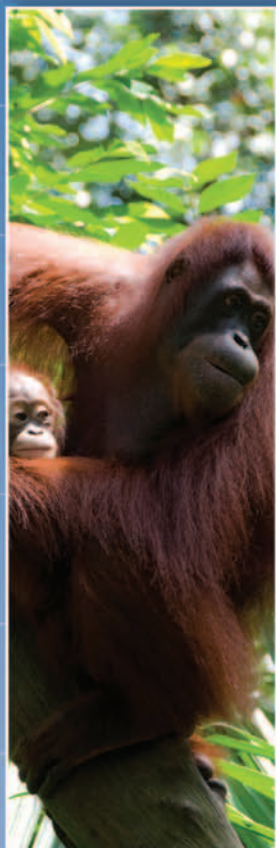


State of the Forest Carbon Markets 2009

Taking Root and Branching Out



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State of the Forest

Carbon Markets 2009:

Taking Root & Branching Out

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Executive Summary



The role of forests in the carbon markets

Forestry projects jump-started the global carbon offset market in the early 1990s, when environmental non-profits and industrial companies initiated partnerships to conserve and plant forests with the aim of balancing greenhouse gas (GHG) emissions by capturing carbon in trees. Although forestry transactions were the first-ever carbon offsets, they were soon sidelined in emerging global GHG regulations and a narrow band of forestry offsets were recognized under the Kyoto Protocol.

This left the voluntary markets to pick up the slack. Some buyers have been drawn to this tangible, land-based offset category and others have veered away from the complexities and risks of forest carbon offset projects. Over time, however, the role of forests in mitigating climate change has increasingly gained credence – thanks largely to the resolution of scientific disputes over how to measure and monitor the amount of carbon captured in trees, as well as growing political consensus on the need to reduce emissions as quickly and cost-effectively as possible.

This acceptance has begun to impact global climate policy. In 2007, at international climate change negotiations, the Bali Action Plan laid out a strategy for developing consensus on how to recognize reducing emissions from deforestation and degradation (REDD). In 2009, the Copenhagen Accord explicitly stated the need to develop mechanisms that would reward

sustainable land-use practices that capture carbon in trees. Around the same time, land-based carbon offsets were explicitly included in the text of proposed US climate bills. These regulatory developments have the potential to stimulate tremendous demand for land-based carbon credits.

Currently, the forest carbon market is diverse on both the supply and demand fronts. Many offsets have been developed and purchased purely for the sake of philanthropy, while others have been created as commodity products to be sold as units of trade on global regulated and voluntary markets. In this context suppliers employ significantly varying project designs, methodologies and implementation strategies to create credits.

Tracking projects across markets and time

This report was created to increase transparency and answer fundamental questions about the supply of forestry-based carbon credits, such as transaction volumes, credit prices, hectares influenced and tenure rights. It outlines the aggregate numbers from our survey of 61 project developers¹ and 34 intermediaries representing 226 projects across 40 countries. This report is entirely based on information volunteered by these project developers and intermediaries. Hence, numbers presented are not completely exhaustive, and should be considered conservative.

¹ In some cases information came from “project proponents” partnered with project developers.

Ecosystem Marketplace tracked projects generating credits over the past 20 years in both the voluntary and compliance markets. The voluntary category includes the Over the Counter (OTC) and Chicago Climate Exchange (CCX) markets. The compliance category includes the New South Wales Greenhouse Gas Reduction Scheme (NSW GGAS), as well as the Kyoto Protocol-driven Clean Development Mechanism (CDM), Joint Implementation (JI), New Zealand Emissions Trading Scheme (NZ ETS) and Kyoto Assigned Amount Units (AAUs). Because we are comparing transactions across markets and standards, it is important to note that assets transacted vary considerably. For example, a temporary Certified Emissions Reduction (tCER) under the CDM may be a different asset than a Voluntary Carbon Unit (VCU) under the Voluntary Carbon Standard. However, these assets are generally referred to as carbon dioxide tonnes (tCO₂).

