

Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



Contents lists available at ScienceDirect

Global Environmental Change

journal homepage: www.elsevier.com/locate/gloenvcha

What makes a 'REDD' country?

J. Phelps^a, M.C. Guerrero^b, D.A. Dalabajan^c, B. Young^d, E.L. Webb^{a,*}^a Department of Biological Sciences, National University of Singapore, 14 Science Drive 4, Singapore 117543, Singapore^b Non-Timber Forest Products Exchange Programme for South and Southeast Asia, 92-A Masikap Extension, Barangay Central, Diliman, Quezon City 1100, Philippines^c Environmental Legal Assistance Center, # 271 E. Malvar St., Puerto Princesa City, 5300 Palawan, Philippines^d Block 14 Lot 7 Capitol Villas, Carangian, Tarlac City, Philippines

ARTICLE INFO

Article history:

Received 18 August 2009

Received in revised form 14 January 2010

Accepted 17 January 2010

Keywords:

Forest carbon

Emissions

Conservation

UNFCCC

ABSTRACT

Despite remaining uncertainties, Reducing Emissions from Deforestation and forest Degradation in developing countries (REDD) projects are being planned and implemented across the tropics, primarily targeting countries with high forest cover and high deforestation rates. However, there is growing recognition that REDD planning requires a broadened approach; a future REDD mechanism should incentivise emissions reduction in all developing forested countries, and should address critical non-carbon dimensions of REDD implementation—quality of forest governance, conservation priorities, local rights and tenure frameworks, and sub-national project potential. When considering this broader suite of factors, different REDD priorities can emerge, including in countries with low forest cover that would be overlooked by conventional site selection criteria. Using the Philippines as a case study, the paper highlights the importance of an enabling environment to REDD implementation, and presents a more comprehensive and inclusive approach for thinking about what comprises a “REDD country.”

© 2010 Elsevier Ltd. All rights reserved.

1. Preparing for REDD

Deforestation and forest degradation account for 12–20% of global anthropogenic carbon emissions, and are a primary source of emissions for many tropical developing countries (IPCC, 2007; van der Werf et al., 2009; CAIT, 2010). Policy-makers, conservationists and entrepreneurs have responded with efforts to protect existing forests to avoid these emissions under the umbrella of Reducing Emissions from Deforestation and forest Degradation in developing countries (REDD). A central part of international climate change discussions, REDD is considered a cost-effective approach to climate change mitigation and is expected to form part of a post-2012 international emissions reduction treaty.

REDD featured heavily at the December 2009 United Nations Convention on Climate Change (UNFCCC) meeting in Copenhagen (2009a). Although significant sectoral developments were limited by irresolution within the broader climate talks, the negotiations demonstrated growing support for REDD, and specifically for a REDD-plus approach. A REDD-plus mechanism would finance not only forest conservation, but also sustainable forest management and enhancement of carbon stocks (restoration/afforestation/reforestation) to reduce emissions (UNFCCC, 2009b). While REDD-plus strategies have been treated by some stakeholders as

a panacea for climate change, it actually forms only a fraction of the required mitigation action, which includes significant emissions cuts in Annex I nations. Even so, spurred by an additional US\$3.5 billion in multilateral funding for early REDD-plus (USDA, 2009), new REDD initiatives are imminent (see Ki Moon and Zoellick, 2009). These developments have the potential to be one of the most significant changes to tropical forest management approaches (Dooley et al., 2008), and the academic community is pressed to keep pace with the rapidly evolving policy field (Campbell, 2009).

Thirty-seven countries have applied and already been approved to participate in the World Bank's Forest Carbon Partnership Facility (FCPF) for support to prepare for a future REDD mechanism (WB, 2009). The United Nations recently established a parallel program in a number of high carbon value countries (UN-REDD, 2008). In Southeast Asia, Indonesia, Thailand, Vietnam, Cambodia and Laos are the focus of REDD efforts, with pioneer projects in Cambodia and Indonesia expected to begin sale of carbon credits on the voluntary carbon market in 2010. Indonesia stands out as both a regional and global REDD target (Fig. 1), with high-carbon values (standing, intact forests) and high deforestation rates (threat of future emissions).

However, in practice, identifying “REDD countries” depends on more than targeting large forest carbon stocks that threaten emissions, and the UNFCCC remains in discussions about how to design a future REDD mechanism. To date, planning has focused largely on the technical uncertainties of REDD related to determining emissions reference levels, carbon monitoring,

* Corresponding author. Tel.: +65 6516 4184.

E-mail addresses: jacob.phelps@gmail.com (J. Phelps), ted.webb@nus.edu.sg (E.L. Webb).

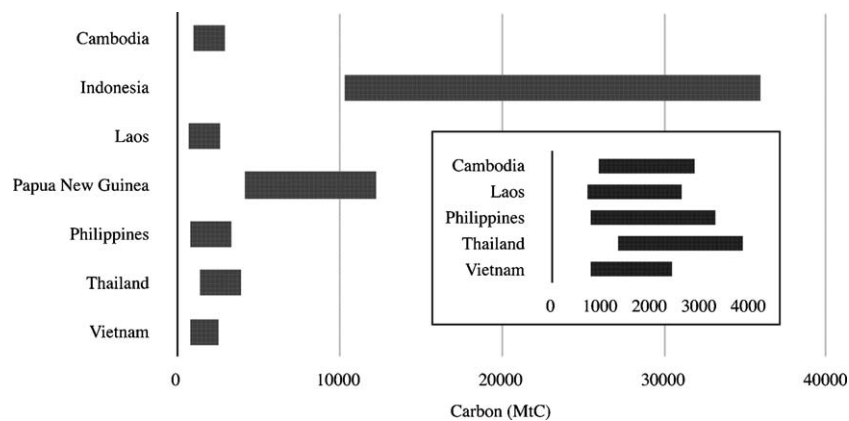


Fig. 1. Ranges of above ground forest carbon stocks for the Philippines and neighbouring REDD target nations (range from across multiple carbon accounting techniques compiled in Gibbs et al., 2007). Inset shows above ground forest carbon stocks estimates for the Philippines and REDD target nations in continental Southeast Asia.

reporting and verification (MRV), and designing a finance mechanism, though four other practical concerns have also emerged.

- (1) Countries other than those with high forest cover and high deforestation rates also have vulnerable carbon stores that require protection and should be included in a future REDD mechanism.
- (2) Weak forest governance in REDD countries could limit effective forest conservation and associated emissions reductions and co-benefits.
- (3) Conserving forest carbon does not necessarily ensure biodiversity conservation or the protection of ecosystem services.
- (4) REDD initiatives could negatively affect the rights, livelihoods and land tenure of poor forest-dependent and indigenous communities.

These concerns arise from across the academic and grey literatures, and question whether the existing REDD approach will successfully reduce emissions while ensuring social safeguards and multiple benefits. The concerns are representative of the need for more comprehensive approaches to REDD. In addition to the traditional REDD issues – carbon stocks, deforestation and degradation rates – there is need to (1) consider REDD opportunities in countries with low forest cover and low deforestation rates, (2) evaluate the quality of forest governance in potential participant countries, (3) link REDD to broader biodiversity and ecosystem service conservation priorities, and (4) assess the land tenure and rights frameworks of potential participant countries. This expanded approach promises more effective and more equitable REDD initiatives.

Existing voluntary carbon markets already include independent certification bodies that verify emissions reductions, social safeguards, and livelihood and biodiversity co-benefits. Such voluntary applications have emerged from recent experiences with the Kyoto Protocol's clean development mechanism (CDM), which has approved controversial large-scale plantations and dams as part of an emissions reduction strategy. There are varied calls to mainstream these issues into the dominant REDD policy agendas so that they further consider tenure issues (Cotula and Mayers, 2009); the rights of forest-dependent people (IPCCC, 2008; Tillack et al., 2009); biodiversity co-benefits (Pina and Shimada, 2008; Kapos et al., 2008); ecosystem service co-benefits (UN-REDD, 2009a), and forest governance capabilities (Davis et al., 2009). The United Nations-REDD Programme recently responded to these calls, adopting a clear policy on the rights of indigenous peoples and adopting a multiple-benefits approach to REDD planning (2009a,b; Dickson et al., 2009). The World Bank's FCPF has also

incorporated some of these concepts as part of a REDD readiness process. However, participant countries have not fully complied with external recommendations (Davis et al., 2009), and clear standards have not been thoroughly mainstreamed into the World Bank and UNFCCC agendas.

2. Expanded approach to REDD

This paper adopts an expanded approach to REDD. It seeks opportunities in a range of countries, including those with low forest cover and low deforestation rates, and considers non-carbon issues related to forest governance and co-benefit generation. Using Southeast Asia as a case study for applying this broadened approach, the paper identifies opportunity for the Philippines to deliver effective, efficient and equitable REDD (see Stern, 2008). We argue that although the Philippines is not a carbon hotspot, the country has large forest areas that are threatened conservation hotspots and degraded lands with significant enhancement potential. These are bound by a relatively strong and decentralized governance system, progressive tenure laws, and a legal framework for protecting the rights of forest-dependent Indigenous People. This combination of factors contributes to an enabling REDD environment that identifies the Philippines as a potential "REDD country." The case study further offers policy recommendations for a future REDD-plus mechanism capable of addressing non-carbon issues, delivering co-benefits, and incentivising forest conservation in all developing forested countries.

2.1. Low forest cover and low deforestation nations

REDD planning has focused predominantly on identifying high-carbon and high-deforestation countries like Indonesia, though there is a need for much broader country participation in order to account for a greater range of emissions sources, avoid international leakage and account for future pressures on forests (Miles, 2007; Mudiary et al., 2008; Strassburg et al., 2009; TCG, 2009; IWG-IFR, 2009). The Terrestrial Carbon Group forecasts significant future emissions from forest conversion (2009), predicting that most of the accessible, unprotected forest carbon in the developing world will be emitted over the next 50 years, including in lower carbon value countries (TCG, 2008). In Southeast Asia, a number of countries present sizeable emissions reduction potentials for REDD (Fig. 1), as well as valuable standing protected forests and opportunities to enhance forest carbon stocks. However, not all countries are ensured participation in a REDD mechanism, because of low forest cover, low deforestation rates and high opportunity costs (Laurance, 2008; Miles and Kapos, 2008; Venter et al., 2009). A broadened approach to REDD recognises the importance of

emissions from multiple countries and multiple sources, and reveals significant opportunities in the Philippines.

