'sustainable manner' at the end of this sentence needs to be interpreted to give it practical effect. Likewise, section 67 of the Constitution states that the 'rights of people to participate with the community and the state in natural resource management shall be protected,' but ends with 'as appropriate' (*Constitution 2007* s 67 (Thailand)). To deal with these ambiguities, two methods have been normally used. Thailand has a Constitutional Court to interpret the Constitution and more specific forestry laws can be created to implement the provisions enshrined in the Constitution. The government continues enforcement of restrictive conventional forestry laws which effectively exclude forest communities from forest management (Forest People Programme, 2011) and often facilitates unlawful many activities, such as hunting, which has been long conducted by those whose livelihoods rely on the forest for their survival (Lasimbang and Luithui, 2006, p.19-20 and Regional Office for Asia and the Pacific of Food and Agriculture Organisation of the United Nations, 2009).

Based upon the information revealed, the following section proposes the reform direction to achieve effective involvement of community in carbon stock monitoring for REDD+ implementation in Thailand.

Directions for Effective Community Involvement in Monitoring Carbon Stock for REDD+ Implementation in Thailand

This section focuses on how to enhance effective community involvement in carbon stock monitoring for REDD+ implementation in Thailand. So the recommendations were proposed for reform to enable community to be involved in carbon stock monitoring for REDD+ implementation in Thailand.

The set of recommendations are as follows:

1) **Empowering community to have rights over forest resources and also to be involved in carbon stock monitoring**:

Redefining the forest management and conservation practice, such as establishing community forest management (CFM), granting right to forest

management to community are likely to contribute in a fundamental way to reducing forest emissions and increasing forest carbon stocks (Larrazábal and Skutsch, 2011).
It is necessary that to enable community to be engaged in carbon stock monitoring, rights to forest, particularly management rights, needed to be transferred from the governments to community, particularly those whose livelihoods depend on forest resources. Rights to be transferred could be just partially, not absolutely. This is because, it is possible that whenever people have absolute power to manage something, it can be that all the decision-making power is completely vested with them, so they may make their decisions without any monitoring by others. This could simply lead to corruption, such as exercising such power mostly or completely for their benefits. Therefore, rights over forest resources, particularly rights to manage, should be transferred to the community only partially, letting them to have rights to manage forests which rights to be involved in monitoring carbon stock for REDD+ in collaboration with the government is also part of the management rights or directly enshrined by law to grant rights to be involved in carbon sequestration monitoring to community directly.

2) **Clearly differentiate between rights to land and rights to forest use and rights to carbon stock**

It is also important to make clear the distinction between rights to land and rights to forest use and rights to carbon stock. Forest and forest land are owned by the state, and Thailand has the Civil and Commercial Code Section 144 and 145 indicating that "A component part of a thing is that which, according to its nature or local custom, is essential to its existence and cannot be separated without destroying, damaging or altering its form or nature, the owner of a thing has ownership in all its component parts". And Section 145 states that "trees when planted for an unlimited period of time are deemed to be component parts of the land on which they stand".

Interpreting from the two sections, it is possible that trees sequestrating carbon stock are also owned by the state, so the question is how the community could be involved in monitoring carbon stock of those trees.

Some project sites where there are well-defined land tenure and access rights that include communities in forest land and resource management, or co-management with local agencies, show greater success in also establishing community willingness to participate in REDD+ measurement and monitoring. In such project areas, carbon can be viewed very clearly as a co-benefit, a public environmental service, which a forest provides in addition to the many important local benefits that communities benefit from (e.g. non-timber forest products, soil nutrients, regulated water flow, micro-climate conditions, etc.).

3) **Having rights to be involved in carbon stock monitoring should also be considered with the proportion of benefits the community would have from carbon stock.**

It is possible that if the community has rights to be involved in carbon stock and at the same time also has rights to the proportions of carbon stocked, then monitoring carbon stock by community can be biased. This can be explained that when the community has rights to the amount of carbon stock sequestrated, then it can be that they may try to increase the amount of carbon stock from wherever sources of

carbon stock, but not in line with the standard required by the MRV rule, and just to increase their interests they can earn from the amount of carbon stocked. So, local people might be tempted to exaggerate the carbon stock increases if they are rewarded on the basis of carbon gained.

As a result, it is possible that the amount of carbon earned may not be reliable or be creditable as identified by the MRV rule.

Thus, the method of benefit sharing over the amount of carbon stocked should be, at the same time, considered with transferring rights to community to be involved in monitoring carbon stock, otherwise, the amount of carbon gained could be distorted. Then this could affect the effectiveness of the whole system of REDD+ implementation.

4) **Having rights to be involved in monitoring carbon stock should be reinforced by a capacity building program.**

People cannot make decisions effectively unless they understand the context of what they are going to decide. Therefore, it is important that to enable effective participation, the community needs to have a good understanding of the context of the carbon stock monitoring.

Enabling the community to have a good understanding can be done though training. Firstly, it is important for community to be trained to understand the impacts of their forest management activities on carbon stocks-enabling them to see which activities lead to more carbon sequestration and which to less, and also to understand the method and the importance of carbon stock monitoring and what community or the society as a whole can be affected from such monitoring.

For some cases conducted in Indonesia, Brazil and Kenya, only a few days training in appropriate methods, local people can collect reliable, accurate and precise information on a range of indicators, including carbon, deforestation, biodiversity and governance. As the subject field grows and the use of handheld technologies and freeware such as the Open Data Kit become more widespread, inconsistencies in data can be reduced through the sharing of more robust and appropriate methods (Fordham et al, 2012).

Training can also be enhanced with the development of materials and equipment for carbon stock monitoring, such as enabling the community to simply monitor carbon stock through applications on smart phones.

5) **Reliability of community measured data would have to be assured**, such as having third party independent verification will be required to ensure transparency and accountability of the monitoring process.

6) **Effective information sharing could be put in place in parallel with capacity building programs.**

The legal and policy frameworks for community forestry must be updated and adapted to accommodate REDD+, as they provide a foundation for the participation of local people in REDD+.

7) **Ensuring gender equity**

To involve community in carbon stock monitoring, it is important to ensure that women and men are equally involved in such processes. In some communities, especially in the past, forest work is only for men, while women are responsible for house-work. So, in the experience of some community- based forest management projects, women are excluded from such management. This significantly limits the opportunity for them to express their ideas or their need to protect their interests that they could have from forest management. Therefore, to ensure that women are part of carbon stock monitoring comparing with men, the incorporation of gender mainstreaming in the national strategy on REDD+ is needed.

8) **To make more effective monitoring, supervision may be required in early stages.**

Conclusion

To achieve systematic improvement in community involvement in monitoring carbon stock in REDD+, reforming the law is necessary but not sufficient. Successfully managing forest resources involves a complex system of interactions. There are many interconnected factors. As systems theory highlights, changing one factor in a system may influence many other factors. This research systematically proposes some recommendations for Thailand to achieve effective community involvement in carbon stock monitoring for REDD+ implementation.

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