Transactions of forest carbon credits on the rise

Respondents reported a total volume of 20.8 million tonnes of carbon dioxide (MtCO₂) transacted in the global forest carbon market from 226 projects. In addition to these transactions, the Mbaracayú Forest Reserve and GHG reduction in Paraguay also reported a transaction of 47 MtCO₂ (13.1 million tonnes of carbon) to the American electric power company Applied Energy Services (AES) for \$2 million² in 1990³. Because this early deal represents a significant outlier from our other project data, it is separated from data analysis throughout this report. Including this deal in overall numbers, the forest carbon marketplace has seen transactions totaling more than 67.8 MtCO₂.

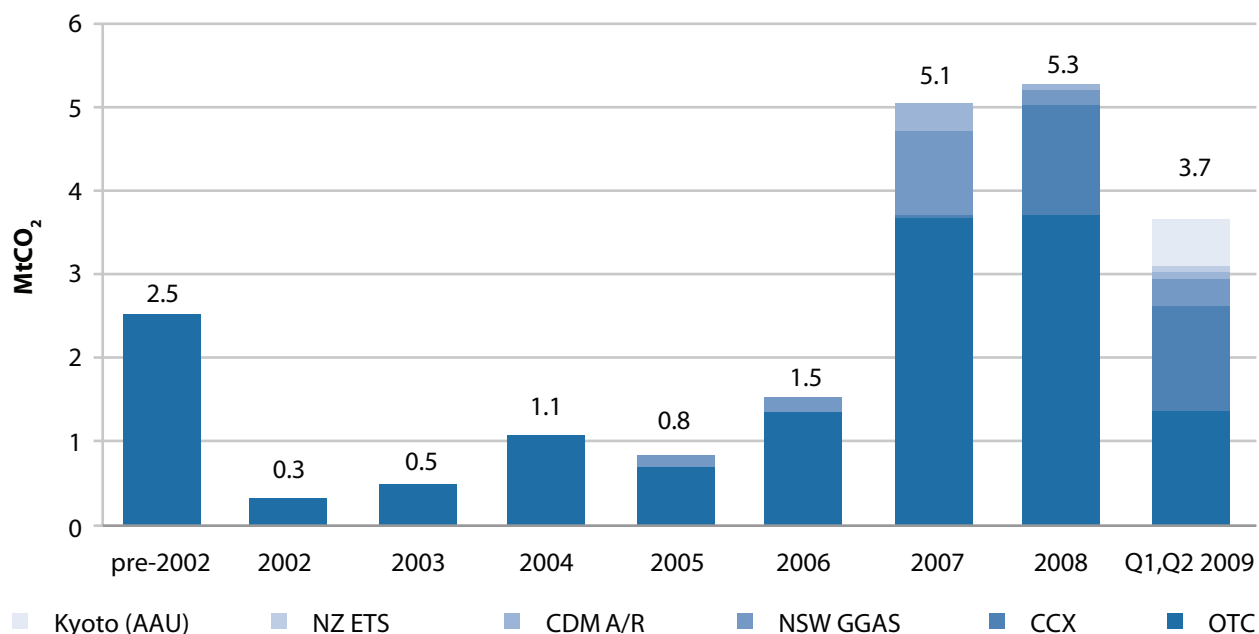
² All dollars in US\$ unless otherwise specified

³ Steve Zwick, "Mbaracayú: Lessons in Avoiding Deforestation," http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=5493§ion=home

Table 1: Volume and value of forest carbon market

Markets	Volume (MtCO ₂)		Value (million US\$)	
	Historical Total	2008	Historical Total	2008
Voluntary OTC	15.3	3.7	129.7	31.5
CCX	2.6	1.3	7.9	5.3
Total Voluntary Markets	17.9	5.0	137.6	36.8
New South Wales	1.8	0.2		
CDM A/R	0.5	0.1	2.9	0.3
NZ ETS	0.1		0.7	
Kyoto (AAU)	0.6		8.0	
Total Regulated Markets	2.9	0.2	11.6	0.3
Total Global Markets	20.8	5.3	149.2	37.1

Figure 1: Historical transaction volume in the forest carbon markets



Of the 20.8 MtCO₂ reported from 226 projects, almost all, 79%, of these credits were transacted by project developers in primary markets. Intermediaries reported only 2.0 MtCO₂ transacted in the voluntary OTC secondary market, where offsets are resold.

