Notes & Comments

Overcoming Barriers to Indigenous Peoples' Participation in Forest Carbon Markets

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ABSTRACT

This note seeks to identify principles and methods for encouraging the participation of indigenous peoples in emerging forest carbon markets. To date, the programs under the United Nations Framework Convention on Climate Change ("UNFCCC") have failed to adequately account for emissions from tropical deforestation. Reduced Emissions from Deforestation and Forest Degradation ("REDD") proposals aim to close the gaps currently in existence in the UNFCCC programs by accounting for emissions from tropical deforestation and incentivizing reductions in those emissions. Inevitably, REDD programs and other forest carbon markets will affect any indigenous populations living in and around tropical forests. If not carefully crafted, these programs can have significant negative effects on forest-dependent indigenous peoples. However, a well-designed REDD program or forest carbon market could actually benefit these peoples by giving them access to an additional source of income. This note examines how indigenous peoples in the United States and New Zealand have been able to participate in forest carbon markets and how their strategies interact with the property regime in each country. From these case studies, some lessons learned for the future development of REDD programs and forest carbon markets are:

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(1) carefully define land tenure—if it is not already defined—in a way that respects indigenous occupation and ownership; (2) involve indigenous peoples throughout the design process to more efficiently address problems that may arise; (3) design creative solutions to permanence issues by taking into account indigenous traditions and beliefs and national property laws; and (4) encourage aggregation of forest carbon projects to lower transaction costs.

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I. INTRODUCTION

International negotiations to address climate change have been proceeding at a snail's pace, but efforts to reduce emissions from deforestation and forest degradation ("REDD") are progressing relatively rapidly. Tropical deforestation is a major contributor to climate change, yet it is entirely left out of the Kyoto Protocol and its implementing programs. REDD would fill the gap in the current regime by accounting for and crediting avoided deforestation in tropical forest countries. Many of the developing countries with the most to gain from REDD programs have indigenous populations living in and around the forests to be

protected. The REDD programs in these countries will inevitably have a significant effect on the forest-dwelling indigenous populations. If indigenous rights to forests and their environmental services are trampled, indigenous people may be subject to land-grabbing, restriction of their traditional uses of the forests, increased conflict around their forests, and human rights violations. However, if REDD programs recognize indigenous rights to forests, indigenous people may be able to secure their land ownership and draw revenues from REDD and other programs that compensate for the maintenance and restoration of forest ecosystem services. Indigenous populations face unique barriers to participation in REDD programs, but they also have distinct advantages for overcoming some of the general concerns with crediting forestry activities.

This Note seeks to identify ways to facilitate indigenous peoples' participation in REDD programs. It will do so through broad case studies that analyze indigenous forestry projects in the United States and New Zealand and the mechanisms indigenous peoples have used to overcome the barriers to market access they face. Section II will introduce REDD and describe the major issues facing it and other forestry schemes, including: permanence; leakage; additionality; and measuring, monitoring, and verification ("MMV"). Section III will discuss indigenous concerns about REDD and describe the ways in which three of the main issues with forestry schemes—permanence, additionality, and leakage—manifest themselves for indigenous peoples. Sections IV and V will explore how these issues have emerged and have been addressed with the Nez Perce tribe in the United States and the Maori people in New Zealand. Section VI will then draw lessons from these case studies and show how they can be used to facilitate indigenous participation in REDD programs in tropical forest developing countries.

II. INTRODUCTION TO REDD

Land use and deforestation are estimated to make up over thirty percent of global annual greenhouse gas emissions—more than the entire global electric generation sector and more than double the global transportation sector.[1] Tropical deforestation alone accounts for approximately seventeen percent of global annual greenhouse gas

1. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE [IPCC], CLIMATE CHANGE 2007: MITIGATION OF CLIMATE CHANGE: WORKING GROUP III CONTRIBUTION TO THE FOURTH ASSESSMENT REPORT 105 (2007) (estimating agriculture as contributing 13.5% of global CO2 emissions, forestry as 17.4%, energy supply as 25.9%, and transport as 13.1%).

emissions; more than the global transportation sector.[2] As a result of these startling figures, policymakers in both the United States and the international arena have begun paying increasing attention to the need to include a scheme for reducing emissions from deforestation and forest degradation—specifically in tropical forest countries—in global climate change agreements. The Kyoto Protocol severely limited accounting for forestry activities for the first commitment period.[3] The Marrakesh Accords required Annex I parties to the Kyoto Protocol to account for their emissions and sequestrations from afforestation, reforestation, and deforestation.[4] However, the Clean Development Mechanism allows projects in developing countries to earn credits only for afforestation and reforestation projects—not avoided deforestation projects.[5]

Proposals for a post-2012 climate instrument have included more robust forestry provisions that would include tropical forests.[6] The Copenhagen Accord specifically addressed the importance of reducing emissions from deforestation and forest degradation and called for the "immediate establishment of a mechanism including REDD-plus."[7] The Cancun Agreements made further progress by including a section on REDD-plus in the Outcome of the Ad Hoc Working Group on long-term Cooperative Action under the Convention ("AWG-LCA").[8] This section

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2. Nigel Purvis, Global Climate Negotiations and Tropical Deforestation, 5, Nov. 17, 2009 (written testimony prepared for the Senate Committee on Energy and Natural Resources), *available at* http://www.rff.org/RFF/Documents/RFF-CTst-Purvis-Nov09.pdf.

3. *See* UNFCCC, *Decision 11/CP.7: Land Use, Land-Use Change, and Forestry*, U.N. Doc. FCCC/CP/2001/13/Add.1 (Jan. 21, 2002).

4. UNFCCC, *Decision 16/CMP.1: Land Use, Land-Use Change, and Forestry*, Annex (B), U.N. Doc. FCCC/KP/CMP/2005/8/Add.3 (Mar. 30, 2006).

5. UNFCCC, *Decision 17/CP.7: Modalities and Procedures for a Clean Development Mechanism, as Defined in Article 12 of the Kyoto Protocol*, para. 7(a), U.N. Doc. FCCC/CP/2001/13/Add.2 (Jan. 21, 2002).

6. *See* UNFCCC, *Decision 1/CP.13: Bali Action Plan*, U.N. Doc. FCCC/CP/2007/6/Add.1* (Mar. 14, 2008); UNFCCC, Ad Hoc Working Group on Long-Term Cooperative Action under the Convention [AWG-LCA], *Negotiating Text*, ¶¶ 106–28, U.N. Doc. FCCC/AWGLCA/2009/8 (May 19, 2009); U.K. DEP'T OF ENERGY & CLIMATE CHANGE, THE ROAD TO COPENHAGEN: THE UK GOVERNMENT'S CASE FOR AN AMBITIOUS INTERNATIONAL AGREEMENT ON CLIMATE CHANGE 53–55 (2009).

7. UNFCCC, *Draft Decision -/CP.15: Proposal by the President: Copenhagen Accord*, U.N. Doc. FCCC/CP/2009/L.7 (Dec. 18, 2009), *available at* http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf; UNFCCC, *Decision -/CP.15* (Dec. 18, 2009) (taking note of the Copenhagen Accord), *available at* http://unfccc.int/files/meetings/cop_15/application/pdf/cop15_cph_auv.pdf. "REDD-plus" means reduced emissions from deforestation and degradation in addition to other forestry and land-use activities. *About REDD+*, UN-REDD PROGRAMME, http://www.un-redd.org/AboutREDD/tabid/582/Default.aspx (last visited Feb. 8, 2011).

