



Synergies among climate change and biodiversity conservation measures and policies in the forest sector: A case study of Southeast Asian countries



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ABSTRACT

Forest conservation contributes to climate change mitigation, adaptation, and biodiversity/ecosystem conservation. To enhance the co-benefits of forest conservation, it is important to promote synergies among the three measures—mitigation, adaptation, and biodiversity/ecosystem conservation—in the forest sector and eliminate the overlaps among the three measures. However, limited research exists on the analysis of their synergies. This study explores the potential for synergy among the three forest sector measures, utilizing: 1) indicators that assess enabling conditions for synergies among the three measures at the different institutional levels of policies and strategies, institutional arrangements, and financing and programs/projects; and 2) case studies of five countries in Southeast Asia: Thailand, Indonesia, Vietnam, Lao PDR, and Cambodia.

This analysis shows that the five countries all require various changes at different institutional levels in order to enhance their synergy potentials. The findings indicate the importance of national actors, financial mechanisms, programs, and projects in addressing the three measures. In terms of national actors, Thailand has the highest synergy potential due to its national-level committees and a single ministry that addresses all three measures. To enhance their synergy potentials, the other countries need to create national-level committees that address the three measures, and/or they need to enhance collaboration between the various ministries that represent the environment and forestry issues. At the financing and program/project aspects, Vietnam has the highest synergy potential. The other four countries need to develop common national funds that finance the three measures and/or develop joint programs and projects that address the three measures simultaneously.

1. Introduction

The governance of climate change mitigation, adaptation, and biodiversity and ecosystem conservation measures is generally discussed under different conventions: mitigation and adaptation fall under the United Nations Framework Convention on Climate Change (UNFCCC), while biodiversity and ecosystem conservation fall under the Convention on Biological Diversity (CBD). However, there is growing interest in integrating these climate change measures and biodiversity/ecosystem conservation (hereafter “conservation”) measures, with a view to reducing their negative impacts and increasing their effectiveness and efficiency. For example, under the CBD, there has been discussion regarding the promotion of ecosystem-based approaches to mitigation and adaptation (CBD decisions X/33 and XI/21). Further, the United Nations Environment Programme (UNEP) has explored ecosystem-based approaches to mitigation and adaptation (Dowald and Osti, 2011), and has implemented an ecosystem-based adaptation program (UNEP, 2016).

It is true that the approaches used for mitigation, adaptation, and conservation are different. Mitigation focuses on greenhouse gases, and aims to reduce the sources or enhance the sinks of greenhouse gases (IPCC, 2014). Adaptation is the process of adjustment to actual or expected climate change and its effects (IPCC, 2014). Conservation aims to preserve the variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems (the definition of biodiversity from the CBD Article 2), and to conserve the dynamic complex of plant, animal, and micro-organism communities, and their non-living environment, whereby they interact as a functional unit (the definition of ecosystem from the CBD Article 2). The outcomes of mitigation measures are evaluated by quantifying greenhouse gas emissions and removals, and mainly produce global benefits. However, the outcomes of adaptation and conservation measures are difficult to quantify because (in contrast to mitigation efforts) there is no single indicator to evaluate outcomes. Adaptation and conservation measures mainly produce regional and local benefits (IPCC, 2007; Ingram et al., 2012).

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Furthermore, apart from the UNFCCC and CBD, the Intergovernmental Panel on Climate Change (IPCC) provides policy-makers with regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation (IPCC, 2013); in response to requests from decision makers, the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES) assesses the state of biodiversity and of the ecosystem services it provides to society (IPBES, 2017), both of which touch on the relationship between climate change and biodiversity/ecosystems (e.g., IPCC, 2014; Ferrier et al., 2016).