Historically, most forest deals (73% or 15 MtCO₂) have occurred in the OTC voluntary carbon markets.⁴ The CCX has been the scene for 12.5% of transactions (2.6 MtCO₂). The NSW GGAS followed close behind with 8.7% (1.8 MtCO₂) of transactions. Combined, Kyoto Protocol-driven markets transacted 1.3 MtCO₂ (6.25%). Over half of these transactions originated in the CDM, which represented a total of roughly half a million tonnes, or 4% of the global forest carbon markets.

Before 2005, the OTC market was the only game in town until NSW GGAS began trading its first

forest carbon credits in 2005.

The CCX voluntary market launched in 2004, and it registered its first forest carbon credits in 2007. Afforestation-reforestation (A/R) activities in developing countries under the Clean Development Mechanism began picking up at the start of the first Kyoto Protocol commitment period of 2008-12, as did forestry projects in the New Zealand Emission Trading Scheme.

Overall, volumes remained relatively low until 2006. In 2007, the volume transacted rose sharply, by 228%, to reach 5.1 MtCO₂. The year 2008 saw just a slight increase over 2007 levels, up to 5.3 MtCO₂. This growth trend appears likely to continue in 2009, with project developers reporting 3.7 MtCO₂ already transacted in the first two quarters of the year.

⁴ Voluntary OTC numbers presented are lower than numbers presented in Ecosystem Marketplace and New Carbon Finances State of the Voluntary Carbon Market 2009 report due to significant changes in reported transactions from several suppliers.

In 2008 and the first two quarters of 2009, the voluntary carbon markets continued to account for the bulk of forest carbon transactions – specifically, 95% in 2008 and 72% in 2009. In the first half of 2009, the newly-launched NZ ETS accounted for 1.4% of the global forest carbon market. Such transactions are poised to continue over the rest of the commitment period and beyond – provided a new international agreement can be reached that facilitates the generation and trading of such credits.

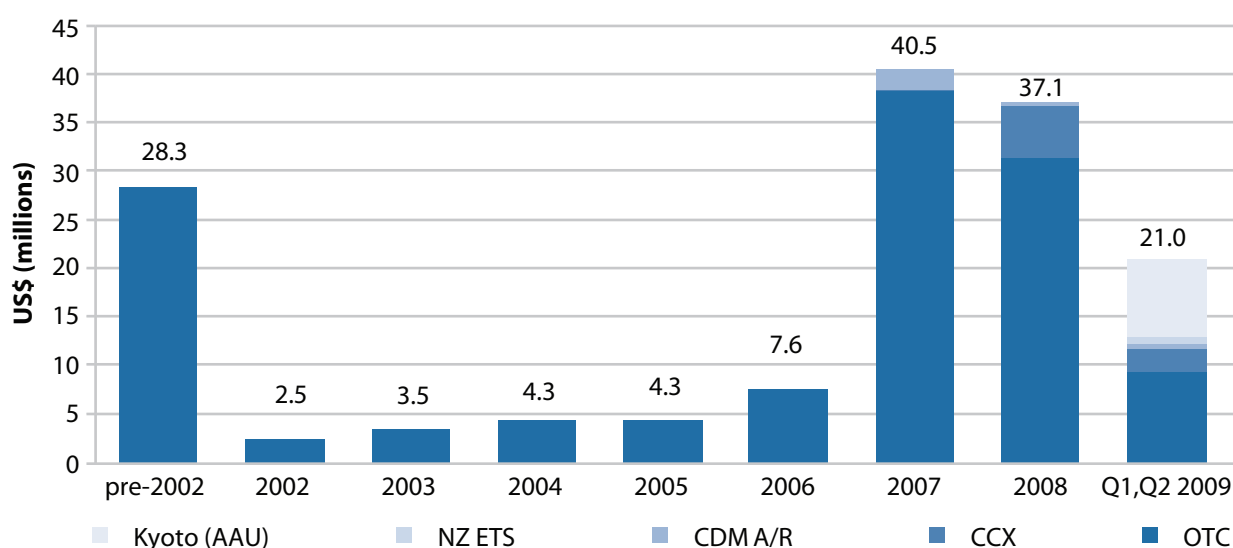
Suppliers transacted over \$149.2 million in forest carbon credits