Natural Philippine forests cover approximately 6,542,000 ha (FAO, 2007), a small fraction of the country's original forest cover, much of which is remnant, non-frontier (Bryant et al., 1997) medium carbon storage forest (Kapos et al., 2008). Despite this, the Philippines is a net carbon sink (Lasco and Pulhin, 2000, 2001), largely due to the forestry sector (Pulhin and Lasco, 2009). Forestry and changes in land use in the Philippines annually sequester over 100,000 gigatons of carbon (Pulhin and Lasco, 2009), which suggests limited opportunities for additionality. Based on traditional criteria, a national analysis of forest carbon in the Philippines would identify little REDD potential. Unlike Indonesia, protecting existing Philippine forests cannot form a large part of global climate mitigation (Fig. 1). However, even low forest cover nations like the Philippines can reveal opportunities for REDD development—existing forest protection sequesters valuable carbon, and there is potential for further reducing emissions by reducing forest degradation and enhancing carbon stocks (Lasco and Pulhin, 2001).

Philippine aboveground carbon estimates are comparable with those for REDD target countries in continental Southeast Asia (Fig. 1), and require ongoing protection. The Philippines retains approximately 0.8 million hectares of primary old growth forest (FAO, 2005) and approximately 1 million hectares of mossy forest, with average carbon values between 165 and 260 tons of carbon ha⁻¹ (Lasco and Pulhin, 2003). The Philippines is estimated to hold between 765 and 2503 megatons of above ground forest carbon (Gibbs et al., 2007), of which 735 megatons are found in primary and secondary dipterocarp forests (Lasco and Pulhin, 2003), much of it within several large blocks of remaining forest. A sub-national analysis specifically identifies large forest tracts in Palawan, the northern Sierra Madre Mountains in Cagayan and Isabela Provinces and Mindanao.

Much of the Philippines' remaining primary forest is already within protected areas. While protected areas are generally quite successful at reducing deforestation within their borders (Clark et al., 2008; Campbell et al., 2009), they are also financially demanding on host countries and require additional revenues to ensure permanence. Under-funded and under-regulated protected areas can experience substantial carbon loss through illegal degradation and encroachment (Campbell et al., 2008, 2009), including in the Philippines (Mendoza et al., 2009; Lasmarias, 2004; Posa et al., 2008). Although Philippine deforestation rates are relatively low,¹ Lasco and Pulhin (2000) predict that by 2015 carbon storage potential will decrease by 8% due to deforestation, including with protected areas. Across broad parts of the Philippines, the Terrestrial Carbon Group predicts (>75% probability) that at least 10% of additional land area will be converted to agriculture by 2050 (2009). Though much of the documented deforestation is of secondary forests (Lasco and Pulhin, 2000), the average carbon value of Philippine secondary forests is approximately 208 tons of carbon ha⁻¹ (Lasco and Pulhin, 2003). Carbon emissions resulting from forest land use (deforestation, postharvest decay) remains the Philippines largest contributors to carbon emissions (Lasco and Pulhin, 2000), and could present additionality if protected under REDD.

Opportunities would be further enhanced if REDD-plus allows funding for stock enhancement and sustainable forest management, as the Philippines has potential to expand and strengthen community forestry programmes and to regenerate degraded lands (Lasco and Pulhin, 2000). Along with Thailand, the Philippines has pioneered reforestation efforts in the region, notably *rainforestation* techniques that align agroforestry with

reforestation to generate multiple environmental and social benefits (Gölsenboth and Hutter, 2004). Despite limited forest cover, the Philippines does offer sites appropriate for REDD, particularly through improved management of protected areas, reduced forest degradation and enhanced carbon stocks.

Several forest carbon initiatives are currently under initial development in the Philippines. Fauna and Flora International is in the early stages of developing a REDD project in Quezon Province, and there are proposals for similar developments in Palawan and within the Ikalahan ancestral forests in Nueva Vizcaya Province. On Luzon Island, Conservation International has reforestation and agroforestry projects in the Sierra Madre Biodiversity Corridor and in Penablanca. Both projects have been accredited for the voluntary carbon market and could be included in a future REDD-plus mechanism. The Philippines has also started independent work on a National Strategy for REDD in anticipation of attracting future investment and preempting unregulated speculative forest carbon projects. These pioneer efforts are representative of a growing engagement with the forest carbon sector, and increased recognition that even low forest cover nations can have significant REDD potential.

2.2. Quality of forest governance

Quality forest governance is central to REDD project success (Saunders and Nussbaum, 2007; Anglesen et al., 2008; Ebeling and Yasue, 2008; UN-REDD, 2008; Brown et al., 2008; Oestreicher et al., 2009; Cotula and Mayers, 2009; Davis et al., 2009), and is contingent on a broad set of factors. "Good" forest governance requires government inclusiveness, accountability and the participation of civil society; fair and clear tenure rights; legal clarity and control; intersectoral linkages; effective delegation among government levels and provision of adequate resources for managers (Mayers et al., 2002; Contreras-Hermosilla et al., 2008). In the REDD context, a strong legal framework, tenure clarity and domestic stakeholder engagement are of particular importance (Saunders and Nussbaum, 2007). These aspects of forest governance are so significant to REDD that investors may ultimately prefer projects in countries with stronger governance capabilities and lower carbon values over projects in countries with high-carbon values and low governance capabilities (Ebeling and Yasue, 2008). Indeed, likelihood of success should be a central determinant to identifying priority projects (Joseph et al., 2008). Yet, a review of 25 of the FCPF REDD Country Participants revealed that their country proposals did not adequately address governance issues related to law enforcement, tenure clarity, coherence between sectors, benefit-sharing mechanisms, transparency and accountability of forest monitoring systems (Davis et al., 2009). Limitations in these areas directly influence forest protection (Bisson et al., 2003) and related emissions reductions.

A number of authors further suggest that devolved resource management is an increasingly common and important element of good forest governance (Webb and Shivakoti, 2008; Contreras-Hermosilla et al., 2008), and a number of case studies suggest that community-based resource management can be helpful in reducing deforestation and forest degradation to protect associated carbon (Murdiyarso and Skutsch, 2006; Oestreicher et al., 2009; Chhatre and Agrawal, 2009). Although it is difficult to find larger causality based on case study evidence, a recent study of 80 forest commons in 10 countries identified positive links between greater local autonomy over forest resources and greater carbon storage (Chhatre and Agrawal, 2009). Even so, there are also recognised limitations to decentralized management (Brown and Bird, 2008; Contreras-Hermosilla et al., 2008), including in the Philippines (Mendoza et al., 2009). Decentralized forest management is based on a complex set of factors and is not appropriate in all settings

¹ Relatively low deforestation rates in the Philippines are largely a result of limited remaining forested cover.

(Contreras-Hermosilla et al., 2008), but can yield considerable benefits for both forests and poor forest users (Pulhin et al., 2007; Oestreicher et al., 2009), while centralized forest management has often resulted in negative social impacts (Webb and Shivakoti, 2008). In taking a multiple-benefits approach to REDD that also prioritises social outcomes, decentralized and community-based forest management should be considered important elements of quality forest governance.

Like most of the countries in the region, the Philippines struggles with ongoing corruption (Kaufmann et al., 2008) and weaknesses in its forest governance, exemplified by ongoing illegal logging and forest encroachment. Despite these limitations, the Philippines has a higher average governance score² than all of the FCPF REDD Country Participants in Southeast Asia with the exception of Thailand (Fig. 2) (Kaufmann et al., 2008). Regionally, the Philippines scores relatively highly on indicators such as “government effectiveness,” “regulatory quality” and “rule of law.” Although it is difficult to compare the quality of forest governance among countries, these indicators of broader governance trends are useful proxies for comparison, and have direct implications for REDD implementation.

Governance in the Philippines also ranks relatively highly for “voice or inclusiveness” (Kaufmann et al., 2008), and the country has a robust civil society—both factors linked to better forest governance (Contreras-Hermosilla et al., 2008). Non-governmental and peoples’ organizations movements in the Philippines are heavily involved in government planning (Utting, 2000) and have often organized around conservation issues (Grainger and Malayang, 2006; Posa et al., 2008). To this end, Philippine non-governmental organizations are leading exploration on REDD potential in the Philippines, and serve to inform the Presidential Adviser on Global Warming and Climate Change. Civil society groups regularly form part of official Philippine Delegations to international climate meetings, and were influential in developing national positions for the Copenhagen negotiations. This scenario is unique within Southeast Asia and is representative of the type of participatory governance that is central to reducing deforestation and forest degradation (Oestreicher et al., 2009) and to ensuring equitable benefit sharing (UN-REDD, 2008).