8. UNFCCC, *Draft Decision -/CP.16: Outcome of the Work of the Ad Hoc Working*

encourages developing countries to take actions to reduce emissions from deforestation and forest degradation, sustainably manage forests, and conserve and enhance forest carbon stocks.[9] The section also specifically requests countries undertaking such actions to ensure "the full and effective participation of relevant stakeholders, inter alia, indigenous peoples and local communities."[10]

Emerging national carbon crediting schemes in the United States and New Zealand are also incorporating forestry and land use, most commonly as offsets, credits that may be bought by entities with compliance obligations. Proposed U.S. legislation allowed the use of offset credits from reduced deforestation.[11] In 2008, New Zealand passed legislation creating an Emissions Trading Scheme that not only allows the use of Kyoto Protocol forestry offset credits such as Certified Emissions Reductions ("CERs") and Removal Units ("RMUs"), but also includes the New Zealand forestry sector as a covered sector with its own compliance obligations.[12]

Sub-national entities within the United States are working toward the creation of both binding and voluntary schemes that will accept forestry offset credits. The Regional Greenhouse Gas Initiative ("RGGI"), the only currently operating greenhouse gas compliance scheme in the United States, accepts offset credits for afforestation only.[13] The Chicago Climate Exchange ("CCX") is a voluntary U.S. carbon market that issues offset credits to domestic afforestation,

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Group on long-term Cooperative Action under the Convention, *available at* http://unfccc.int/files/meetings/cop_16/application/pdf/cop16_lca.pdf.

9. *Id.* para. 70.

10. *Id.* para. 72.

11. Boxer-Lieberman-Warner Climate Security Act, S. 3036, 110th Cong. § 2403 (2008); Discussion Draft, H.R. ____, 110th Cong. § 764 (2008) ("The Dingell-Boucher Discussion Draft"); American Clean Energy and Security Act of 2009 [ACES], H.R. 2454, 111th Cong. § 503 (2009) (the "Waxman-Markey Bill").

12. Climate Change Response (Emissions Trading) Amendment Act 2008, (N.Z.).

13. REGIONAL GREENHOUSE GAS INITIATIVE [RGGI], MODEL RULE 91 (2008), *available at* http://www rggi.org/docs/Model%20Rule%20Revised%2012.31.08.pdf. Afforestation is the process of establishing a forest on land not previously forested. *Afforestation*, MERRIAM-WEBSTER DICTIONARY, http://www merriam-webster.com/dictionary/afforestation (last visited Feb. 5, 2011). In the forest carbon crediting context, an afforestation project established forest on an area that has not been forested for a specified period of time before the project. *See, e.g.*, UNFCCC, *Decision 16/CMP.1: Land Use, Land-Use Change, and Forestry*, Annex, para. 1(b), U.N. Doc. FCCC/KP/CMP/2005/8/Add.3 (Mar. 30, 2006) (afforestation is establishing forest on land that has not been forested for a period of at least fifty years leading up to the start of the project); RGGI, MODEL RULE 106 (2008) (land must have been in a non-forested state for at least ten years leading up to the start of the project).

reforestation, and sustainable forest management projects.[14] CCX also accepts Clean Development Mechanism ("CDM") forestry CERs that meet its standards for domestic forestry projects.[15] Several states and provinces in the United States, Brazil, Indonesia, Nigeria, and Mexico are part of the Governors' Climate and Forests Task Force ("GCF"), which is developing rules and capabilities for including forestry sector emissions reductions in sub-national and national compliance regimes.[16] The GCF is currently developing frameworks to generate the first compliance-grade REDD credits in some of its member states and provinces.[17]

REDD differs from typical forestry crediting programs primarily in that it is jurisdiction-based instead of project-based. In a REDD program, a baseline is set for an entire province, state, or country based on past, current, or projected deforestation rates.[18] The jurisdiction then creates targets for the reduction of deforestation rates below the baseline.[19] If deforestation rates in the jurisdiction fall to meet those targets, the jurisdiction gets carbon credits to sell to international buyers. If rates do not fall, the jurisdiction gets no credits.

Although forest carbon credits and REDD continue to gain acceptance, fundamental issues remain in ensuring the creation of a reliable crediting system. The main issues related to forestry emissions accounting are permanence, leakage, additionality, and MMV. Permanence concerns stem from the risk that trees planted or preserved may be cut down or otherwise destroyed in the future, thus releasing their credited carbon stocks into the atmosphere. Carbon trading schemes use various approaches to ensure permanence, or alternatively to ensure that credits are not retained by owners who no longer maintain their forest projects. For example, some schemes require permanent transfer of property rights, such as the creation of a conservation easement, to ensure that the land use will not change in the future.[20] Other more flexible schemes issue credits for a limited time period.[21] Crediting schemes can also account for future land use changes by requiring

14. CHICAGO CLIMATE EXCHANGE, GENERAL OFFSET PROGRAM PROVISIONS 7–8 (2009).

15. *Id.* at 16.

16. *About GCF*, GOVERNORS' CLIMATE & FORESTS TASK FORCE, http://www.gcftaskforce.org/about.html (last visited Feb. 5, 2011).

17. *Id.*

18. GLOBAL CANOPY PROGRAMME, THE LITTLE REDD BOOK 19 (2008).

19. *See id.*

20. *See, e.g.,* CLIMATE ACTION RESERVE, FOREST PROJECT PROTOCOL VERSION 3.1, at 10 (2009).

21. *See* discussion *infra* Part IV.A.

landowners who back out of their commitments to repay the value of carbon credits they received.[22] In some cases, landowners are required to deposit a portion of the credits they receive into a buffer pool.[23] Credits from this buffer pool may be surrendered to make up for unavoidable reversal in land cover, such as that caused by forest fires or other natural disasters.[24]

Leakage, as it relates to land use, refers to the risk that emissions reductions due to land-use change in one area will simply cause the previous use to move to another area, resulting in no net change in emissions. A REDD scheme could potentially ease the leakage problem in tropical forest countries. Unlike the project-based system of the CDM, REDD allows whole countries or other sub-national jurisdictions to engage in jurisdiction-wide accounting to determine net rates of deforestation or sequestration. Under this form of accounting, the jurisdiction can account for a land use that was displaced from one area of the jurisdiction to another. Individual forestry projects could still occur within these jurisdictions, but to a certain extent their crediting would be tied to the performance of the entire jurisdiction in relation to the jurisdiction-wide baseline.

Additionality is the requirement that emissions reductions be above and beyond the "business as usual scenario," including compliance with existing laws and regulations.[25] In other words, additional emissions reductions are those that would not have occurred absent the existence of the forest carbon credit market. Additionality can be hard to establish, given the uncertain nature of predicting what would have happened absent a carbon trading scheme. However, jurisdiction-wide accounting in a REDD system would help solve the additionality problem because the emissions from land use could be compared with a national baseline instead of at the project level. A national deforestation baseline can be determined by looking at historical national deforestation rates and trends, whereas a project-level baseline involves more guesswork about what would happen to a specific forest area.

Finally, establishing an accurate system of MMV for carbon stored in forests is still a challenge that can entail significant expense for landowners. Numerous forest carbon models now exist to estimate carbon storage, but the complexity of forest ecosystems can make actual carbon quantification extremely difficult.

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22. *See, e.g.,* CLIMATE ACTION RESERVE, *supra* note 20, at 9.
23. *Id.* at 56.
24. *Id.*
25. *See* GLOBAL CANOPY PROGRAMME, *supra* note 18, at 19.