Overall, prices for forest carbon credits ranged from \$0.65/tCO₂ to more than \$50/tCO₂. Over time, the volume-weighted average price was \$7.88/tCO₂. The compliance markets (NSW GGAS, CDM, AAUs and NZ ETS) have commanded the highest prices overall, with a volume-weighted price average of \$10.24/tCO₂, followed by the voluntary OTC market at \$8.44/tCO₂. Average prices for tCERs, which must be replaced or reissued at the end of their crediting period, were significantly lower at an average \$4.76/tCO₂. The least expensive credits were traded in the CCX at \$3.03/tCO₂.

The total historical market value we tracked through the first half of 2009 was \$149.2 million, of which \$137.6 million arose from the voluntary market and \$11.6 million from the compliance markets. In the voluntary market in 2008, CCX accounted for 26% of the voluntary market in transaction volume but only 14.4% in value, indicating the far lower prices (\$1.96-4.06/tCO₂) available for CCX forestry credits. The Kyoto (AAU) credits arising from the New Zealand ETS in the first half of 2009 captured the bulk of the regulated market value, with a relatively high minimum price of roughly €10/tCO₂ (\$14.05). Average prices for tCERs, which must be replaced or reissued at the end of their crediting period, were significantly lower at \$4.76.

Most of the market value (66%) was generated recently, from 2007 through the first half of 2009, due to higher volumes and prices. Emerging interest in the voluntary carbon markets overall, along with maturing standards and infrastructure, contributed to this increase in value. The year 2008 saw a slight rise in credits transacted from 2007, but overall value declined 8.4%, in line with a drop in average prices.

Figure 2: Historical values in the forest carbon markets



Over 2.1 million hectares influenced by carbon finance

Of the 226 tracked forest carbon projects that had transacted credits, OTC projects made up 90% of the total number of projects, with an additional 6% under the CCX. Only 4% of projects, a total of nine projects, transacting credits (including forward sales) were from regulated markets; five of these were from NSW GGAS, three from Kyoto-related A/R projects, and one from New Zealand ETS.

Project developers reported a total area of 2.1 million hectares under projects influenced by forest carbon sequestration or avoided emission activities. OTC projects covered 1.7 million hectares (83% of the total area), CCX projects covered 306,552 hectares (14.6% of total area) and compliance market projects covered a mere 54,600 hectares (2.6% of total area).

Figure 3: Area influenced by projects (hectares)

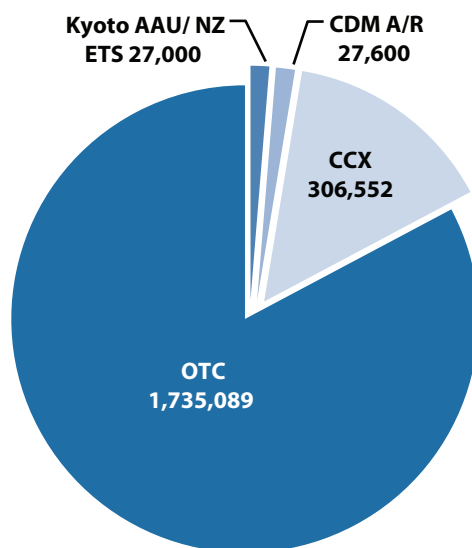
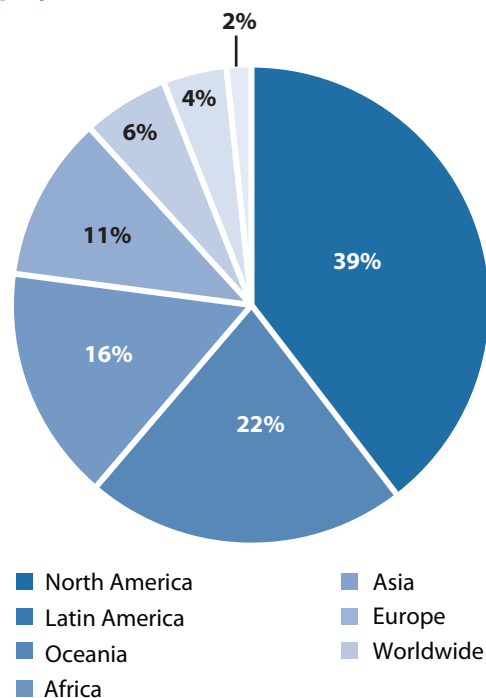