Within the region, the Philippines is also recognized for strong decentralization trends, community forestry experience, community involvement in the management of protected areas, and for an improving local capacity (Mercado, 1998; Pulhin, 2002; Contreras, 2003; Posa et al., 2008; GTZ, 2009). Although the decentralization of forest management in the Philippines remains incomplete and imperfect (Mercado, 1998; Gollin and Kho, 2002; Contreras, 2003; Bullecer et al., 2006), there are also notable successful examples of decentralized forest management in the Philippines, including Puerto Princesa’s Subterranean River Natural Park, long-term participatory forest and watershed management in Nueva Vizcaya Province, and recent local government efforts to halt illegal logging in Isabela Province (e.g. Padaca, 2009). Such local initiatives are extending to REDD; the Isabela provincial government and Palawan’s Quezon Municipality are independently seeking REDD pilot initiatives within their jurisdiction, and early proposals for future REDD development in the Philippines suggest management and dispersal of REDD funds to the local government level (Mendoza et al., 2009). These developments promise improved delegation among government levels and increased resource allocations for managers. Relatively decentralized governance

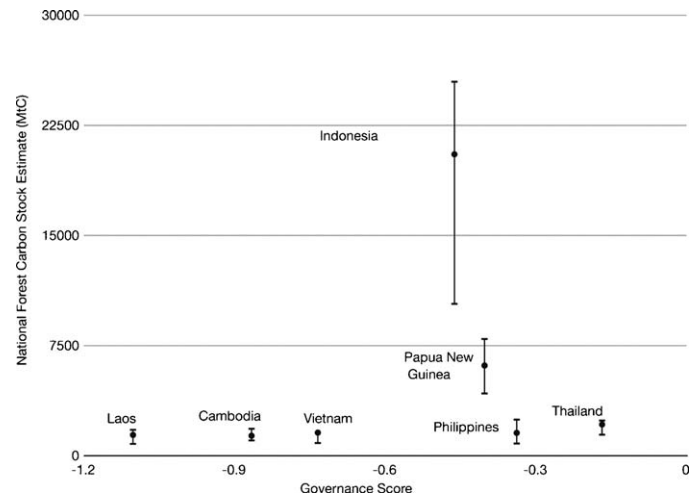


Fig. 2. Relationship between forest carbon stocks and governance score (after Ebeling and Yasue, 2008) for the Philippines and neighbouring REDD target nations. National above ground forest carbon stocks estimates are graphed as the median value of five different carbon accounting estimates, bordered by the maximum and minimum estimates for each country (Gibbs et al., 2007). Governance scores are based on an average of five indicators from the World Governance Indicators 1996–2007, where the lowest possible governance score is –2.5 and the highest is 2.5 (Kaufmann et al., 2008).

under the Local Government Code of 1991 grants local authorities rights to implement local environmental ordinances and may allow them to embrace REDD and promote it as a land use option, mirroring REDD developments in Indonesia’s semi-autonomous Aceh Province.

2.3. Biodiversity conservation and ecosystem service synergies

Although biodiversity and ecosystem services are secondary commodities within REDD, there are efforts to identify sites where they overlap with high-carbon stock areas (including, Ebeling and Yasue, 2008; Kapos et al., 2008; Venter et al., 2009). A future REDD mechanism should recognise that forest carbon conservation does not necessarily address conservation priorities or protect ecosystem functions, and should consider REDD’s multiple-benefits potential. In an analysis of overlaps between biodiversity priorities and REDD targets, Venter et al. (2009) demonstrated that REDD funds are unlikely to support forest conservation in Asia because of high opportunity costs, unless the additional costs of biodiversity conservation are assumed into REDD.

Multiple REDD-conservation synergies have been identified within Southeast Asia, but the Philippines has been largely overlooked on account of its low biodiversity index (Ebeling and Yasue, 2008). However, the biodiversity index measure can be deceiving (Orme et al., 2005), and when endemism is also considered in the conservation hotspot analysis, the Philippines emerges as a top global conservation priority, one of the ‘hottest hotspots’ (Myers et al., 2000). The Philippines hosts among the highest levels of endemism in the world (Myers et al., 2000; Ong et al., 2002; Kier et al., 2009) and represents an overlap of multiple biodiversity priority targets³ (Kapos et al., 2008). This is particularly true for the 3.8 million hectares of remaining dipterocarp forests, which are the country’s richest forests in terms of both biodiversity and carbon (Lasco and Pulhin, 2003).

² Based on World Governance Indicators from 1996 to 2007 (90% CI) for five indicators: voice and accountability, government effectiveness, regulatory quality, rule of law and control of corruption. Comparison of the Philippines against Cambodia, Indonesia, Papua New Guinea, Thailand, Vietnam, and Laos PDR (Kaufmann et al., 2008).

³ Overlap of multiple conservation priority criteria, including BirdLife International’s Endemic Bird Areas, WWF’s Global 200 Terrestrial Ecoregions, Conservation International’s Biodiversity Hotspots, WWF/IUCN’s Centres of Plant Diversity, Alliance for Zero Extinction’s priority sites.

Lowland dipterocarp forests are also of interest, as they host the highest numbers of threatened species, are poorly represented in protected areas and are the most vulnerable to land use change pressures (Anda, 2008). Even secondary forests in the Philippines are potential synergy sites, as they are important buffers and refugia within a degraded, fragmented island environment (Lasco et al., 2001). Extensive environmental degradation in the Philippines, which has one of the smallest forest area per capita ratios in the region (Sodhi et al., 2004), has also negatively impacted human health (Posa et al., 2008). As such, improved forest conservation is also important to various crucial ecosystem functions, notably services that regulate forest product provisions, flooding, erosion and water (UN-REDD, 2009b). Protection and restoration of these services is a high priority for countries like the Philippines where systems are heavily degraded.

Despite fewer and smaller forests than its neighbours, the Philippines offers greater carbon and conservation priority overlaps than many of the World Bank FCPF REDD Country Participants in the region (Kapos et al., 2008). Projects with multiple conservation benefits have already proven attractive to buyers on the voluntary carbon market, and are likely to form an important part of future regulatory markets (Ebeling and Fehse, 2009). There are strong financial, conservation and human development arguments for a REDD approach that also prioritise biodiversity conservation, conservation of endemic species and protection of ecosystem service functions.

2.4. Rights of forest-dependent communities

There are widespread concerns that REDD will increase costs on forest-dependent peoples (including, Griffiths, 2007; Tauli-Corpuz, 2007; Dooley et al., 2008; UNU-IAS, 2008a,b; Peskett et al., 2008; Cotula and Mayers, 2009). Many observers have criticized REDD projects for their rapid development that has often overlooked the rights, tenure, and engagement of forest-dependent and indigenous peoples (including, Czebiniak and Breikopf, 2007; Sunderlin et al., 2008; DE, 2008; Dooley et al., 2008; Cotula and Mayers, 2009). A number of these observers consider stakeholder rights, including rights to continue sustainable traditional land use practises, a precondition for REDD development. Many stakeholders go further to propose that REDD projects should be designed to advance the rights of forest-dependent poor by increasing their tenure security and creating direct livelihood benefits (Sunderlin et al., 2008; Brown et al., 2008; Cotula and Mayers, 2009). Delivering these co-benefits, however, will often require land reform, clarity over carbon ownership rights (as distinct from land tenure) and provisions to ensure equitable distribution of REDD benefits (Cotula and Mayers, 2009).

Not only are there strong ethical arguments for adopting these “co-benefits,” but there are practical considerations as well (Brown et al., 2008; Sunderlin et al., 2008; Peskett et al., 2008). Insecure tenure, for example, presents considerable risks to REDD investors, many of whom are also seeking socially responsible investments (Saunders and Nussbaum, 2007; Brown and Bird, 2008; Brown et al., 2008; Cotula and Mayers, 2009). Incentivising conservation among direct forest managers, including forests-dependent communities, also promises more effective emissions reductions (Brown et al., 2008). More comprehensive approaches to developing REDD should build from these commentaries.

Indonesia exemplifies concerns about REDD impacts on forest-dependent people in Southeast Asia. The country is dominated by state owned land, does not formally recognize customary tenure and has a weak system for ensuring local tenure (Cotula and Mayers, 2009). Indonesia also lacks a legal framework on indigenous peoples' rights and People's Organizations have responded vocally with concerns about REDD development

(UNU-IAS, 2008a,b; KpSHK, 2009; Simanora, 2009; Nabadon and Tarigan, 2009). Similarly, the Laos submission to the World Bank describing its national REDD potential emphasizes centralized land ownership (Dooley et al., 2008). Vietnam's submission acknowledges the need to address the tenure concerns of rural and ethnic minority groups, but the country's tenure allocation program only began in 2006 and has been slow to develop (Dooley et al., 2008). Neither the Laos nor the Vietnam submission is based on consultations with communities in the targeted REDD sites, nor acknowledges the rights of rural and indigenous peoples, including the right to “free, prior and informed consent.” (Dooley et al., 2008).

In contrast, the Philippines has a relatively strong national legal framework for ensuring social safeguards, and recognizing and securing indigenous rights to tenure, “free, prior and informed consent” and equitable benefits (Mayo-Anda et al., 2006). Though admittedly imperfect in practice, these legal frameworks form part of a long-term, gradual process towards people-oriented resource management (Pulhin, 2002; Contreras, 2003; Pulhin et al., 2005) and they form a foundation for REDD projects that respect local rights and lands. In response to the recent Copenhagen Accord, the government of the Philippines supported provisions on REDD-plus, but called for greater recognition of indigenous peoples' rights (Nery, 2009). Improving recognition of local rights and land claims is a first-step for REDD project development (Cotula and Mayers, 2009).

REDD opportunities may be strongest when pursued inside indigenous territories (Clark et al., 2008), where conservation goals and cultural values often align (Villamor and Lasco, 2006; Sobrevila, 2008; Oestreicher et al., 2009). Ancestral Domains Claims in the Philippines have built-in resource management mechanisms that are well attuned to the objectives of REDD. The Ikalahan ancestral territory in Nueva Vizcaya, Higaonon territory in Bukidnon, and Pala'wan territory in southern Palawan are examples of successful forest protection on ancestral lands in the Philippines (e.g. Villamor and Lasco, 2006). Ancestral lands are also appropriate because the Indigenous Peoples' Rights Act (IPRA) already requires the consent and meaningful involvement of residents prior to project development, which would promote social safeguards and equitable benefit sharing of REDD-generated revenues (NCIP, 1998). IPRA law grants “priority” rights to Indigenous Peoples' claims to the use of natural resources in ancestral domains claims, and mandates that at least 30% of revenues from natural resources be invested in community development and provision of social services and infrastructure (NCIP, 1998). These provisions will presumably be extended to carbon resources, but national carbon ownership rights need to be clarified alongside rights to land tenure.