III. INDIGENOUS CONCERNS AND CHALLENGES ASSOCIATED WITH REDD

There has been a great deal of indigenous opposition to REDD in its current form. Indigenous peoples (and developing countries) believe that they should not have to "clean up" after developed countries' historical emissions,[26] and some even allege that the CDM has caused the death of indigenous peoples who refused to relinquish their territories.[27] Indigenous dissatisfaction with the way REDD projects are currently carried out jeopardizes any chance of success the program might have in tropical forest countries. Indigenous peoples argue that because they know how to live in "harmony with Mother Earth," REDD projects should take more notice of indigenous land tenure and management practices.[28] The United Nations Declaration on the Rights of Indigenous Peoples reinforces this notion and emphasizes the right of indigenous peoples to live on and control their traditional lands.[29]

A successful REDD program must facilitate the participation of indigenous peoples. Without indigenous participation, REDD projects will face numerous challenges on human rights grounds and will risk further disadvantaging indigenous peoples and property rights.[30] Not only will REDD projects benefit from indigenous support and participation; indigenous peoples can benefit in multiple ways from participating in REDD projects. New streams of income, improved public goods such as health and education, new skills in forest monitoring and business administration, enhanced preservation of indigenous culture, and increased security of property rights are just a few of the benefits of a well-planned REDD program.[31] Because of the

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26. *See Indigenous Peoples Must be Included in Global Negotiations Aimed at Combating Climate Change, Say Speakers in Permanent Forum*, U.S. FED. NEWS, April 22, 2008 [hereinafter *Indigenous Peoples Must be Included*].

27. *Id.* (statement by Fiu Elisara).

28. *Id.* (statement by Adan Alarcon).

29. *See* U.N. Declaration on the Rights of Indigenous Peoples, G.A. Res. 61/295, pmbl. arts. 10, 25–26, U.N. Doc. A/RES/61/295 (Sept. 13, 2007).

30. Estebancio Castro Diaz, *Climate Change, Forest Conservation and Indigenous Peoples Rights*, 4, International Expert Group Meeting on Indigenous Peoples and Climate Change, Darwin, Austl., Apr. 2–4, 2008

("Current proposals for REDD as a solution to climate change, especially where they are based on the inclusion of REDD initiatives in the global carbon market, will devastate Indigenous Peoples' lands and territories and will cause more human rights violations. Market-based mechanisms like carbon trading, agrofuels and especially voluntary carbon offset projects designed to avoid deforestation often violate the fundamental human rights of Indigenous Peoples.").

31. Nicholas Anderson, *REDDy or Not? The Effects on Indigenous Peoples in*

importance of forestry use for both indigenous peoples and the climate change policy community, REDD policymakers should make special efforts to help indigenous peoples participate in these programs and should take the views of indigenous peoples into account in designing the programs. This means devising ways for indigenous peoples to work within their unique circumstances to overcome the challenges of earning emissions credits for forestry projects. Permanence, additionality, and MMV each present special issues for indigenous people.

A. Permanence

The property systems created on indigenous lands have a significant effect on the strategies available to indigenous people for addressing permanence concerns. Uncertain land tenure and complex, restricted property rights can make it difficult for indigenous landowners to provide long-term guarantees of land use. However, the unique relationship between indigenous peoples and their land, as well as the continuity of land ownership and management under indigenous governing entities may actually lower the permanence risks of indigenous forestry projects compared to other forestry projects.

Uncertain land tenure is possibly the largest barrier to indigenous participation in REDD programs. Not only does uncertain land tenure pose a risk to the continued indigenous ownership or occupation of land; it also makes a REDD program more challenging logistically. Under such circumstances, it is difficult to determine who is entitled to receive credits, and investors face more risk in their projects.[32] During the era of European colonialism, Europeans often disregarded indigenous land rights in order to acquire land in newly colonized areas.[33] The legal justification for such disregard was often based upon the Rule of Discovery, which treated indigenous lands as unclaimed because of the frequent failure of indigenous people to ìmake improvements uponî or cultivate the land.[34] Indigenous people were not using all of their land in the European sense, therefore the Europeans felt entitled to settle and make use of the indigenous land.[35] Where improvements had been made or Europeans otherwise recognized land title, settlers acquired land

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Brazil of a Global Mechanism for Reducing Emissions from Deforestation and Degradation, 2 J. SUSTAINABLE DEV. 18, 23 (2009).

32. INT'L UNION FOR CONSERVATION OF NATURE [IUCN], LEGAL FRAMEWORKS FOR REDD: DESIGN AND IMPLEMENTATION AT THE NATIONAL LEVEL 15 (2009).

33. Eric Dannenmaier, *Beyond Indigenous Property Rights: Exploring the Emergence of a Distinctive Connection Doctrine*, 86 WASH. U. L.R. 53, 65 (2008).

34. *Id.*

35. *Id.* at 65–66.

through purchase.[36] Often, these purchases were on terms that were not advantageous to indigenous sellers.[37]

Many governments have since sought to restore indigenous property rights to some extent, but the attempt to achieve this while maintaining state sovereignty and protecting other existing property rights often leads to multiple layers of property schemes and convoluted, unclear indigenous ownership systems that bear no resemblance to traditional indigenous property systems.[38] In rural areas of developing countries, where land tenure may be insecure in general, indigenous ownership claims are even more precarious. The resulting uncertainty in land ownership creates barriers to indigenous peoples benefiting from forestry projects because Indigenous peoples cannot possibly guarantee permanence of a forestry project on land for which their ownership is not recognized. Without ownership over the land, they cannot prevent it from being deforested or otherwise control its use. This situation also creates an incentive for deforestation because, under European property theories, clearing land and farming are ways to assert ownership over that land.[39] In addition, people with precarious ownership have an incentive to sell timber and other land resources rapidly to avoid a missed income opportunity wherein someone else sells those resources first.

For REDD to succeed, participating countries must carefully clarify land tenure for indigenous people so as to avoid serious unintended negative consequences. If property ownership is surveyed haphazardly in a rush to establish a carbon market, indigenous people with few documented claims to ownership may find themselves with their property rights once again disregarded.[40] In addition, a REDD scheme could increase land grabbing and loss of indigenous lands as previously marginal lands gain value as potential carbon project sites.[41]

The two case studies discussed in this paper are located in the United States and New Zealand, which have generally well-defined land tenure, although there are still a number of Maori holdings in New

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36. *Id.* at 66.

37. *See infra* Part V.

38. *See* Dannenmaier, *supra* note 33, at 71 (stating that the conflict between title and sovereignty makes it difficult for a state to retroactively give title to indigenous lands while upholding State sovereignty).

39. Elisabeth Rosenthal, *In Brazil, Paying Farmers to Let the Trees Stand*, N.Y. TIMES, Aug. 22, 2009, at A1. Brazilian programs and law allow land users to gain title to land they have developed and used for five uninterrupted years. IUCN, *supra* note 32, at 8.

40. *Indigenous Peoples Must be Included*, *supra* note 26 (statement by Jinine Laisharam).

41. Anderson, *supra* note 31, at 22.

Zealand that do not have well-defined property rights.[42] Because of the complex systems in which property rights have been established in these countries, a separate set of issues related to title emerges. In both nations, indigenous property carries restrictions on alienability or encumbrance (generally designed to protect indigenous property interests). This can prevent owners from transferring property rights in an arrangement such as a conservation easement, which would help ensure permanence of carbon emissions reductions.[43] However, indigenous governing entities that own their land in common for the benefit of their members—which often more closely reflects traditional indigenous property systems—may actually be able to provide increased assurance of permanence. Because of the restrictions on alienability, indigenous land will remain in indigenous ownership. In addition, a governing entity can incorporate a particular land use into its laws and regulations, which further increases stability and permanence.

B. Additionality

Many indigenous lands in tropical forest countries lie deep within forests in areas that have not yet been reached by logging activity or other pressures to clear the land.[44] Therefore, the business-as-usual scenario for these lands may not predict much imminent deforestation. However, if tropical deforestation continues at its current rate, it will reach even the most remote indigenous lands before long. One study predicts that existing Amazon forest will be reduced forty percent by 2050 if current deforestation trends in the area continue.[45]

The current climate change regime may incentivize increased tropical deforestation because forestry accounting in developed countries with emissions reductions commitments may lead those countries to "export" deforestation to countries without reduction commitments. This scenario, combined with a lack of crediting for reduced deforestation in developing countries is likely to increase rates of tropical deforestation

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42. Bill Robertson, *Maori Land Tenure: Issues and Opportunities*, 6, 8, N.Z. Inst. of Surveyors Annual Conference, Auckland, N.Z., Oct. 2004 (on file with author).