Figure 4: Historical transaction volume by project location

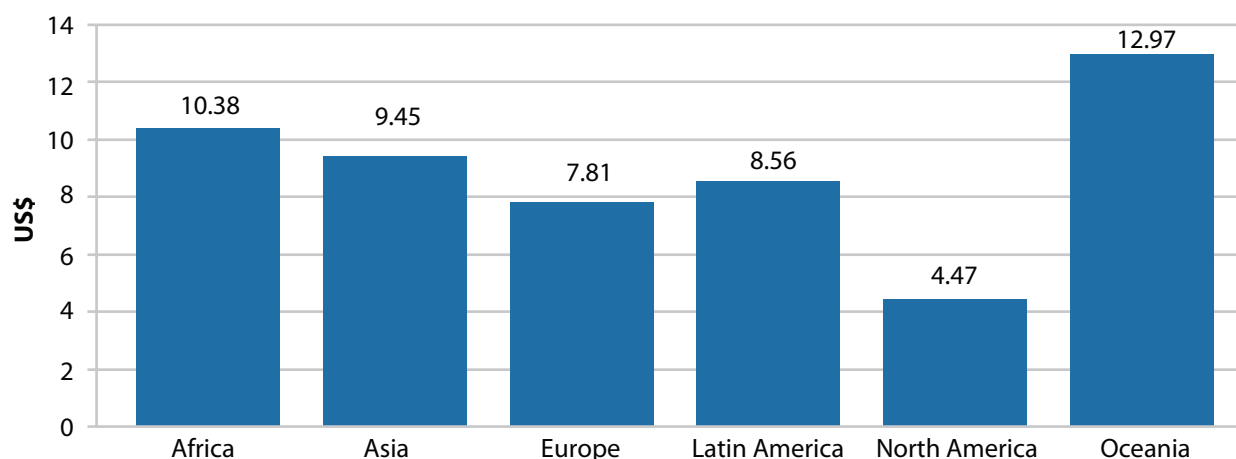


Credits originated from projects in 40 countries

North America (7.2 MtCO₂) and Latin America (3.9 MtCO₂) topped the list of places where the most transacted credits originated, accounting for 39% and 22% of transactions, respectively. Oceania, which mainly consisted of projects in Australia, followed with 16% of the volume transacted. Africa was the source of 11% of transactions, with Asia and Europe making up 6% and 4%, respectively.

When the total value for each region is considered, the ranking across markets is: \$37.8 million for Oceania, \$35.5 million for Latin America, \$32 million for North America, \$20.9 million for Africa, \$9.9 million for Asia and \$6 million for Europe. Although Oceania was the third-largest region by volume of credits sold, it was the top region when total value was considered.

Figure 5: Volume-weighted avg. price by location



North America appears to have been the top region for sourcing carbon credits in 2008, generating 42% of the volume transacted that year, followed by Africa and Latin America with 26% and 21%, respectively. In the developing world, the dominant source of forest carbon credits appears to have shifted from Latin America in 2007 to Africa in 2009. In 2008, there was a lull in credits from Australia due to policy uncertainties, with landholders awaiting the introduction of the proposed national emissions trading scheme. Europe trailed behind with only 1% of the market share.

A diversity of forest and project types in the marketplace

Most credits transacted were historically sourced from A/R projects (63%) followed by Reduced Emissions from Deforestation and Degredation (REDD) projects at 17% and Improved Forest Management (IFM) projects at 13%. In 2008, A/R remained the top source for credits (53%). Projects with a combination of REDD, A/R and IFM, moved to second place accounting for 24% of the volume, followed by IFM (20%). In the voluntary markets, the majority (60%) of A/R or IFM projects reported planting indigenous trees.