There are currently 107 formally recognized ancestral domains in the Philippines, covering roughly 2.7 million hectares with more than 600,000 residents. Another 129 claims remain under government review, covering an additional 2.7 million hectares (Calata and Manuel, 2009).⁴ Dozens of other claims have not yet been reported, many of which overlap with important forested areas with REDD and REDD-plus potential (Dalabajan and Mayo-Anda, 2004). Designations have often lingered because of lack of funds and technical assistance, though there are considerable opportunities for new claims to be formally demarcated and

⁴ Organizations supporting community and conservation-based REDD exploration and development in the Philippines include: Non-timber Forest Product Exchange Program, Women's Initiative, for Society, Culture, and Environment Inc., AnthroWatch, Kalahan Educational Foundation, Conservation International-Philippines, Environmental Legal Assistance Center, Fauna and Flora International-Philippines, Philippine Federation for Environmental Concern, Upholding Life and Nature, and Interface Development Interventions, World Agroforestry Centre-Philippines, and the Environmental Leadership & Training Initiative.

recognized in tandem with REDD project development and funding (see Cotula and Mayers, 2009).

Unlike in most other countries, early REDD discussions in the Philippines have started with the direct engagement of indigenous and forest-dependent community groups (PCW, 2009). As a result of these conditions, many Philippine conservation, indigenous and community organizations are supporting national REDD development.⁵ This is unique in a region where many of their counterparts in other countries are either wary of REDD or oppose it all together (see FFP, 2007; IPCC, 2008; UNU-IAS, 2008b; KpSHK, 2009; Tillack et al., 2009). The Philippine example suggests how initial tenure and rights frameworks are helpful REDD considerations.

3. Sub-national analysis: Palawan, Philippines

Focus on national and regional-level analyses can obscure realities on the ground. Even for countries that are not REDD priorities, like the Philippines, sub-national analyses can reveal significant project potential, as well as sites of potential leakage should they be excluded from REDD participation. As such, the viability of REDD initiatives, including the implementation considerations discussed in this paper, should be considered not only within the national context, but also at the sub-national levels where REDD implementation would occur.

Early mapping exercises to identify overlaps between high-carbon forests, conservation priorities, threats of conversion and enabling environments in the Philippines suggest that Palawan could be a national REDD target area (Figs. 3 and 4). Approximately 50% of the province remains forested (724,176 ha), more than half as closed canopy forest (EMB, 2003). Palawan hosts 12 protected areas across 1,752,289 ha of land and water (Dalabajan and Mayo-Anda, 2004) and is one of the most important biodiversity hotspots in the world (Ong et al., 2002; Kapos et al., 2008). Despite this significant official protection and high conservation priority designation, Palawan also experiences considerable socio-economic pressures (Ong et al., 2002), many linked to a rapidly growing population (3.36% growth) (Boquiren, 2004). Exact provincial deforestation and degradation rates remain uncalculated, but there is evidence of significant conversion and degradation resulting from agricultural expansion, large-scale logging, illegal logging within protected areas, tourism development, fish farming, road construction and large-scale mining and quarrying (Boquiren, 2004; Lasmarias, 2004). More than 664,000 ha of land are currently under various stages of nickel mining operations (Fig. 3), including within conservation areas (Dalabajan, 2008). The Provincial Government also recently signed a memorandum of understanding with the Philippine National Oil Corporation-Alternative Fuels Corporation proposing 300,000 ha of new agrofuel plantation development (MB, 2008; Ho, 2008). Significant, undocumented areas have already been converted into oil palm plantations without environmental impact assessments, legal approval or the consent of indigenous communities. The threat of future carbon emissions in Palawan is significant.

Palawan additionally presents an enabling environment for REDD. Given its unique biological and cultural diversity, Palawan's natural resource laws are distinct within the country, articulated in the Strategic Environmental Plan for Palawan and jointly managed by the national Department of Environment and Natural Resources and the Palawan Council for Sustainable Development (PCSD). This unique, multi-agency arrangement is a particularly strong example of decentralizing resource management trends in the Philippines (Contreras, 2003).

⁵ Many of the 181 Certificate of Ancestral Domain Claim (CADC) areas granted by the DENR before the 1997 Indigenous Peoples Rights Act have yet to be formally re-recognized as Certificates of Ancestral Domains Territory areas.

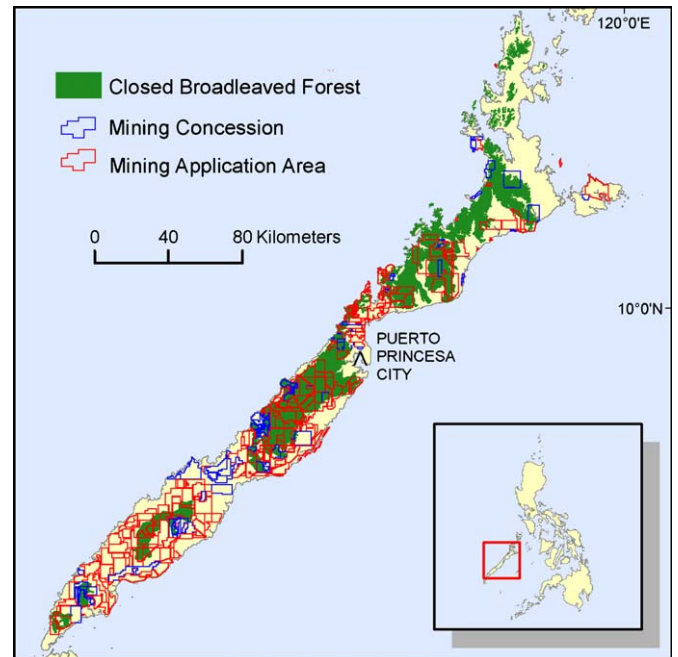


Fig. 3. Map of Palawan Province, Philippines highlighting natural forest areas and both existing and exploratory mining concessions. Forest cover data provided by National Mapping and Resource Information Authority (2001–2003, 30-m Landsat imagery). Data on Mining Concession and Application provided by the Mines and Geosciences Bureau (2008), AnthroWatch, Department of Environment and Natural Resources and the Environmental Legal Assistance Center.

Palawan is home to a considerable indigenous population of Pala'wan, Batak and various Tagbanua sub-groups, many of whom are forest-dependent. The government has formally recognized 56,660 ha of ancestral areas in Palawan, including five claims that cover areas greater than 5000 ha. An additional five claims, ranging in size from approximately 2000 ha to more than 14,000 ha have

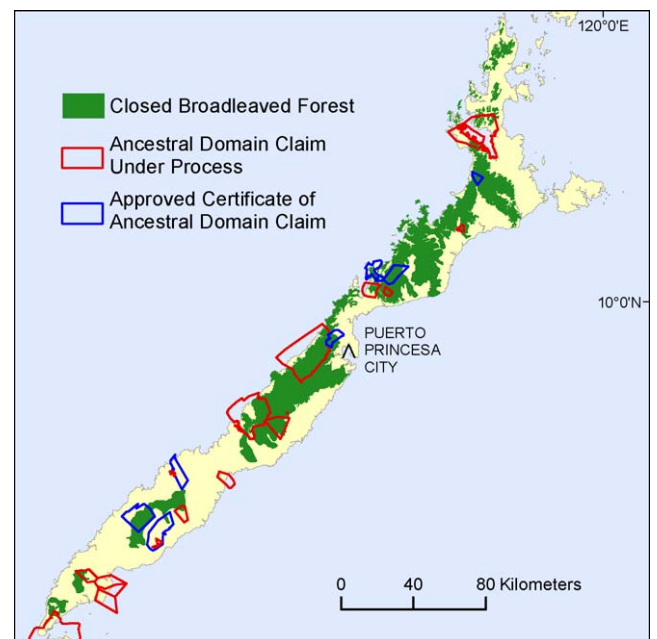


Fig. 4. Map of Palawan showing ancestral domains area claims where conservation and community-based REDD projects might be developed. Numerous other claims are not shown because they have not yet been zoned. Forest cover data provided by National Mapping and Resource Information Authority (2001–2003, 30-m Landsat imagery). Ancestral lands data provided by the Philippine Association for Intercultural Development.

been resolved and are undergoing approval by the government; twelve further claims, most greater than 20,000 ha, are currently identified for approval; 26 others of various size are preparing their claims applications (Dalabajan and Mayo-Anda, 2004) (Fig. 4). Palawan also hosts almost 40,000 ha of community-based forest management, and more than 6000 ha of community stewardship. Although tenure recognition and decentralization to the community level have been slow to develop and are still lacking, the progressive laws that have enabled these initial developments are promising. They also present unique opportunities for linking REDD projects to ancestral domains areas and community forests.

4. What makes a “REDD country”?

The authors were recently approached with the question: “What makes a REDD country?” There is no simple answer; REDD site selection depends heavily on carbon stocks and deforestation rates, as emissions reduction remains the cornerstone issue. High-carbon countries like Indonesia, the Democratic Republic of Congo and Brazil are obvious REDD priorities. However, to be effective, a future REDD mechanism will require near global coverage and include most forested nations (Miles, 2007; IWG-IFR, 2009; Strassburg et al., 2009). It also will need to address both carbon and non-carbon realities of REDD implementation. Projects that address forest governance issues, identify conservation synergies and address local rights and tenure issues are better positioned to ensure forest protection, maximize resources and reduce stakeholder conflicts. This paper demonstrates that when considering a wider range of factors for site selection in Southeast Asia, non-traditional REDD target sites emerge. Although the Philippines is a low forest cover country, sub-national analysis and expanded selection criteria reveal carbon stocks of valuable additionality and an enabling REDD environment.