43. *See Tribal and Indian Land*, TRIBAL ENERGY & ENVTL. INFO. CLEARINGHOUSE, http://teeic.anl.gov/triballand/index.cfm [hereinafter *Tribal and Indian Land*] (last visited Feb. 5, 2011); FIONA CARSWELL ET AL., A FRAMEWORK FOR ENGAGEMENT OF MAORI LANDOWNERS IN "CARBON FARMING" USING INDIGENOUS FOREST REGENERATION 8, 20 (2002); Te Tua Whenua Maori Act 1993/Maori Land Act 1993, part 7, 1993, (N.Z.) [hereinafter Maori Land Act].

44. *See, e.g. The Other Brazil*, Economist (Nov. 20, 2008), *available at* http://www.economist.com/node/12641796?story_id=12641796.

45. B.S. Soares-Filho et al., *Modeling Conservation in the Amazon Basin*, 440 NATURE 520, 520 (2006).

and threaten indigenous forests. It is difficult to quantify these future risks in project-level baselines. Jurisdiction-wide accounting can make it easier to establish a baseline by focusing on overall deforestation and forest management trends in the jurisdiction instead of trying to determine the business-as-usual scenario for a specific piece of indigenous land.

C. Measuring, Monitoring, and Verification

Like all landowners, indigenous people are unlikely to invest and participate in a forest carbon project unless that participation is more economical than alternative uses of the land.[46] High transaction costs associated with MMV decrease the economic competitiveness of forest carbon projects and thus discourage participation. These transaction costs are highest for owners of small plots of land because the amount of carbon credits generated will be small while the costs associated with MMV will not be reduced.[47] Transaction costs may include lawyer's fees, payments to a certification entity, scientific inspections, and other logistical needs. Certification, monitoring, and verification are complicated procedures made easier by hiring a third-party project developer.[48] Most of these costs are accrued on the front end of the project timeline and therefore require upfront capital. However, indigenous landowners with restrictions on the alienability of their property are unable to use their property as collateral for capital.[49] Under most carbon trading schemes, landowners cannot be issued credits until emissions reductions are demonstrated. This further delays any financial returns on projects and makes upfront capital more important. Indigenous landowners must either attempt to gain the expertise to undertake MMV themselves or find another inexpensive way to get help in setting up their projects.

Aggregators are a popular way for landowners to minimize transaction costs while benefiting from professional expertise. Aggregators combine individual parcels into one project, assist with monitoring and verification, and may even provide loans for landowners

46. *See* Rosenthal, *supra* note 39.

47. Christopher S. Galik et al., *Transaction Costs and Forest Management Carbon Offset Potential* 8-9 (Climate Change Policy Partnership, Working Paper, 2009) (explaining that average transaction costs decrease as project size increases, due to high fixed costs and relatively low variable costs).

48. *See* CLIMATE ACTION RESERVE, *supra* note 20, at 5.

49. Jason Funk, *Maori Farmers Look to Environmental Markets*, ECOSYSTEM MARKETPLACE, (Jan. 24, 2006), http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=4097&section=home&eod=1.

to do their carbon inventories.[50] The aggregator sells pooled credits on behalf of landowners in one large package. This is more attractive to purchasers of offsets, who are looking to get a large number of credits in one purchase in order to minimize transaction costs on their end.[51] As payment, the aggregator takes a small fee from the carbon credits sales, thus avoiding the need for upfront payment for these expenses.[52] Indigenous peoples could benefit from some sort of aggregation system and may even have certain institutional and marketing advantages in aggregation. These benefits will be explored within the case studies.

IV. U.S. APPROACHES TO INDIGENOUS PEOPLES AND FOREST CARBON CREDITS

In the United States, Native American land interests exist in a trust relationship with the federal government.[53] The federal government is the trustee and has legal title to the land while Native Americans are the beneficiaries and have equitable title.[54] As trustee, the government is obligated to act solely in the interest of the beneficiaries.[55]

Traditional Native American property ownership is communal and spiritually connected to the land. Tribal land is replete with sacred places and also provides many tribes' livelihoods. For these reasons, the tribes' land bases are extremely important to them. They have fought hard to reacquire lost ancestral land and to retain the land that remains in their ownership.[56] The result is a rather piecemeal property scheme in which neighboring parcels of tribal land may be owned by different entities with different property interests.

The United States initially acquired Native American land using the Rules of Discovery and Conquest. In *Johnson v. M'Intosh*, the U.S. Supreme Court held that because Native Americans had failed to develop

50. Jessica Knoblauch, *Pacific NW Landowners Team Up to Market Forest Offsets*, GRIST (Aug. 11, 2009, 8:50 PM), http://www.grist.org/article/2009-08-12-northwest-landowners-market-forest-offsets.

51. COMMONWEALTH PROJECT, A LANDOWNER'S GUIDE TO CARBON SEQUESTRATION CREDITS, 9, *available at* http://www.cinram.umn.edu/publications/landowners_guide1.5-1.pdf.

52. *Id.*

53. Ann C. Juliano, *Conflicted Justice: The Department of Justice's Conflict of Interest in Representing Native American Tribes*, 37 GA. L. REV. 1307, 1309 (2003).

54. *Id.* at 1308–09.

55. *Id.* at 1312.

56. *See, e.g.,* Julie Cart, *Yurok Seek Land for a Tribal Park on the North Coast*, L.A. TIMES, Dec. 26, 2010, http://articles.latimes.com/2010/dec/26/local/la-me-redwoods-yuroks-20101226.

their land and were still "in a state of nature," they had no sovereign rights over that land against the conquering government.[57] Having "passed under the dominion" of another sovereign, Native Americans were thus dependent upon the United States.[58] Two sovereigns could not occupy the same land.[59] Thus, by conquest, the United States had acquired legal title to all land in the country.[60] Native Americans had a limited right of occupancy as "perpetual inhabitants,"[61] subject to the federal government's title.[62]

The federal government entered into a number of treaties with Native American tribes in which the tribes ceded a large amount of their traditional lands in exchange for the designation of the remaining lands as reservations.[63] Reservations were also established in executive orders and statutes.[64] These lands are either federally owned with a beneficial interest in the tribe or tribally owned with restrictions on alienation and encumbrance.[65] For a long time, arrangements with the federal government were the only ways through which Native Americans legally gave up their land. The federal allotment policy changed this. In an attempt to assimilate Native Americans into white society and simultaneously open up more land to homesteading, the federal government divided tribal land among individual tribal members and allowed members to sell their land to non-members.[66] This policy resulted in the loss of a large amount of Native American land before the allotment ended with the Indian Reorganization Act in 1934.[67]

Today, Native American land may be held in a number of legal forms. Tribal trust land is held by the government for the benefit of the

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57. Johnson and Graham's Lessee v. McIntosh, 21 U.S. 543, 567–68 (1823).

58. *Id.* at 568.

59. *Id.* at 567–68.

60. *See id.*

61. *Id.* at 569.

62. Juliano, *supra* note 53, at 1319.

63. *See* The Avalon Project, *Treaties between the United States and Native Americans*, YALE LAW SCH., http://avalon.law.yale.edu/subject_menus/ntreaty.asp (last visited Feb. 5, 2011).