Figure 6: Historical transaction volume by project type

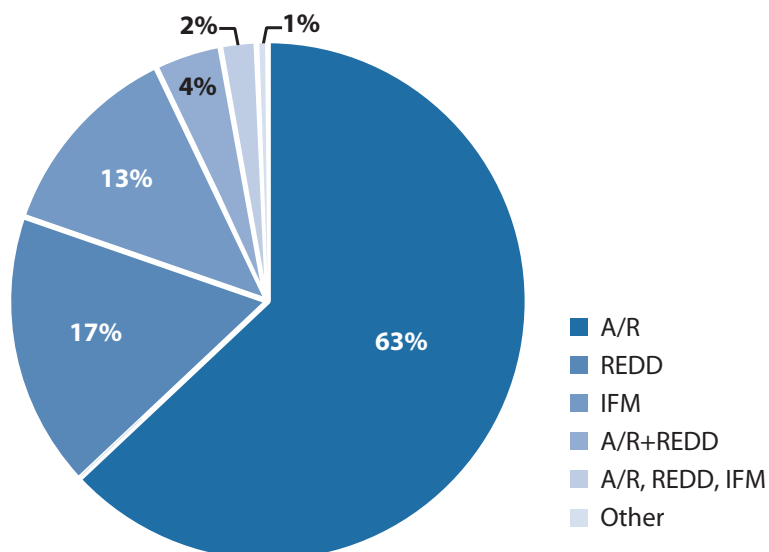
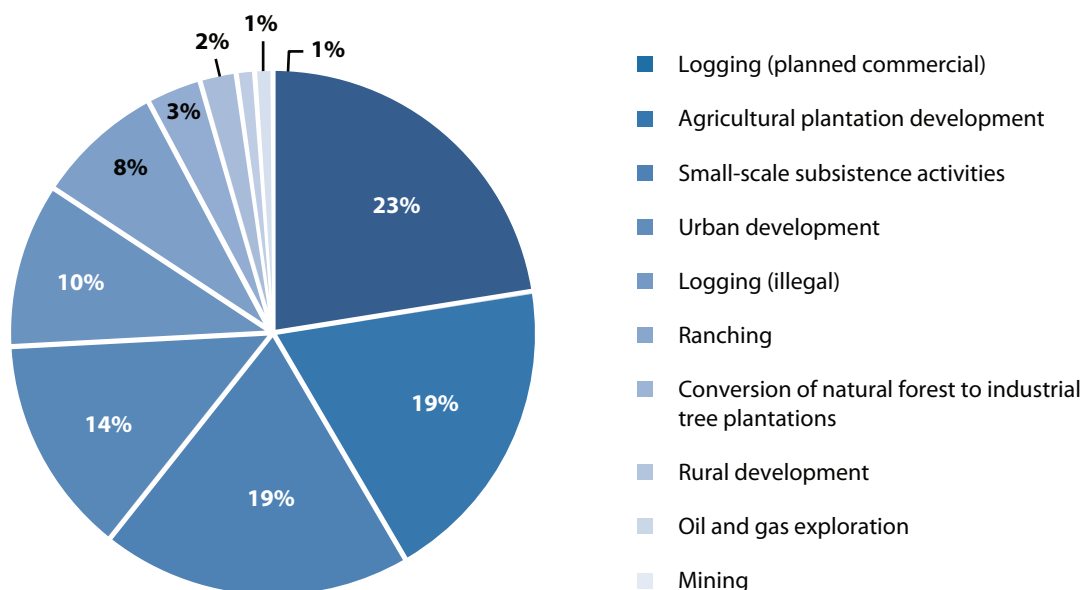


Figure 7: Overall deforestation pressures



Forests generating carbon credits are often, though not always, influenced by deforestation and degradation. Respondents reported that about 69% of projects were influenced by deforestation or degradation pressures. Of the respondents who indicated no threat or did not respond to this question, 63% of their projects were based in Europe, North America or Australia. Overall, the top drivers of forest destruction were logging, agriculture, small-scale subsistence activities and urban development. Latin American projects cited the most diverse set of pressures. North American forest project sites were more exposed to planned commercial logging, agricultural plantation development and urban development. In particular, African projects listed small-scale subsistence activities as a key onsite pressure.