“REDD countries,” however, will ultimately be identified by their ability to participate in a future REDD mechanism. Although there is little certainty about how a future mechanism might operate, the Philippine case study highlights several key policy recommendations from the grey literature that would bolster co-benefits and increase country participation. The recommendations are not exhaustive, but are meant to contribute to ongoing discussions shaping future REDD.

4.1. Policy recommendation: broaden selection criteria

The case study demonstrates the benefits of adopting broadened selection criteria for identifying “REDD countries”: devising criteria to help identify enabling REDD environments (at both the national and sub-national levels) would yield lower-risk REDD projects and valuable co-benefits. While countries like Indonesia and the Democratic Republic of Congo offer high-return REDD opportunities, they also involve relatively high-risks given the governance and social conditions in those countries. Countries with little additional carbon for REDD but strong enabling environments could present investors with lower-yield, lower-risk opportunities. A diversity of investment opportunities should appeal to the market. Projects in the lower-yield, lower-risk countries also have a greater chance of yielding successful case studies to inform future development and ease concerns among wary stakeholder groups.

4.2. Policy recommendation: mandate safeguards and co-benefits

There remains debate about whether REDD co-benefits should be treated as non-binding recommendations or mandated standards (Dickson et al., 2009; Campbell, 2009). Thus far, UNFCCC

resolutions have “promoted and supported” co-benefits and safeguards as non-binding recommendations (Dickson et al., 2009; UNFCCC, 2009b). Given previous experience with the CDM, a REDD mechanism should include mandated, rather than voluntary, applications of social and environmental safeguards and co-benefits. Although a future REDD mechanism should limit transaction costs and remain simple enough to encourage investment (Brown et al., 2008), strong minimum ‘no harm’ standards should be pre-conditions to REDD. The mechanism should also mainstream incentives for REDD projects to prioritise biodiversity conservation, ecosystem service function and livelihood development as core benefits. These benefits will require external MRV similar to that used for documenting emissions reductions and multiple benefits for the existing voluntary carbon markets (Miles, 2007; Durbin and Franks, 2009). “REDD countries” should thus be identified based on their ability to deliver not only emissions reductions, but minimum standards and demonstrated social, ecosystem and biodiversity co-benefits.

4.3. Policy recommendation: provide reliable and adequate funding

Many potential participants, however, are ill-prepared to ensure the delivery of carbon, safeguards or benefits. The costs to countries preparing for a future REDD mechanism are significant. Many are drawing on resources from UN-REDD and the FCPF for “REDD readiness” related to establishing emissions baselines, determining opportunity costs and developing national strategic plans for REDD. There is a need to equitably provide adequate “readiness” funding to the range of countries interested in participating in REDD. Prior to large-scale REDD development, there is also the need to ensure that there will be reliable and adequate resources to compensate countries for their future emissions reductions. Just as participating forested countries must deliver emissions reductions, Annex I nations must be able to deliver promised payments. This may require additional fund-based payments and delaying REDD financial dependence on market instruments until the marketplace is fully established and regulatory mechanisms are in place.

4.4. Policy recommendation: subsidize co-benefits

Fund-based finance is central to REDD function because future markets are unlikely to invest in scenarios that represent significantly increased costs and/or risks (Brown et al., 2008; Ebeling and Fehse, 2009). Just as with the readiness process, fund-based subsidies will be required to help participants ensure safeguards, deliver co-benefits, manage the additional transaction costs associated with increased regulations, and remain competitive in a future carbon marketplace (Brown and Bird, 2008; Brown et al., 2008; IWG-IFR, 2009; EAC, 2009; Ebeling and Fehse, 2009; Venter et al., 2009). The mechanism could further incentivise safeguards and co-benefits among service providers by creating performance-based payments (Brown et al., 2008; EAC, 2009). By facilitating compliance, this funding approach will improve REDD's social and environmental impacts, and expand REDD participation.

4.5. Policy recommendation: bundle services

Despite the importance of fund-based financing, the market holds some buyers willing to pay for co-benefits. Co-certification of biodiversity, carbon and social safeguards is already becoming popular in voluntary carbon markets (Karousakis, 2009; Ebeling and Fehse, 2009). While REDD funding will target forest carbon, there are opportunities to bundle associated services for sale as premiums or through complementary Payment for Ecosystem

Service (PES) schemes. Bundling carbon and non-carbon income streams could incentivise conservation in areas with high opportunity costs (Miles and Kapos, 2008; Ebeling and Fehse, 2009). The approach is particularly appealing to low forest cover countries where the loss of forest-related ecosystem services is most severe. At these sites environmental co-benefits would have particularly high biodiversity conservation and ecosystem service (water conservation, erosion prevention) values, and are likely to find buyers.

4.6. Policy recommendation: define REDD to increase participation

REDD-plus has come to dominate the forest carbon agenda, and would allow an expansion of the forestry-related activities, increasing participation and further reducing emissions. This expansion has been widely debated, and has significant implications for biodiversity and rural livelihood co-benefits (Karousakis, 2009), but Copenhagen offered little additional clarity about what activities may eventually be allowed under a future REDD-plus mechanism. There is little doubt that the mechanism should focus primarily on protecting standing, threatened forests. However, an expansion of permitted activities would significantly increase the involvement of low forest cover and low deforestation countries like Philippines. We argue for a broadened approach to REDD that prioritises forest conservation but also allows a range of forestry-based emissions reductions measures: rewards for existing protected areas, targeted funding for reducing forest degradation, and allowances for SFM and enhancement of carbon stocks.

REDD should reward existing forest conservation and incentivise reduced degradation in all forests, including those under legal protection but that experience continued encroachment and will face increasing pressures into the future. This approach will considerably expand opportunities for low forest cover countries struggling to protect remnant forests.

Despite the increased complexities associated with the MRV of degraded forests, a future REDD mechanism should also specifically target reducing forest degradation (Mudiyarso et al., 2008). Forest degradation is a significant contributor to global emissions and is closely linked to co-benefits (Mudiyarso et al., 2008). For example, degraded forests can be important refugia for biodiversity in countries with degraded forests like the Philippines. A focus on reducing degradation would also deliver greater social co-benefits, as poor forest users often hold and work degraded forest lands (Brown et al., 2008; Campbell, 2009). This approach would allow countries with less pristine forest cover to better participate in REDD (Mudiyarso et al., 2008; Campbell, 2009).

The parties at Copenhagen accepted SFM as a REDD-plus activity (UNFCCC, 2009b), which offers greater flexibility and inclusion. However, SFM must also be regulated by safeguards and co-benefits to avoid perverse incentives and the harmful effects of industrial logging and monocrop plantations. Properly managed SFM could allow diversified livelihoods and multiple income streams to better incentivise conservation while protecting carbon (Miles and Kapos, 2008).

REDD should further allow the enhancement of carbon stocks on degraded lands, and should direct funding towards reforestation efforts. Stock enhancement offers particularly great opportunities for sustainable livelihood co-benefits (Murdiyarsso and Skutsch, 2006; Chazdon, 2008), including in the Philippines (Lasco and Pulhin, 2000), as well as synergies within REDD. For example, REDD-protected areas could be linked to carbon enhancement efforts that create buffer zones for carbon and biodiversity, serve as a source of alternative income generation through community-based nurseries, and provide local communities with increased forest products. As with SFM, stringent environmental safeguards

would be required to avoid incentivising forest conversion for plantations (Dickson et al., 2009).

There are clear logistical challenges associated with expanding REDD to increase participation. Trivedi et al. (2009) propose different approaches and separate mechanisms for protecting different types of forests. Others propose an expanded mechanism that would reward emissions reductions from all land use changes (van Noordwijk and Minang, 2009; TCG, 2009). This diversity of proposals reveals that the exact rules of a future REDD mechanism are far from agreed-upon. However, it is clear that REDD is moving towards more inclusive and comprehensive approaches that will allow for increased country and sectoral participation and expanded co-benefit opportunities.

4.7. Policy recommendation: adopt a nested approach

Most REDD proposals envision national-level project development with centralized carbon accounting, development of national REDD policies, and international payments directly to the State. The Philippines case study, however, points to the need for a “nested approach” that encourages both national and sub-national REDD development (Anglesen et al., 2008; Pedroni et al., 2009). REDD is an unlikely priority for low forest cover and low deforestation countries where large payments are unlikely and MRV demands are high. A national-level REDD initiative is also a challenging project for a country with limited governance capabilities. A nested approach would allow for initial pockets of development where the opportunities (forests) exist and where project capacity exists. This would allow an early start to REDD and would contribute to national capacity building and scaling-up (Pedroni et al., 2009). A nested approach would open opportunities for REDD development in Palawan in the short-term, as a national case study and while the government prepares for a broader-scale initiative.

5. Conclusions

The Philippines case study helps elucidate why governance, conservation priorities and rights frameworks should feed into more comprehensive REDD planning and sub-national analyses. It also demonstrates the opportunity to identifying otherwise ‘hidden’ REDD targets, including in countries with low forest cover. A future REDD mechanism “cannot be everything to everyone,” but the United Nations, UNFCCC and World Bank need to look beyond forest carbon and at the associated environmental and social systems. Although this adds a layer of complexity to the mechanism, an expanded approach would deliver more successful and equitable REDD projects, and needs to be further explored. Despite the immediacy of biodiversity conservation and climate change mitigation needs, significant research and debate are still due prior to reaching any binding frameworks for REDD-plus.

Acknowledgements

Special appreciation to Dr. Daniel Friess and Dr. David Neidel for their comments and to Ester Batangan for her assistance in gathering information in the Philippines. Thank you to the National Mapping and Resource Information Authority, Mines and Geosciences Bureau, Philippine Association for Intercultural Development, AnthroWatch, Department of Environment and Natural Resources and the Environmental Legal Assistance Center for having shared their data sets for the maps in this paper. Thank you to The National University of Singapore and Harry S. Truman Foundation for their financial support.