64. *See, e.g.*, *Executive Order - Uintah Reservation, Utah*, THE AMERICAN PRESIDENCY PROJECT, http://www.presidency.ucsb.edu/ws/index.php?pid=76554 (last visited Feb. 5, 2011); *Fort Belknap Indian Community Official Website*, http://www ftbelknap-nsn.gov/ (last visited Feb. 8, 2011) ("Fort Belknap Indian Reservation was created by an Act of Congress on May 1, 1888 . . . .").

65. *Tribal and Indian Land*, *supra* note 43.

66. Indian General Allotment Act, Act of Feb. 8, 1887, ch. 119, 24 Stat. 388 (codified as amended at 25 U.S.C. §§ 331-333 (2000)) (repealed 2000).

67. *FAQs about Allotment*, INDIAN LAND TENURE FOUNDATION, http://www.iltf.org/faq (last visited Feb. 5, 2011).

tribe.[68] Tribal restricted fee land is held by the tribe with restrictions on alienation and encumbrance.[69] Tribes can also hold unrestricted fee land that they have purchased from private landowners.[70] Individual tribal members can also own restricted fee land or can have a beneficial interest in trust land owned by the federal government.[71] These various Native American property rights illustrate the complexity that arises from the overlapping of different types of property rights on indigenous lands.

A. Permanence

Restrictions on alienation and encumbrance of tribal lands could be a barrier to participation in some programs that require conservation easements or similar transfers of property rights to ensure permanence. These requirements exist to impose a legally enforceable burden on the landowner to continue a certain type of land use. However, the unique nature of tribal land governance on tribal trust land may allow Native American projects to assure permanence in other ways. Tribal decisions to undertake a forestry project can become part of tribal laws and regulations.[72] A tribal commitment to manage land in a certain way may therefore be more reliable than an individual landowner's commitment.

The Confederated Salish and Kootenai tribes in Montana conducted the first sale of forestry offsets on Native American lands in March 2001.[73] The tribes reforested 250 acres that were destroyed by fire in 1994.[74] The crediting period for this project is limited to eighty years, after which any further credits earned revert back to the tribes and may be sold to another party.[75] After the sale and reforestation, the newly planted trees died from drought and had to be replanted.[76] By replanting

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68. *Tribal and Indian Land*, *supra* note 43.

69. *Id.*

70. *Id.*

71. *Id.*

72. *See* Jim Robbins, *Sale of Carbon Credits Helping Land-Rich, but Cash-Poor Tribes*, N.Y. TIMES, May 8, 2007, http://www nytimes.com/2007/05/08/science/earth/08carb html.

73. *Sustainable Forestry Management Purchases Greenhouse Gas Emissions Offsets from the Confederated Salish and Kootenai Tribes of Montana, USA*, Mar. 29, 2001, http://www midrivers.com/~eprcd/a2 html [hereinafter *SFM Purchases GHG Offsets*].

74. *Id.*

75. *Carbon Cash Crop II*, PROGRESSIVE POL'Y INST. (Nov. 24, 2003), http://www.ppionline.org/ppi_ci.cfm?knlgAreaID=116&subsecID=900039&contentID=252223.

76. Robbins, *supra* note 72.

the trees, the tribes maintained the permanence of their project and its promised carbon sequestration benefits. The combination of a limited crediting period and the responsibility to make up for future reversals proves to be an effective way to address permanence without the need for an encumbrance on ownership.

The Nez Perce tribe in Idaho dealt with permanence in a manner similar to the Confederated Salish and Kootenai tribes. The Nez Perce engaged in afforestation on 400 acres of tribal land that had been used for agriculture for over seventy years.[77] The project crediting period is limited to an eighty-year commitment during which the tribe will take measures, including replanting trees if necessary, to ensure that the sequestration occurs as planned.[78]

B. Additionality

The Nez Perce and Confederated Salish and Kootenai projects faced a somewhat less challenging additionality issue than that associated with avoided deforestation projects because their projects involved afforestation and reforestation.[79] Instead of having to establish a baseline deforestation rate for the area, the tribes only had to show that the forest would not have regrown in the project area had the project not been undertaken. The Nez Perce tribe proved the additionality of its project by asserting that the area had been cultivated for agricultural purposes for over seventy years, that the forest would not have naturally regenerated, and that current funding sources for forest management were inadequate for engaging in the project.[80]

C. Measurement, Monitoring, and Verification

The Nez Perce and Confederated Salish and Kootenai tribes' carbon projects are relatively small, producing an estimated 172,000 metric tons of CO_2 equivalent and 48,000 metric tons of CO_2 equivalent, respectively over their project lifetimes.[81] Both tribes minimized the costs associated with MMV by addressing the need for upfront capital and by taking advantage of agencies within their tribal governments.

The Confederated Salish and Kootenai tribes were able to secure

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77. *Brian* Kummet, *Tramway Carbon Sequestration and CRP Project* (on file with author).

78. *Id*.

79. *Id.*; *SFM Purchases GHG Offsets*, *supra* note 73.

80. Kummet, *supra* note 77.

81. *Id.*; *SFM Purchases GHG Offsets*, *supra* note 73.

advance payment for the carbon offsets from their forestry projects. Sustainable Forestry Management, the buyer, paid $50,000 upfront, which the tribes were able to use to cover the costs of reforestation.[82] However, arrangements in which the offset purchaser will coordinate directly with the seller to arrange for upfront payment are unlikely to occur in a large-scale REDD credit trading market with multiple layers of transactions. The Nez Perce use an aggregator and are part of a national tribal carbon portfolio.[83] By using an aggregator that takes a contingency fee as payment instead of requiring upfront compensation, the tribe can defer some costs of MMV until it has received payment for the offsets produced. In this way, tribes can receive payment on a normal timeline after the carbon offset benefits have been demonstrated and can also pay for some of the costs of the offsets without the need for upfront capital.

Both the Nez Perce and the Confederated Salish and Kootenai tribes are taking advantage of tribal forestry departments and the expertise they have developed to engage in some of their own MMV.[84] Because tribal foresters are often more connected to and familiar with their land than outside entities, they may be better equipped to conduct MMV than a third-party monitor. The Nez Perce project will still be verified by a third party, and both projects will use MMV methodologies developed by Winrock International and others.[85]

V. NEW ZEALAND'S APPROACH TO INDIGENOUS ISSUES

Unlike some Native American tribes, the Maori were already farming land when Europeans arrived.[86] Maori property was allocated on a functional rather than a geographical basis.[87] A person could own the right to use a resource in a certain way, and multiple owners might have access to the same resource for different purposes.[88] For example, if a person owned the right to cultivate a piece of land, that ownership did

82. *See SFM Purchases GHG Offsets*, *supra* note 73; PROGRESSIVE POL'Y INST., *supra* note 75.

83. Robbins, *supra* note 72.

84. *See SFM Purchases GHG Offsets*, *supra* note 73; Kummet, *supra* note 77.

85. *SFM Purchases GHG Offsets*, *supra* note 73; Kummet, *supra* note 77.

86. Stuart Banner, *Two Properties, One Land: Law and Space in Nineteenth-Century New Zealand*, 24 LAW & SOC. INQUIRY 807, 809 (1999).

87. *Id.* at 811.

88. *Id.*

not imply additional rights to that space.[89] These usufructory rights were passed down between generations as long as family-members continued to exercise the rights.[90] If a right went unused for a certain period, the right reverted back to the tribe and could then be allocated to someone else.[91]

Maori tribes, or *iwi*, did exert control over geographic areas as relatively sovereign territories with respect to other tribes.[92] Chiefs enforced the property rights of their tribe-members against other members and outsiders. Land was abundant, so Maori had no reason to sell their property rights.[93] As a result, the Maori property system did not have any specific rules or procedures regarding property sales.