Furthermore, the CBD and the IPBES acknowledge the importance of indigenous and local knowledge in their work and explicitly support a diversity of knowledge systems to inform international biodiversity assessments and decision making (Tengö et al., 2017). Both the CBD and IPBES respect traditional knowledge, innovation, and practices (CBD Article 8(j)). In the CBD's Strategic Plan for Biodiversity 2011–2020, including the Aichi Biodiversity Targets adopted in October 2010 at the CBD Conference of the Parties (COP), Target 18 (focusing specifically on traditional knowledge and customary sustainable use) is the main target related to the implementation of two of the most relevant articles of the CBD for indigenous people and local communities – CBD Article 8(j) and Article 10(c) – and represents a cross-cutting theme for the entire Strategic Plan (Forest Peoples Programme et al., 2016). The role of indigenous peoples and local communities in conservation has been valued in different agendas under the CBD, such as cross-cutting issues on biodiversity for development and climate change and biodiversity. With regard to biodiversity for development, the secretariat of the CBD reviewed the existing knowledge about the link between biodiversity conservation and poverty reduction, including the biodiversity-poverty link at the local level (SCBD, 2010). Encouraging the involvement of indigenous peoples and local communities in the discussion regarding integrating biodiversity, poverty eradication, and sustainable development/sustainable development goals has been stated in two CBD decisions: XII/5 and XII/4. Regarding decision XIII/3, the COP not only recognized the central role of indigenous peoples and local communities in the conservation and sustainable use of biodiversity; it also called for the effective engagement of subnational and local governments, for example, in raising the awareness of subnational and local governments of the importance of biodiversity and ecosystems services and functions and of the role of indigenous peoples and local communities in the holistic conservation, preservation, sustainable use, and management of biodiversity. It also considers the establishment of strategies for the strengthening of contributions of subnational and local governments in the implementation of the Strategic Plan and of the respective national biodiversity strategies and action plans. As for the issue of climate change and biodiversity, the role of indigenous peoples and local communities has been discussed in the context of one of the climate change mitigation measures, i.e., reducing emissions from deforestation and forest degradation, etc., in developing countries (REDD+), introduced under the UNFCCC. REDD+ contributes not only to mitigation but also to biodiversity conservation through its safeguard system. The secretariat of the CBD outlined the potential benefits of REDD+ for biodiversity and indigenous and local communities, demonstrated the importance of biodiversity and indigenous and local community co-benefits for the long-term success of REDD+, and outlined possible risks of REDD+ for biodiversity and indigenous and local communities (SCBD, 2011). The SCBD (2011) also touched on providing incentives for REDD+ to local forest users, including alternative sustainable livelihood options. Considerations of indigenous peoples and local communities in the implementation of REDD+ have been stated in decisions X/33 and XI/19 of the CBD.

Compared to the conservation field, the debate on climate change only includes limited discussion regarding the role of indigenous peoples and local communities, and their knowledge. Although the framework of REDD+ has been thoroughly discussed under the UNFCCC,

compared to the CBD, there has been little discussion on the links between REDD+ and indigenous peoples and local communities. However, in December 2015, the UNFCCC COP adopted decisions that included recognizing the need to strengthen knowledge, technologies, practices, and efforts of local communities and indigenous peoples related to addressing and responding to climate change, and which establish a platform for the exchange of experiences and sharing of best practices on mitigation and adaptation in a holistic and integrated manner (1/CP.21 paragraph 135). In May 2017, a multi-stakeholder dialogue on the operationalization of the local communities and indigenous peoples platform was held in conjunction with the 46th meeting of the UNFCCC Subsidiary Body for Scientific and Technological Advice.

Although there are differences among the three measures, existing research has shown co-benefits of climate change measures for certain fields, which were obtained by integrating mitigation and adaptation measures within the field of climate change (Berry et al., 2015; Duguma et al., 2014). Studies have also explored the co-benefits of integrating mitigation and conservation as well as adaptation and conservation (Munang et al., 2013; Phelps et al., 2012). Although the three measures are interlinked, there is limited research on the synergies among mitigation, adaptation, and conservation (Felton et al., 2016; Thompson, 2015).

This paper explores the synergy potential of those three areas in the forest sector through the following data and methods: 1) indicators that assess enabling conditions for synergies among mitigation, adaptation, and conservation, and 2) case studies from five countries in the Southeast Asian region, where forest conservation is one of the national priorities.

We focused on the forest sector because of its potential for producing synergies among mitigation, adaptation, and conservation (Chia et al., 2016; Thompson, 2015), and because there are a number of studies on mitigation, adaptation, and/or conservation in the forest sector. Within the forest sector, all three measures require forest conservation and management activities, but lack research on evaluating the synergies or trade-offs, which is important for eliminating overlaps among measures and enhancing their multiple benefits. Furthermore, we focused on the five Southeast Asian countries because they have potential for a more efficient implementation of forest conservation and management by enhancing synergies among mitigation, adaptation, and conservation measures; however, there is a lack of concrete discussion or research on these relationships in the five countries examined.

2. Literature review

As mentioned in the introduction, there are two types of analyses related to integration among mitigation, adaptation, and conservation. The first analyzes co-benefits in certain sectors by integrating measures (i.e., mitigation and adaptation measures) within the field of climate change (Valatin et al., 2016; Berry et al., 2015; Illman et al., 2013). The second type determines the co-benefits by integrating climate change and conservation (i.e., either integrating mitigation and conservation, or adaptation and conservation) (Munang et al., 2013; Phelps et al., 2012).

With regard to the synergies between mitigation and adaptation, for example, Berry et al. (2015) focused on Europe and analyzed interactions between adaptation and mitigation measures across the agricultural, biodiversity, coastal, forest, urban, and water sectors. They found that most mitigation and adaptation measures have effects on other sectors, resulting in neutral, positive (synergies), or negative (conflicts) interactions within and between sectors; and that many local-scale measures could facilitate integration between both mitigation and adaptation. Further, the research underscored the importance of recognizing the cross-sectoral interaction of adaptation and mitigation measures if they are to be mainstreamed into policy to enhance positive

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