References

- Anda, R., 2008. Studies say Palawan animals' extinction looms. *Philippine Daily Enquirer Online*, Manila, Philippines. URL: <http://newsinfo.inquirer.net/breakingnews/regions/view/20080914-160505/Studies-say-Palawan-animals-extinction-loom>.
- Anglesen, A., Streck, C., Peskett, L., Brown, J., Luttrell, C., 2008. What is the right scale for REDD? In: Anglesen, A. (Ed.), *Moving Ahead with REDD: Issues, Options and Implications*. CIFOR, Bogor Barat, Indonesia. , In: www.cifor.cgiar.org/publications/pdf_files/Books/BAngelsen0801.pdf.
- Bisson, J., Guiang, E.S., Walpole, P., Tolentino, D., 2003. Better governance critical to reversing forest degradation trends in Southeast Asia. Paper presented at XII Forestry Congress, Quebec City, Canada. URL: <http://www.fao.org/DOCREP/ARTICLE/WFC/XII/0837-A4.HTM>.
- Boquiren, R., 2004. Social profile of Palawan Stakeholders. In: Anda, R.D., Tabangay-Baidera, J.G. (Eds.), *Surublien: Strategies to Conserve Palawan's Biodiversity*. Provincial Government of Palawan, Palawan Council for Sustainable Development Staff, Department of Environment and Natural Resources-MIMAROPA Region IV, Palawan NGO Network, Conservation International Philippines, Puerto Princesa City, Philippines, pp. 9–13.
- Brown, D., Bird, B., 2008. The REDD road to Copenhagen: Readiness for what? Overseas Development Institute Opinion 118. URL: www.odi.org.uk/resources/download/2584.pdf.
- Brown, D., Seymour, F., Peskett, L., 2008. How do we achieve REDD co-benefits and avoid doing harm? In: Angelsen, A. (Ed.), *Moving ahead with REDD: Issues, options and implications*. CIFOR, Bogor, Indonesia, pp. 107–118. In: www.cifor.cgiar.org/publications/pdf_files/Books/BAngelsen0801.pdf.
- Bryant, D., Nielsen, D., Tangle, L., 1997. The last frontier forests: ecosystems and economies on the edge. World Resources Institute. URL: <http://www.wri.org/publication/last-frontier-forests>.
- Bullecer, R., Elago, E., Embalzon Jr., F., Escobido, G.M., Gonzaga, M., Largo, M.L., Layse Jr., J., Limocon, M., et al., 2006. Review and evaluation of community-based tenure instruments in the central Philippines. Paper presented at Eleventh Conference of the International Association for the Study of Common Property, June 19–23. Bali, Indonesia. URL: http://www.indiana.edu/~iascp/bali/papers/BULLECEER_RUMILA.pdf.
- Calata, S.S., Manuel, J.D., 2009. Summary of AD/AL Delineation and Titling as of May 31, 2009. National Commission on Indigenous Peoples, Manila, Philippines.
- Campbell, A., 2009. Beyond Copenhagen: REDD-plus, agriculture, adaptation strategies and poverty. *Global Environmental Change* 19, 397–399.
- Campbell, A., Dickson, B., Gibbs, H., Hansen, M., Kapos, V., Lysenko, I., Miles, L., Scharlemann, J., 2009. The role of protected areas in storing carbon and reducing emissions. In: IOP Conference Series: Earth and Environmental Science 6.
- Campbell, A., Kapos, A., Lysenko, I., Scharlemann, J., Dickson, B., Gibbs, H., Hansen, M., Miles, L., 2008. Carbon Emissions from Forests Loss in Protected Areas. UNEP World Conservation Monitoring Centre, Cambridge, UK. , In: www.unep-wcmc.org/climate/pdf/Carbon_loss_from_PAs_final_report.pdf.
- Chazdon, R.L., 2008. Beyond deforestation: restoring forests and ecosystem services on degraded lands. *Science* 320 (5882), 1458–1460.
- Chhatre, A., Agrawal, A., 2009. Trade-offs and synergies between carbon storage and livelihood benefits from forest commons. *PNAS* 106 (42), 17667–17670.
- Clark, S., Bolt, K., Campbell, A., 2008. Protected Areas: An Effective Tool to Reduce Emissions from Deforestation and Forest Degradation in Developing Countries? UNEP World Conservation Monitoring Centre, Cambridge, U.K. , In: http://www.iop.org/EJ/article/1755-1315/6/25/252025/ees9_6_252025.pdf.
- Climate Analysis Indicators Tool (CAIT) Version 7.0, 2010. World Resources Institute, Washington, DC. URL: <http://cait.wri.org>.
- Consortium for the support of Community Based Forest Management (KpSHK), 2009. Forest For People—Stabilizing the Climate. URL: <http://kajidirilebihdamlagi.blogspot.com/2009/01/forest-for-people-stabilizing-climate.html>.
- Contreras, A.P., 2003. Creating space for local forest management: the case of the Philippines. In: Edmunds, D., Wollenberg, E. (Eds.), *Local Forest Management: The Impacts of Devolution Politics*. Earthscan, London, UK, pp. 127–149.
- Contreras-Hermosilla, A., Gregersen, H.M., White, A., 2008. Forest Governance in Countries with Federal Systems of Government: Lessons and Implications for Decentralization. CIFOR, Bogor, Indonesia. , In: <http://ibcperu.nuxit.net/doc/isis/9108.pdf>.
- Cotula, L., Mayers, J., 2009. Tenure in REDD—Start-Point or Afterthought? International Institute for Environment and Development, Natural Resource Issues 15In: <http://www.iied.org/pubs/pdfs/13554IIED.pdf>.
- Czebiniak, R.P., Breitkopf, S., 2007. Greenpeace letter of concern to K. Sierra, Vice-President of Sustainable Development at the World Bank. URL: <http://carbonfinance.org/Router.cfm?Page=FCPF&FID=34267&ItemID=34267&ft=DocLib&ht=37850&dl=1>.
- Dalabajan, D., 2008. The inconvenient social realities of Protected Area Management in the Philippines: the case of Palawan of Mt. Mantalingahan Range protected landscape in Southern Palawan. Paper presented at the International Conference on Philippine Studies, Quezon City, Philippines.
- Dalabajan, D., Mayo-Anda, G., 2004. Assessment of conservation policies as applied in Palawan. In: Anda, R.D., Tabangay-Baidera, J.G. (Eds.), *Surublien: Strategies to Conserve Palawan's Biodiversity*. Provincial Government of Palawan, Palawan Council for Sustainable Development Staff, Department of Environment and Natural Resources-MIMAROPA Region IV, Palawan NGO Network, Conservation International Philippines, Puerto Princesa City, Philippines, pp. 28–37.
- Davis, C., Daviet, F., Nakhooda, S., Thuault, A., 2009. A Review of 25 Readiness Plan Idea Notes from the World Bank Forest Carbon Partnership Facility. World Resources Institute, Washington, DC. , In: <http://www.wri.org/gfi>.
- Dickson, B., Dunning, E., Killen, S., Miles, L., Pettorelli, N., 2009. Carbon Markets and Forest Conservation: A Review of the Environmental Benefits of REDD Mechanisms. UNEP World Conservation Monitoring Centre, In: www.unep-wcmc.org/Env%20benefits%20from%20REDD%20091204_FINAL%20FOR%20COP15.pdf.
- Down to Earth (DE), 2008. The pressure for REDD. Down to Earth Newsletter 79. URL: <http://dte.gn.apc.org>.
- Dooley, K., Griffiths, T., Leake, H., Ozinga, S., 2008. Cutting corners: World Bank's forest and carbon fund fails forests and peoples. FERN, Forest Peoples Programme. URL: http://www.fern.org/media/documents/document_4312_4313.pdf.
- Durbin, J., Franks, P., 2009. REDD+ social and environmental standards: draft principles and criteria. Climate, Community and Biodiversity Alliance, CARE International Poverty, Environment and Climate Change Network. URL: http://www.climate-standards.org/REDD+/docs/new/REDD+_SE_Standards_FactSheet_11-25-09.pdf.
- Environmental Audit Committee (EAC), 2009. Reducing Greenhouse Gas Emissions from Deforestation: No Hope Without Forests. House of Commons, London. , In: www.publications.parliament.uk/pa/cm200809/cmselect/cmenvaud/30.pdf.
- Ebeling, J., Yasue, M., 2008. Generating carbon finance through avoided deforestation and its potential to create climatic, conservation and human development benefits. *Philos. Trans. R. Soc. B* 363, 1917–1924.
- Ebeling, J., Fehse, J., 2009. Challenges for a Business Case for High-Biodiversity REDD Projects and Schemes, Report for the Secretariat of the Convention on Biological Diversity. Ecosureties, Oxford, UK. , In: <http://www.cbd.int/forest/doc/other/ecosureties-report-2009-02-en.pdf>.
- Environmental Management Bureau (EMB), 2003. Forest cover by MIMAROPA. URL: <http://forestry.denr.gov.ph/landuse4b.htm>.
- Food and Agriculture Organization (FAO), 2005. Forest Resources Assessment—Philippines Country Report 2005. <http://www.fao.org/forestry/28699/en/phl>.
- Food and Agriculture Organization (FAO), 2007. State of the World's Forests. URL: <http://www.fao.org/docrep/009/a0773e/a0773e00.HTM>.
- Forest Peoples' Programme (FPP), 2007. NGO Statement on the World Bank's Proposed Forest Carbon Partnership Facility. URL: www.forestpeoples.org/forest./unfccc_bali_ngo_statement_nov07_eng.pdf.
- Gibbs, H.K., Brown, S., Niles, J.O., Foley, J.A., 2007. Monitoring and estimating tropical forest carbon stocks: making REDD a reality. *Environ. Res. Lett.* 2, 1–13.
- Gollin, K.L., Kho, J.L., 2002. After the romance: Rethinking community, participation and sustainability: a review of Philippine CBNRM. URL: <http://beritabumi.or.id/download/After%20the%20Romance.pdf>.
- Grainger, A., Malayang, B.S., 2006. A model of policy changes to secure sustainable forest management and control of deforestation in the Philippines. *Forest Policy Economics* 8 (1), 67–80.
- Griffiths, T., 2007. Seeing RED? Avoided Deforestation and the rights of indigenous peoples and local communities. Forest Peoples Programme. URL: www.forestpeoples.org/documents/ifi_igo/avoided_deforestation_red_jun07_eng.pdf.
- German Technical Cooperation (GTZ), 2009. Decentralization in the Philippines. URL: <http://decentralization.org.ph>.
- Göltenboth, F., Hutter, C.P., 2004. New options for land rehabilitation and landscape ecology in Southeast Asia by “rainforestation farming”. *J. Nat. Conserv.* 12 (3), 181–189.
- Ho, A., 2008. Palawan expands to jatropaha. *Philippine Daily Inquirer*, 27 April. URL: <http://business.inquirer.net/money/breakingnews/view/20080327-126782/Palawan-expands-to-jatropaha>.
- Indigenous Peoples' Caucus on Climate Change (IPCCC), 2008. Statement of the International Forum of Indigenous Peoples on Climate Change presented at the 29th Session of the Subsidiary Body for Scientific and Technical Advice during the 14th Session of the Conference of the Parties of the United Nations Framework Conference on Climate Change, Poznan, Poland. URL: http://www.ienearth.org/news/statement_unfccc_cop14_1.html.
- Informal Working Groups on Interim Finance for REDD-plus (IWG-IFR), 2009. Discussion Document, Oct. 27. URL: http://www.unredd.net/index.php?option=com_docman&task=doc_details&Itemid=8&gid=1096.
- Intergovernmental Panel on Climate Change (IPCC), 2007. *Climate Change 2007: The Physical Science Basis*. Cambridge University Press, Cambridge, UK. , In: <http://www.meteo.bg/meteorology/SPM2feb07.pdf>.
- Joseph, L.N., Maloney, R.F., Possingham, H.P., 2008. Optimal allocation of resources among threatened species: a project prioritization protocol. *Conserv. Bio.* 23 (2), 328–338.
- Kapos, V., Ravilious, C., Campbell, A., Dickson, B., Gibbs, H., Hansen, M., Lysenko, I., Miles, L., et al. (Eds.), 2008. Carbon and biodiversity: A demonstration atlas. United Nations Environmental Programme World Conservation Monitoring Centre, Cambridge, UK. , In: http://www.unep.org/pdf/carbon_biodiversity.pdf.
- Karousakis, K., 2009. Promoting biodiversity co-benefits in REDD. Organization for Economic Cooperation and Development, Environment Working Papers 11.
- Kaufmann, D., Kraay, A., Mastruzzi, M., 2008. Governance Matters IV: Governance Indicators for 1996–2004. World Bank Institute, Washington, DC. , In: <http://info.worldbank.org/governance/wgi/index.asp>.
- Kier, G., Kreft, H., Lee, T.M., Jetz, W., Ibisich, P.L., Nowicki, C., Mutke, J., Barthlott, W., 2009. A global assessment of endemism and species richness across island and mainland regions. *Proc. Natl. Acad. Sci.* 106, 9322–9327.