This description of the traditional Maori property system suggests that indigenous property systems may not be amenable to a forest carbon trading scheme due to their completely different conceptions of property. If a Maori property owner cultivating a piece of land wanted to switch uses to forest growth, he or she would run into barriers that might not allow such use. First of all, because the actual property right was the right to use the land for the specific purpose of cultivation, using the land for forest growth might require the acquisition of a new property right. Second, because other individuals might own property rights to use that land for different purposes, the owner seeking to grow forest would have to either get those owners to agree to use the land solely for forest growth or somehow buy them out using the underdeveloped Maori rules for sale of property. In addition, the owner would have to continue to use his or her property right in order to maintain it. If the property use were defined as the right to grow the forest itself, then there would probably be no issue with continued use. However, the property right would have to be carefully defined to ensure that forest preservation would not amount to disuse.

Overall, a traditional indigenous property system with different conceptions about the meaning of property itself could be very difficult to integrate into a forest carbon credit market. For this reason, a prerequisite to indigenous landowner participation in forest carbon credit markets may be not only a clear definition of land tenure, but a definition of tenure that fits into prevailing indigenous conceptions of what property means. Tribes whose indigenous property systems do not fit that conception may have to make drastic changes in order to participate in

89. *Id.*
90. *Id.*
91. *Id.* at 814.
92. *Id.* at 813.
93. *Id.* at 814.

carbon markets.

The British changed the traditional Maori property ownership system in their effort to colonize New Zealand and acquire land for settlement. The Treaty of Waitangi between the British Crown and Maori chiefs is considered the founding document of New Zealand.[94] Not all chiefs signed the treaty, but the British government eventually declared the treaty applicable to all chiefs, whether or not they had signed it.[95] Because of the different conceptions of property between the British and the Maori, both groups faced major language barriers. For example, the English and Maori languages did not contain words describing property conceptions understood by the other party. These language problems led to important differences between the English and Maori texts of the treaty. The first difference was that, in the English text, the Maori ceded sovereignty to the British. In the Maori text, "sovereignty" translated to "governance," and some Maori believed they would still maintain control over their affairs within the British government structure.[96] The English version also guaranteed the Maori undisturbed possession of all their properties, while the Maori version guaranteed "full authority" over "treasures," which were not always tangible.[97]

Unlike the U.S. government, the British government recognized indigenous Maori property rights in the entirety of New Zealand, without regard for physical occupancy of land or improvements upon that land.[98] Recognition of indigenous property rights meant that the British had to purchase land from the Maori in order to acquire it.[99] Because tribes were the only Maori entities that dealt with geographical boundaries of land, purchasers dealt with tribes instead of individuals.[100] Maori were at first eager to sell land in exchange for British manufactured goods, especially because the Maori conceived of the sales as transactions within their existing property system, not the English system of absolute ownership and ability to transfer title.[101]

Between the 1840s and the late 1860s, Maori tribes gradually

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94. Te Tiriti O Waitangi/The Treaty of Waitangi, Feb. 6, 1840, *available at* http://www nzhistory net nz/files/documents/treaty-kawharau-footnotes.pdf [hereinafter Treaty of Waitangi].

95. *The Treaty in Brief*, NEW ZEALAND HISTORY ONLINE, http://www nzhistory net nz/politics/treaty/the-treaty-in-brief (last visited Feb. 5, 2011) [hereinafter *The Treaty in Brief*]; Treaty of Waitangi, *supra* note 94.

96. *The Treaty in Brief*, *supra* note 95; Treaty of Waitangi, *supra* note 94.

97. *The Treaty in Brief*, *supra* note 95; Treaty of Waitangi, *supra* note 94.

98. Banner, *supra* note 86, at 822.

99. *Id.* at 823.

100. *Id.*

101. *Id.* at 824–26.

realized the implications of a sale in British terms.[102] Eventually, the British decided that Maori were incapable of bargaining to protect their interests, and the New Zealand Supreme Court created a common law right of preemption with which the Crown could prevent private parties from purchasing Maori land.[103] This was the first restriction on the alienability of Maori property, and much more significant restrictions on alienability lay ahead.

As Maori tribes began to resist selling their land, the British sought to individualize Maori title and Anglicize the Maori property system so as to bypass the tribal resistance and facilitate sales to the British.[104] Thus, beginning in 1865, Maori land was divided up, and a Maori Land Court issued titles to individual tribal members.[105] As a result, most Maori land was sold, reducing Maori landholdings from 60 million acres in 1800 to 7 million acres in 1911.[106] The Maori governance structure changed along with the property system: because chiefs no longer controlled property allocation, they lost some of their power.[107]

The Crown tried to preserve some Maori governance traditions in the Native Rights Act of 1865, which instructed colonial courts to decide cases involving Maori title according to Maori property principles.[108] Courts ignored this effort to give legal effect to Maori property concepts by arguing that there was no body of law outlining traditional Maori property principles and that the Act was merely meant to declare the "pre-existing rights of the natives as British subjects under the Treaty of Waitangi."[109] The courts' refusal to enforce traditional property rights combined with the breakdown of tribal authority over land lead to a system in which Maori property rights were essentially held in common.[110] Tribal leaders were faced with additional legal barriers to their enforcement of traditional property rights when the Undersecretary of the Native Department advised that any Maori could legally cut timber on any land.[111] As a result, tribal leaders attempting to prevent this timber

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102. *Id.* at 827–28.

103. *Id.* at 829.

104. *Id.* at 830–32.

105. *Id.* at 844.

106. *Id*. In 1990, Maori landholdings were a mere 1.3 million hectares. Robertson, *supra* note 42, at 5.

107. Banner, *supra* note 86, at 844.

108. *Id.* at 845.

109. *Id.* at 846 (citing Mangakahia v. New Zealand Timber Co., 2 N.Z.L.R. 345, 351 (1882)).

110. *Id.* at 845–46.

111. *Id.* at 846–47.

cutting would be committing a crime.[112]

The shaky transition from a traditional Maori property system to a British system resulted in unclear title and a tragedy of the commons.[113] Individual Maori sold trees from their native lands at incredibly low prices to avoid the risk of another owner in common selling those trees first.[114] This tragedy of the commons problem and the Maori's inability to enforce property rights reinforced each other, leading to the sell-off of most Maori land.[115]

The primary modern legislation governing Maori real property is the Te Ture Wenua Maori Act of 1993, or the Maori Land Act. This Act was seen as an improvement in the Maori property system because it reemphasized the importance of Maori property traditions. Its primary objective was for Maori land to be retained by its owners to be developed and occupied by them as they wished.[116] The Act also recognized Maori freehold land as a permanent class of tenure in New Zealand, solidifying Maori ownership over land that had remained in continuous Maori ownership and had been recognized by the Maori Land Court.[117] The Maori Land Act sought to preserve the Maori tradition of passing land through generations, but in doing this, it created another major restriction on the alienability of Maori land.[118]

The current property system divides Maori land into three categories: Maori general land, Maori customary land, and Maori freehold land. Maori general land is land that has been acquired from the Crown in the same way as English-owned land, but all or a majority of the shares in the land are held by Maori owners.[119] Maori customary

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112. *Id.*

113. *Id*. The tragedy of the commons is a concept introduced by Garrett Hardin to describe a situation in which individuals acting in their own interest collectively destroy a resource they hold in common by overusing it. This overuse occurs because each individual can reap all the benefit of using the resource for himself while sharing the cost of the depleting resource with the whole community. Garrett Hardin, *The Tragedy of the Commons*, SCI., Dec. 13, 1968, at 1243, 1234.