Use of standards increasing

Over the past 20 years, as the forest carbon markets have evolved, the methodologies, measurement and market infrastructure have become increasingly sophisticated. The projects

tracked in this report vary significantly, with time being the biggest factor in influencing design and implementation. However, vast differences still exist between projects in development today, which are dotted across the spectrum of commodity to philanthropy.

Standards are increasingly utilized for establishing quality benchmarks and consistency. The OTC forest carbon offsets market exhibits an intensifying use of standards, particularly those that emphasize the co-benefits of forest carbon projects and third-party verification. Over time, 86% of all OTC forest carbon offsets originated from projects involving an internal or third-party standard. Certification to third-party standards increased significantly from a mere 15% of offsets in 2002 to a whopping 96% in the first half of 2009, and account for 70% of all OTC offsets transacted over time.

Standards broadly fall into two categories: those that focus on the quality of measuring and monitoring carbon, and those that focus on qualities beyond carbon (the 'co-benefits' referred to above).

Across markets, 23% of all offsets coming from projects validated to a third-party standard were reported as complying with the Climate, Community, and Biodiversity (CCB) Standards. This amounts to 3.7 MtCO₂ of GHG reductions. The prevalence of CCB Standard offsets points to an historic demand for forestry offsets with environmental and social co-benefits, but does not necessarily correlate with verified GHG emission reductions or issued credits. CCB Standard certified projects may or may not also comply with a carbon verification standard.

Another 16% of the offsets were listed on the CCX and conformed to the CCX standard. Other popular certification schemes include the NSW GGAS (11%, or 1.8 MtCO₂); SGS-COV Standard (10% or 1.6 MtCO₂); and Greenhouse Friendly (6% or 1.0 MtCO₂). Transacted credits from registered CDM projects accounted for approximately 3% of certified credits. Another 12% of credits were certified to internal standards, while 10% of offsets across all markets were not certified to any standard.

In 2008 and the first half of 2009, CCX certified 30% and 43%, respectively (1.3 MtCO₂ in both years), of all forest carbon offsets. Credits originating from CCB Standard validated projects also remained popular, comprising 24% and 18% of all third-party certified offsets (1.1 MtCO₂ in 2008 and 523,997 tCO₂ in 2009). Offsets certified to the ISO 14064 standard dramatically increased their market share from 5% in 2008 (205,208 tCO₂) to 17% in the first half of 2009

(500,500 tCO₂). Also noteworthy is the increase of NSW GGAS credits, increasing from 4% (167,559 tCO₂) of all third-party certified offsets in 2008 to 11% (313,362 tCO₂) in the first half 2009.

On the cusp of change

At the end of 2009, the market for forest carbon stands in an uncertain position on the verge of potentially enormous growth. Already, countries have committed politically in international negotiations to REDD and several have also committed financing. At the same time, the Clean Energy Jobs and American Power Act, awaiting its fate in the United States' Senate, explicitly calls for domestic forestry offsets and includes financing for REDD.

It is not possible to say what shape US climate regulation will take – or what sort of global mechanisms for funding REDD will emerge from current international negotiations. Amidst this scene of opportunity and risk, investors are still eyeing forest carbon, though many are waiting on more definite regulatory signals before taking a financial leap. Even without market certainty, infrastructure and measurement tools continue to mature rapidly. Such tools, along with years of accumulated lessons learned, will inevitably serve as the foundation for forest carbon finance in years to come.

Ecosystem Marketplace

Ecosystem Marketplace, a project of the non-profit organization Forest Trends, is a leading source of information on environmental markets and payments for ecosystem services. Our publicly available information sources include annual reports, quantitative market tracking, weekly articles, daily news, and newsletters designed for different payments for environmental services stakeholders. We believe that by providing solid and trustworthy information on prices, regulation, science and other market-relevant issues, we can help payments for ecosystem services and incentives for reducing pollution become a fundamental part of our economic and environmental systems, helping make the priceless valuable.

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