- Ki Moon, B., Zoellick, R., 2009. Letter to G. Brown, Prime Minister of the United Kingdom, December 5, United Nations, World Bank. URL: http://www.unredd.net/index.php?option=com_docman&task=doc_details&Itemid=&gid=1256.
- Lasco, R.D., Pulhin, F.B., 2000. Forest land use change in the Philippines and climate change mitigation. *Mitig. Adapt. Strat. Global Change* 5, 81–97.
- Lasco, R.D., Pulhin, F.B., 2001. Climate change mitigation activities in the Philippine forestry sector: application of the Comap Model. *Mitig. Adapt. Strat. Global Change* 6, 313–334.
- Lasco, R.D., Pulhin, F.B., 2003. Philippine forest ecosystems and climate change: carbon stocks. Rate of sequestration and the Kyoto Protocol. *Ann. Trop. Res.* 25 (2), 37–51.
- Lasco, R.D., Visco, R.G., Pulhin, J.M., 2001. Secondary forests in the Philippines: formation and transformation in the 20th century. *J. Trop. Forest Sci.* 13 (4), 652–670.
- Lasmarias, M., 2004. Issues, threats and opportunities. In: Anda, R.D., Tabangay-Baidera, J.G. (Eds.), *Surubliën: Strategies to Conserve Palawan's Biodiversity*. Provincial Government of Palawan, Palawan Council for Sustainable Development Staff, Department of Environment and Natural Resources-MIMAROPA Region IV, Palawan NGO Network, Conservation International Philippines, Puerto Princesa City, Philippines, pp. 15–19.
- Laurance, W.F., 2008. Can carbon trading save vanishing forests? *BioScience* 58 (4), 286–287.
- Manila Bulletin (MB), 2008. Palawan gov't pushes project for jathropa nursery, plantation. April 13. URL: http://findarticles.com/p/news-articles/manila-bulletin/mi_7968/is_2008_April_13/palawan-govt-pushes-project-jathropa/ai_n35018479/.
- Mayers, J., Bass, S., Macqueen, D., 2002. The Pyramid: A Diagnostic and Planning Tool for Good Forest Governance. International Institute for Environment and Development. In: <http://assets.panda.org/./diagnosticandplanningtoolforgoodforestgovernance2002.pdf>.
- Mayo-Anda, G., Cagatulla, L.L., La Vina, A.G.M., 2006. Is the concept of 'free and prior informed consent' effective as a legal and governance tool to ensure equity among Indigenous Peoples? Environmental Legal Assistance Center, Puerto Princesa City, Palawan. URL: www.indiana.edu/~iascp/./Mayo-Anda_Grizelda_Cagatulla_La_Vina.pdf.
- Mendoza, M., Cruz, R.V.O., Bonita, M., 2009. Forestry sector adaptation to climate change draft report. Prepared for the Adaptation to Climate Change and Conservation of Biodiversity Project, Philippines Department of Environment and Natural Resources, German Ministry for the Environment, Nature Conservation and Nuclear Safety.
- Mercado, E.S., 1998. Decentralization and Devolution of Forest Management in the Philippines: Uneasy Steps to Institutional Maturity. Department of Environment and Natural Resources, Quezon City, Philippines. In: http://www.recoftc.org/site/fileadmin/docs/publications/Seminar_Proceeding/DecentralizationandDevolution/Section_5/Mercado.pdf.
- Miles, L., 2007. Reducing Emissions from Deforestation: Global Mechanisms, Conservation and Livelihoods. UNEP World Conservation Monitoring Centre, Cambridge, U.K. In: <http://www.unep-wcmc.org/climate/pdf/Miles%202007%20RED%20main%20text.pdf>.
- Miles, L., Kapos, V., 2008. Reducing greenhouse gas emissions from deforestation and forest degradation: global land-use implications. *Science* 320 (5882), 1454–1455.
- Murdiyoso, D., Skutsch, M. (Eds.), 2006. Community forest management as a carbon mitigation option. CIFOR, Bogor, Indonesia. In: www.communitycarbonforestry.org/Case%20study%20bookWeb.pdf.
- Mudiyarso, D., Skutsch, M., Guariguata, M., Kanninen, M., Luttrell, C., Verweij, P., Martins, O.S., 2008. How do we measure and monitor forest degradation? In: Angelsen, A. (Ed.), *Moving Ahead with REDD: Issues, Options and Implications*. CIFOR, Bogor Barat, Indonesia. In: www.cifor.cgiar.org/publications/pdf_files/Books/BAngelsen0801.pdf.
- Myers, N., Mittermeier, R.A., Mittermeier, C.G., da Fonseca, G.A.B., Kent, J., 2000. Biodiversity hotspots for conservation priorities. *Nature* 403, 853–858.
- Nabadon, A., Tarigan, A., 2009. Letter response to the Indonesian REDD Draft Readiness Plan. Sawit Watch, Alliance of Indigenous Peoples of the Archipelago. URL: <http://climateupdate.wordpress.com/tag/the-world-banks-fcpf/>.
- National Commission on Indigenous Peoples (NCIP), 1998. Rules and regulations implementing Republic Act No. 8371, otherwise known as "The Indigenous Peoples' Rights Act of 1997." URL: <http://www.metagora.org/training/encyclopedia/IPRA.html>.
- Nery, J., 2009. Text of RP's endorsement of Copenhagen Accord. Philippine Daily Enquirer, Dec. 20. URL: <http://newsinfo.inquirer.net/breakingnews/nation/view/20091220-243096/Text-of-RPs-endorsement-of-Copenhagen-Accord>.
- Oestreicher, J.S., Benessaiah, K., Ruiz-Jaen, M.C., Sloan, S., Turner, K., Pelletier, J., Guay, B., Clark, K.E., et al., 2009. Avoiding deforestation in Panamanian protected areas: an analysis of protection effectiveness and implications for reducing emissions from deforestation and forest degradation. *Global Environ. Change* 19, 279–291.
- Ong, P.S., Aguang, L.E., Rosell-Ambal, R.G. (Eds.), 2002. Philippine Biodiversity Conservation Priorities: A Second Iteration of the National Biodiversity Strategy and Action Plan. Department of Environment and Natural Resources Protected Areas and Wildlife Bureau, Conservation International Philippines, Biodiversity Conservation Program University of the Philippines, Center for Integrative and Development Studies, Foundation for the Philippine Environment, Quezon City, Philippines.
- Orme, C.D.L., Davies, R.G., Burgess, M., Eigenbrod, F., Pickup, N., Olson, V.A., Webster, A.J., Ding, T.S., et al., 2005. Global hotspots of species richness are not congruent with endemism or threat. *Nature* 436, 1016–1019.
- Padaca, G., 2009. Initiatives and challenges confronting the Provincial Government of Isabela in the Protection of the Northern Sierra Madre Natural Park. Paper presented at the Non-timber Forest Products-Exchange Programme Luzon Consultation on REDD, Luzon, Philippines.
- Pedroni, L., Dutschke, M.C.S., Porrura, M.E., 2009. Creating incentives for avoiding further deforestation: the nested approach. *Climate Policy* 9, 207–220.
- Palawan Consultative Workshop (PCW), 2009. Workshop on exploring forest carbon revenues fore Philippine forest-based communities, August 10–11 Puerto Princesa, Palawan. URL: <http://ntfp.org/coderedd/palawan-redd-consultation-on-redd/inpress>.
- Peskett, L., Huberman, D., Bowen-Jones, E., Edwards, G., 2008. Making REDD Work for the poor. Report prepared for Poverty and Environment Partnership by the Overseas Development Institute and IUCN, London, UK. URL: <http://data.iucn.org/dbtw-wpd/edocs/2008-056.pdf>.
- Pina, C.M., Shimada, K., 2008. Chair's Workshop Summary for the Organization for Economic Co-Operation and Development Workshop "Incentives to Capture the Biodiversity and Carbon Benefits for Reducing Deforestation: Linkages, Synergies and Limitations," Paris, France. URL: <http://www.oecd.org/dataoecd/42/61/41241295.pdf>.
- Posa, M.R.C., Diesmos, A.C., Sodhi, N.S., Brooks, T.M., 2008. Hope for threatened tropical biodiversity: lessons from the Philippines. *BioScience* 58 (3), 231–234.
- Pulhin, F.B., Lasco, R., 2009. The 2000 GHG Inventory of the LUCF Sector in the Philippines. Presented at the National Consultation of the Philippines' Second National Communication on Climate Change to the UNFCCC for the Environmental Management Bureau, Department of Energy and Natural Resources, November 27, Manila, The Philippines.
- Pulhin, J.M., 2002. Trends in forest policy in the Philippines. *Policy Trend Report*, 29–41.
- Pulhin, J.M., Amaro Jr., M.C., Bacalla, D., 2005. Philippines community-based forest management. Country report presented at the Community Forestry Forum, Bangkok, Thailand.
- Pulhin, J.M., Inoue, M., Enters, T., 2007. Three decades of community-based forest management in the Philippines: emerging lessons for sustainable and equitable forest management. *Int. Forest. Rev.* 9 (4), 865–883.
- Saunders, J., Nussbaum, R., 2007. Forest governance and reducing emissions from deforestation and forest degradation briefing paper. Chatham House Energy Environment and Development Project, London, UK. URL: http://www.chathamhouse.org.uk/publications/papers/download/id/591/file/10788_bp0108redd.pdf.
- Simanora, A.P., 2009. Government needs to settle tenure problems over forested land. *The Jakarta Post*, 22 May. URL: <http://www.thejakartapost.com/news/2009/05/22/govt-needs-settle-tenure-problems-over-forested-land.html>.
- Sobrevila, C., 2008. The Role of Indigenous Peoples in Biodiversity Conservation: The Natural but Often Forgotten Partners. The World Bank, Washington, DC, USA. In: <http://siteresources.worldbank.org/INTBIODIVERSITY/Resources/RoleofIndigenousPeoplesinBiodiversityConservation.pdf>.
- Sodhi, N.S., Koh, L.P., Brook, B.W., Ng, P.K.L., 2004. Southeast Asian biodiversity: an impending disaster. *Trends Ecol. Evol.* 19 (12), 654–660.
- Stern, N., 2008. Key Elements of a Global Deal on Climate Change. London School of Economics and Political Science, London, UK. In: www.occ.gov.uk/./stern./Key%20Elements%20of%20a%20Global%20Deal%20Final01may.pdf.
- Strassburg, B., Turner, R.K., Fisher, B., Schaeffer, R., Lovett, A., 2009. Reducing emissions from deforestation—the "combined incentives" mechanism and empirical simulations. *Global Environ. Change* 19, 265–278.
- Sunderlin, W.D., Angelsen, A., Roberts, T., 2008. Rights: An essential precondition for effectiveness, efficiency and equity in REDD. Presentation at Forest Day: Shaping the Global Agenda for Forests and Climate Change, December 06, Poznan, Poland. URL: http://www.cifor.cgiar.org/publications/pdf_files/cop/cop14/presentations/23/23-Assuring%20Rights-Sunderlin-optimized.zip.
- Tauli-Corpuz, V., 2007. Statement on the Announcement of the World Bank Forest Carbon Partnership Facility. United Nations Permanent Forum on Indigenous Issues, Bali, Indonesia. In: www.forestpeoples.org/./forest./unpfi_statement_fcpf_dec07_eng.pdf.
- Terrestrial Carbon Group (TCG), 2008. How to include terrestrial carbon in developing nations in the overall climate change solution. URL: <http://www.terrestrialcarbon.org/default.aspx>.
- Terrestrial Carbon Group (TCG), 2009. Estimating terrestrial carbon at risk of emission: applying the Terrestrial Carbon Group 3 filters approach. Policy Brief 6. URL: <http://www.terrestrialcarbon.org/Publications/PolicyBrief6Estimating-TerrestrialCarbonatRiskofEmission.aspx>.
- Tillack, G., Spoor, C., Talocchi, J., 2009. UN Urgent: End Deforestation, Conserve World's Forests. Coalition Statement presented to the Thirtieth Session of the UNFCCC Convention Subsidiary Bodies, Bonn, Germany. URL: <http://www.commondreams.org/newswire/2009/06/08-1>.
- Trivedi, M.R., Mitchell, A.W., Mardas, N., Parker, C., Watson, J.E., Nobre, A.D., 2009. REDD and PINC: A new policy framework to fund tropical forests as global 'ecotilities'. In: IOP Conference Series: Earth and Environmental Science 8.
- United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), 2008. Framework Document. Food and Agriculture Organization, United Nations Development Programme, United Nations Environmental Programme, In: <http://www.undp.org/mdtf/un-redd/overview.shtml>.