114. Banner, *supra* note 86, at 847.

115. *Id.*

116. Robertson, *supra* note 42, at 4.

117. *Id.*; GARTH HARMSWORTH & TROY BAISDEN, MAKING CARBON-TRADING MECHANISMS ACCESSIBLE TO INDIGENOUS GROUPS: LESSONS FROM WORKING WITH MAORI IN NEW ZEALAND 11 (Mar. 2005), http://soilcarboncenter k-state.edu/conference/carbon2/Baisden1_Baltimore_05.pdf.

118. CARSWELL ET AL., *supra* note 43, at 8; *see* Maori Land Act, *supra* note 43, part 7.

119. *See* Maori Land Act, *supra* note 43, part 6, sec. 129; *Maori Land*, TE RUNANGA O RAUKAWA INC., http://www raukawa.maori nz/pag_cms_id_172_p_m_ (last visited Feb. 8, 2011).

land—land that is held in accordance with Maori property traditions and has never been granted freehold title[120]—is more problematic and less securely defined. The third category, which has already been introduced, is Maori freehold land. This land has not been out of Maori ownership, and the Maori Land Court has recognized beneficial title in it.[121] Maori freehold land is better defined than Maori customary land but carries a different set of rights than Maori general land.

A. Permanence

As mentioned above, the Maori Land Act creates barriers to participation in forest carbon credit markets, particularly in relation to the permanence issue. In an attempt to give increased control over land management to Maori landowners, the Act requires Maori landowners to retain the power to determine land use.[122] Contracts for permanent carbon credits would place strong restrictions on the use of the land, potentially violating the Maori Land Act.[123] One author has suggested that Maori landowners may be able to circumvent the land-use determination requirement by creating a lease contract instead of a sale contract.[124] Under the lease, the credit buyer would pay the landowner every year for continuing to protect the carbon stored.[125] The landowner would be able to back out in the future without having to repay any earned carbon credits.[126] With no liability for backing out, a lease contract could hardly be considered a restriction on an owner's use of land. However, the carbon emissions reductions benefits may be compromised by such a short-term arrangement, and buyers may be reluctant to enter into such an unstable agreement. In any case, it seems plausible that a contract for a limited term of ten to twenty years with an option for renewal would not be unlawfully restrictive of a landowner's ability to manage his or her land. Such a contract would provide at least some measure of additional reliability over a year-to-year lease.

Maori customary land provides relatively insecure title for its owners.[127] Due to the fact that the Maori Land Court has not recognized

120. *See* Maori Land Act, *supra* note 43, part 6, sec. 129; *What is Maori Land*, TE PUNI KŌKIRI, http://www.tpk.govt nz/en/services/land/maori/ (last visited Feb. 8, 2011).

121. Maori Land Act *supra* note 43, part 6, sec. 129; *Maori Land*, *supra* note 119.

122. CARSWELL ET AL., *supra* note 43, at 8.

123. *Id.* at 19.

124. *Id.* at 19–20.

125. *Id.* at 19.

126. *Id.* at 20.

127. *See* Robertson, *supra* note 42, at 6 (stating that not all Maori land has been surveyed, so some boundaries are uncertain).

beneficial ownership of customary land, owners of this type of land may have a difficult time guaranteeing permanence or receiving forest offset credits in general. The Maori Land Court can convert Maori customary land to Maori freehold land with a vesting order after investigating the title and determining the relative interests of the owners.[128] The Court must determine title and relative interests according to the same Maori land traditions under which the land is held.[129] In addition, applicants for a vesting order can specify particular individuals in whom the land should be vested and any restrictions to be put upon the land, such as trusts or incorporations.[130] Because this process further legitimizes Maori title while taking care to give full respect to Maori owners' wishes and property traditions, Maori landowners would benefit from pursuing vesting orders. Doing so would make it easier for them to assure long-term land-use stability and participate in REDD programs and other forest carbon credit markets.

Securing vesting orders for all Maori customary land is, of course, easier said than done. Many boundaries remain uncertain, and because the number of landowners has increased over successive generations, tracking down all the stakeholders in a parcel could be very difficult. In addition, surveyors must take care to truly incorporate standing Maori values and traditions into determining ownership and relative interests in land. Failure to do so could lead to the institutionalization of an unfavorable status for Maori landholdings.[131] A long-term planning approach that gives consideration to the unique aspects of Maori ownership is essential to avoid unintended negative outcomes that could result from rushing into land allocation.[132] However, a focus on making as much progress as possible in this area would be a productive step toward increasing Maori access to REDD programs and other forest carbon credit markets.[133]

Maori freehold land has multiple owners.[134] The number of owners of a parcel increases with each generation because of the Maori tradition of inter-generational inheritance of rights to property and the formalization of this tradition in the Maori Land Act.[135] Coordination of

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128. Maori Land Act, *supra* note 43, part 6, sec. 132.

129. *Id.*

130. *Id.*

131. Robertson, *supra* note 42, at 10.

132. *Id.*

133. *See id.* at 8 (arguing for a "thorough and comprehensive investigation" into defining Maori land parcels in order to bring them onto the same level as other New Zealand parcels).

134. *Id.* at 3; Funk, *supra* note 49.

135. Robertson, *supra* note 42, at 3; *see* CARSWELL ET AL., *supra* note 43, at 20

the interests of the owners of a parcel occurs through various ways of grouping them. Most commonly, Maori freehold land is held in one of five main types of trusts, in which trustees manage the land on behalf of the Maori beneficiaries with specific goals and purposes depending on the trust.[136] Maori freehold land may also be incorporated in a business-like structure in which shareholders maintain ownership but day-to-day affairs are managed by an elected committee or a Maori trustee.[137] Thus, while Maori land may have many owners, the number of people who actually determine the fate of the land is relatively small. Even with smaller decision-making groups like committees or trustees, disagreements still arise over how to manage and use the land.[138] Cooperation can be even more difficult due to inter-generational disagreements over ideal land use. Older Maori generations believe that clearing land to graze animals was the best use of land,[139] while current circumstances may lead younger generations to see forest preservation as a benefit for both the environment and the owners.

Achieving consensus among numerous landowners is not the only barrier to the stability and permanence of forestry projects resulting from the unique Maori title system. Maori people believe strongly in the right of self-determination of future generations and hence are hesitant to commit those generations to a particular land use in perpetuity.[140] Thus, even if the Maori had the legal ability to permanently alienate a right in their land to another party in an arrangement similar to a conservation easement, it is doubtful whether they would actually want to execute such an agreement.

Corporations and, possibly to a greater extent, trusts may be able to alleviate some of the apprehension about permanence because a future

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(because of Maori Land Law 1993, land ownership and management of land use must remain with owners).

136. CARSWELL ET AL., *supra* note 43, at 9. Ahu Whenua trusts, the most common type, are intended to "promote and facilitate the use and administration of the land in the interests of its owners." *Id.* Whanau trusts preserve family links to land but are not managed to return dividends to the owners. *Id.* Kaitaki trusts manage the land affairs of minors or people with disabilities. *Id.* Whenua Topu trusts are tribal trusts managed in the interest of a tribe or sub-tribe, usually for land received in Treaty settlements with the Crown. *Id.* Putea trusts are for small, uneconomic interests that are pooled for the common benefit without dividends. *Id.*

137. *Id.*

138. Funk, *supra* note 49.

139. *Id.*; *see also* Banner, *supra* note 86, at 809 (quoting the pleased exclamation in 1819 of an English settler at seeing the large amount of forest clearing for farming purposes being carried out by the Maori).

140. Jason Funk & Suzi Kerr, *Restoring Forests Through Carbon Farming on Maori Land in New Zealand/Aotearoa*, 27 MOUNTAIN RES. & DEV. 202, 205 (2007).

reversal in forestry practices would depend upon the decision of a group with responsibilities to even more stakeholders instead of hanging on the whim of one individual landowner. Maori owners can also establish reserves for various purposes by setting aside land with spiritual, historical, or emotional significance.[141] Reserves assure permanence in a manner similar to conservation easements because they can never be sold.[142] However, Maori are still reluctant to commit land to any particular use that future generations cannot alter.