- United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), 2009a. Multiple Benefits-Issues and Options for REDD. Food and Agriculture Organization, United Nations Development Programme, United Nations Environmental Programme, In: http://www.unredd.net/index.php?option=com_docman&task=doc_details&gid=472&Itemid=53.
- United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), 2009b. UN-REDD Programme: Operational Guidance on the Engagement of Indigenous Peoples and other Forest Dependent Communities. Food and Agriculture Organization, United Nations Development Programme, United Nations Environmental Programme, In: http://www.equatorinitiative.org/images/stories/events/2009events/unpfi_un_redd/unpfi_redd_presentation_may26_els.pdf.
- United Nations Framework Convention on Climate Change (UNFCCC), 2009a. Copenhagen Accord Draft decision. Conference of the Parties Fifteenth session, December 7–18, Copenhagen, Denmark. URL: <http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf>.
- United Nations Framework Convention on Climate Change (UNFCCC), 2009b. 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. Ad Hoc Working Group on Long-Term Cooperative Action Under the Convention, Eighth Session, At the Conference of the Parties Fifteenth Session, December 7–18, Copenhagen, Denmark. URL: http://unfccc.int/./fact_sheet_reducing_emissions_from_deforestation.pdf.
- United Nations University-Institute of Advanced Studies (UNU-IAS), Indigenous Peoples' International Centre for Policy Research and Education, Secretariat of the Convention on Biological Diversity. United Nations-REDD Programme, 2008a. Summary Report of the South East Asia Indigenous Peoples Regional Consultation on REDD, Baguio City, Philippines. URL: http://www.unutki.org/news.php?news_id=42&doc_id=6.
- United Nations University-Institute of Advanced Studies (UNU-IAS), Indigenous Peoples' International Centre for Policy Research and Education, Secretariat of the Convention on Biological Diversity. United Nations-REDD Programme, 2008b. Summary Report of the Global Indigenous Peoples Consultation on Reducing Emissions from Deforestation and Forest Degradation, Baguio City, Philippines. URL: http://www.unutki.org/news.php?news_id=43&doc_id=6.
- United States Department of Agriculture (USDA), 2009. United States Announces \$1 billion to reduce forest emissions. Press Release 0618.09, December 16. URL: http://www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB?contentidonly=true&contentid=2009/12/0618.xml.
- Utting, P., 2000. An overview of the potential pitfalls of participatory conservation. In: Utting, P. (Ed.), *Forest Policy and Politics in the Philippines: The Dynamics of Participatory Conservation*. Ateneo de Manila and United Research Institute for Social Development, Quezon City, Philippines, pp. 171–215.
- van der Werf, G.R., Morton, D.C., DeFries, R.S., Olivier, J.G.J., Kasibhatla, P.S., Jackson, R.B., Collatz, G.J., Randerson, J.T., 2009. CO₂ emissions from forest loss. *Nat. Geosci.* 2, 737–738.
- van Noordwijk, M., Minang, P.A., 2009. If we cannot define it, we cannot save it. In: Van Bodegom, Jan, A., Savenije, H., Wit, M. (Eds.), *Forest and Climate Change: Adaptation and Mitigation*. Tropenbos International, Wageningen, The Netherlands.
- Venter, O., Laurance, W.F., Iwamura, T., Wilson, K.A., Fuller, R.A., Possingham, H.P., 2009. Harnessing carbon payments to protect biodiversity. *Science* 326, 1368.
- Villamor, G., Lasco, R., 2006. The Ikalahan ancestral domain, the Philippines. In: Murdiyarto, D., Skutsch, M. (Eds.), *Community Forest Management as a Carbon Mitigation Option: Case Studies*. Center for International Forestry Research, Bogor, Indonesia, pp. 43–50.
- Webb, E.L., Shivakoti, G.P., 2008. Forest policy as a changing context in Asia. In: Webb, E.L., Shivakoti, G.P. (Eds.), *Decentralization, Forests and Rural Communities: Policy Outcomes in South and Southeast Asia*. Sage Publications, New Delhi, India.
- World Bank (WB), 2009. Forest Carbon partnership Facility Website. URL: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,contentMDK:21631703~menuPK:5216269~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html>.