Suggested ways to account for intergenerational self-determination in forest carbon contracts include flexibility in the contracts to limit liability for reversals and to provide a way for future generations to opt out of the contract.[143] One specific way to frame such a provision would be to include an exit clause in which the value of all carbon credits earned is repaid by the owner if he or she decides to pursue another land use.[144] To assure the carbon integrity of such an option, carbon market rules could require purchasers of this type of credits to find other credit sources to replace those lost in case of a change in land use. The problem with this sort of program is that it complicates the crediting system. Credit buyers may not want to deal with additional obstacles such as the risk of having to repurchase credits if the original credits lose their integrity. The use of collective buffer pools into which proponents of different projects must deposit credits as a means of insurance against reversal in any one project could potentially provide another solution. However, the amount of carbon credits that must initially be deposited into a buffer pool often increases with the perceived risk of reversal.[145] The risk in this case could be difficult to quantify because it depends upon the desires of many people who may not even be alive yet. In reality, the risk calculation in the Maori situation may not be much more difficult than the calculation of the risk of any reversal in forest growth because, in both cases, reversal would depend upon human factors in the distant future. The uncertainty would simply be multiplied by the large number of owners.

Another possible solution, though difficult within the established legal context of Maori property, would be to create a new type of trust specifically dedicated to forest preservation. One could even imagine a trust created for the sole purpose of managing land for carbon markets.

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141. *Reservations*, TE KOOTA WHENUA MAORI/MAORI LAND COURT, http://www.justice.govt nz/courts/maori-land-court/documents/publications/booklets/Reservations.pdf (last visited Feb. 5, 2011).

142. *Id.*

143. Funk & Kerr, *supra* note 140, at 205.

144. *Id.*

145. CLIMATE ACTION RESERVE, *supra* note 20, at 57.

Judging by the limited number of general trusts created by the Maori Land Act,[146] a trust for such a singular purpose may be too specific to be incorporated into New Zealand law.

Above all, the Maori want carbon contracts that are compatible with their property system and traditions. In response to one study, Maori landowners expressed a desire for carbon contracts that take into account their ownership structures (such as trusts and incorporations), secure Maori ownership rights and control, reflect Maori values, provide a set length of contract terms, provide annual payments, allow long-term planning decisions, and provide opt-out clauses.[147]

B. Additionality

Thirty-three percent of Maori land has been classified as indigenous forest, and the land in these indigenous forests is at risk of being cleared.[148] A forest carbon credit market could greatly benefit this land, and saving the land would likely provide additional emissions reduction benefits above the business-as-usual scenario. Maori forests, Maori landowners, and climate change policymakers all stand to benefit from bringing REDD programs and forest carbon credit markets to Maori land in New Zealand.

The history of Maori land management in New Zealand has been problematic, and issues from the past would need to be overcome to realize the potential of Maori land. In the past, the government has taken over management of Maori land to meet external development objectives,[149] and has struggled to "create programs well-suited to Maori ownership, management, and values."[150] Broken promises of sustainable development have created mistrust between some Maori landowners and the government.[151] The Maori argue that instead of assuming management of the land for development purposes, the government should facilitate the development of Maori land by its owners.[152] Setting a baseline for deforestation or forest management during a time of transition of control over land could be difficult.

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146. *See* Maori Land Act, *supra* note 43.

147. HARMSWORTH & BAISDEN, *supra* note 117.

148. *Id.*

149. Robertson, *supra* note 42, at 6.

150. Funk, *supra* note 49.

151. *Id.*

152. Robertson, *supra* note 42, at 6.

C. Measuring, Monitoring, and Verification

Maori landowners face two main situations that increase the MMV costs of their participation in REDD programs and other forest carbon credit markets. First, as discussed above, the Maori Land Act places stringent restrictions on the alienability of Maori land. These restrictions prevent the Maori from using their property as collateral for loans.[153] The lack of Maori access to capital has been a source of great complaint and forces landowners to either adopt land uses with low front-end costs or somehow find another source of start-up capital for projects.[154]

The second problem with MMV transaction costs was described above as the high transaction costs faced by small landowners seeking to go through the expensive inventory, inspection, and certification process to earn a small amount of carbon credit income. This problem is exacerbated when one small parcel of land has multiple owners. Achieving cooperation among the various decision-makers—not to mention the even more numerous owners—associated with a piece of property can be incredibly difficult and time-consuming. Aggregation in some manner will reduce the transaction costs associated with collective ownership. The current Maori property system lends itself to aggregation through trusts, reserves, and corporations. If an entity in one of these classes can be established for the purpose of forest carbon trading, the owners and decision-makers would have a common goal to help direct their decisions. Aggregation could also occur through tribal groups.

A study conducted on Maori land issues and carbon markets recommended lowering the costs of participation by reducing start-up costs for projects. Researchers provided landowners with scientific information based on models to predict carbon uptake by a particular forest.[155] By using these models to make their decisions on the viability of carbon credits for their income, landowners were able to avoid a costly forest assessment.[156] To make forest carbon projects more economically competitive, landowners combined carbon credit earnings with other forest services.[157] Until more compliance schemes come into effect and the price of carbon credits rises, the combination of services allows forest projects to be a more attractive option for landowners seeking income.

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153. Funk, *supra* note 49.

154. Funk & Kerr, *supra* note 140, at 203.

155. *Id.* at 205.

156. *Id.*

157. *Id.* at 204–05.

VI. CONCLUSION

The experiences of indigenous peoples in the United States and New Zealand can serve as examples to help indigenous peoples in tropical forest countries work within unique property systems to successfully participate in REDD programs and other forest carbon credit markets. Certainly, an initial hurdle to landowner participation is defining land tenure. Developing countries must go about this process with due regard for long-term planning and traditional indigenous property ideas. However, the care with which surveyors must go about defining tenure should not be an excuse to postpone doing so. In countries where indigenous land tenure is clearly defined, policymakers must develop projects with the involvement of indigenous people so as to identify any issues that may arise out of a unique indigenous property system.[158]

Policymakers must identify creative solutions to the permanence issue through contract provisions that take indigenous cultural beliefs as well as national laws and regulations into account. Short-term commitments that do not require transfer of title may be the best fit for indigenous peoples, though there are environmental and reliability costs associated with such provisions. Limited project crediting periods, such as those used by the Nez Perce and Confederated Salish and Kootenai tribes, can ensure self-determination for future generations with regard to land use.

Indigenous peoples should participate in creating the methodologies for setting forestry baselines to account for potential increased pressure on indigenous forestlands in the future. If the price of offsets is high enough, it could lead to the development of more afforestation and reforestation projects on previously agricultural land. Additionality is easier to establish in such projects, as demonstrated by the Native American tribes.

Aggregation can bring down the costs of MMV, and indigenous people are already organized into units—such as tribes—that could readily become aggregators of carbon credits on behalf of their members. In addition to aggregation, methods to reduce start-up costs and to provide additional income from the resources on forested land could make forest projects a more economically attractive option for landowners. Indigenous governmental entities that have forestry or

158. *Id.* at 205; CARSWELL ET AL., *supra* note 43, at 14 ("It will be essential in the future to carefully consider the type of organization and governance structure when designing appropriate models and policies for engaging Maori landowners in carbon trading.").

natural resources departments should use their scientific expertise to measure and monitor carbon offset benefits in their forests.

Indigenous people face unique barriers to participation in REDD programs and other forest carbon credit markets due to peculiar or nonexistent property systems and rights. However, policymakers, governments, and indigenous peoples can overcome these barriers with careful planning and cooperation. The benefits to be had by all parties make such efforts well worth the effort.