Ecosystem Marketplace
A FOREST TRENDS INITIATIVE

Leveraging the Landscape

State of the Forest Carbon Markets 2012

PREMIUM SPONSORS

SPONSORS

Ecosystem Marketplace

A FOREST TRENDS INITIATIVE

About 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 news briefs designed for different payments for ecosystem 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.

Find out more at
www.ecosystemmarketplace.com

Ecosystem Marketplace manages the **Forest Carbon Portal**, a clearinghouse of information, feature stories, event listings, project details, 'how-to' guides, news, and market analysis on forest-based carbon sequestration projects. Launched at the December 2008 UN Climate Conference of the Parties in Poznan, Poland, this satellite site to Ecosystem Marketplace exists to fill knowledge and 'market intelligence' gaps with the goal of stimulating progressive land-based carbon market offset projects policy in the regulated markets, and successful pilot projects in the voluntary markets. It is designed for the investor, the student, the policymaker, the project developer, the analyst, the broker, the retailer, and the conservationist. In other words, if you have an interest in land-based carbon sequestration, these resources are for you.

Find out more at
www.forestcarbonportal.com

Special Thanks to Our Donors

Gordon and Betty Moore Foundation

Norad

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

skoll FOUNDATION

Special Thanks to Our Supporters

ASTRIUM AN EADS COMPANY

CONSERVATION INTERNATIONAL

Leveraging the Landscape

State of the Forest Carbon Markets 2012

Molly Peters-Stanley, Katherine Hamilton, and Daphne Yin

Contributors: Selene Castillo and Marigold Norman

November 2012

Copyright and Disclaimer

Acknowledgments

This report would not be possible without the data shared by individuals representing more than 200 organizations. The following pages also represent a compilation of the resources, insights, and knowledge of dozens of individuals. They include, in no particular order: Duncan Abel, David Antonioli, Rebecca Asare, Marc Baker, Tobias Bandel, Ellysar Baroudy, Ricardo Bayon, Valentin Bellassen, Ollie Belton, Kathy Benini, Beto Borges, Benoît Bosquet, William C. Boyd, Derik Broekhoff, James Bulinski, Karin Burns, Pedro Moura Costa, Phil Covell, Thomas Damassa, David Diaz, Joanna Durbin, Alfred Evans, Daniel Crawford, Johannes Ebeling, Gabriel Eickhoff, Alfred Evans, Ben Feldman, Gena Gammie, Victor Gancel, Beatriz Garcia, Jay Gillette, Sara Gipton, Mary Grady, Jeff Hayward, Sam Hoffer, Jemima Jewell, Daniel Kandy, Sarah Knobloch, CJ Hall, Lars Kvale, Bo Lager, Robert Lee, Todd Lemons, Mårten Lind, Leticia Gutierrez Lorandi, Tim Martin, Stephen McComb, Janice McMahon, Eduard Merger, Pieter van Midwoud, Kathryn Mitchie, Alexa Morrison, John Nickerson, Jacob Olander, Annabelle Oliveira, Azusa Onodera, Raquel Orejas, Jason Patrick, Mariana Pavan, Greg Peters, Tanya Petersen, Charles Pursehouse, Natalie Quirke, Lawrence Rimmer, Richard Saines, Kazuyoshi Sasaki, Pat Snowdon, Robert O'Sullivan, Mirko Serkovic, Jonathan Shopley, Agustin Silvani, Toby Jason-Smith, Eugene Stumpf, Naomi Swickard, Bianca Sylvester, Phuc Xuan To, Gareth Turner, Christian Del Valle, Walle Oppedijk van Veen, Mariama Vendramini, Mike Vitt, Chandler Van Voorhis, Jeff Waldon, Wen Wang, Gareth Wishart, Peter Weir, Justin Whalen, Zubair Zakir.

Thank you also to the entire staff at Forest Trends for your continued support and contributions and to Michael Jenkins for his guidance.

Cover by Melissa Tatge.

Executive Summary

Over the last three years, projects that address the relationships between carbon and forests have moved from the sidelines of international climate action to center field. Forestry's recent advancements are the product of decades of ongoing collaboration among market and environmental experts seeking to strike an ideal balance between forestry projects' market risks and shared benefits.

Market dynamics in 2011 demonstrated that these efforts have never been more pivotal, or complex, as forest carbon projects mature – and find themselves positioned squarely in the midst of some of today's most challenging policy debates.

This year, a record number of forest project developers and secondary market suppliers from around the world shared data about their projects and transactions. This third annual State of the Forest Carbon Markets tracks, reports, and analyzes trends in these responses. This information is primarily based on data collected from respondents to Ecosystem Marketplace's 2011 forest carbon project developer's survey, combined with data from the 2012 State of the Voluntary Carbon Markets report.

The data and analysis that follow cover forest carbon activity in compliance carbon markets – including the Kyoto Protocol's Clean Development Mechanism (CDM), the New Zealand Emissions Trading Scheme (NZ ETS), the New South Wales Greenhouse Gas Reduction Scheme (NSW GGAS) and British Columbia's (BC) Carbon Neutral Government directive – as well as voluntary carbon markets including voluntary Over-the-Counter (OTC) market and country-specific voluntary programs worldwide. In total, we captured responses from 140 project developers or project proponents in the primary forest carbon market and 35 suppliers in the secondary market. Respondents represented 215 individual forest carbon projects, half of which transacted credits in 2011 – totaling **451 projects analyzed in all survey years.**

Market Overview: Value Hits New Heights While Volumes Vary by Market

In 2011, forest carbon project developers reported the highest overall value ever attributed to the global marketplace for forestry offsets – **totaling $237 million**. While values increased 33%, transaction volumes declined 22% from 2010 record volumes to 26 $MtCO_2e$ transacted in 2011. Around 12% of market value was driven by existing and emerging domestic marketplaces like the regulation-driven BC Carbon Neutral Government scheme and Australia's carbon price mechanism. The volume and value of these programs is largely consolidated in the "other" category in Table 1 due to their small number of respective respondents.

The international market for temporary credits from afforestation and reforestation (A/R) projects under the **CDM reported unprecedented value** creation in 2011, owing to the high volume of credits contracted ahead of the end of the Kyoto Protocol's first compliance period. Conversely, volumes fell primarily for offsets contracted over the counter in the international marketplace to voluntary buyers pursuing carbon neutrality or preparing for compliance programs.

Of the value reported in 2011, 26% ($62 million) represented actual payments to projects in the same year ("pre-pay" or spot contracts). Another $105 million committed in contracts last year was reportedly due upon credit delivery – some of this value contingent upon project developers' ability to actually deliver.

Volume contracted in 2011 represents a small proportion of surveyed projects' **total potential reductions** – estimated to be between 504 and 1,073 $MtCO_2e$ between the start of their crediting period and 2050. It is also a fraction of the volume of credits developers say they need to sell – at prices that vary by individual project scenarios – in order to get projects off the ground (literally) and maintain project activities. For project activities that are under development or already in implementation, developers value their projects' near-term needs at between $2.2 and $5.4 million over an unspecified timeline.

Last year, projects managed to obtained prices that were double the 2010 average, seeing a **market-wide average price** of $9.2/$tCO_2e$ in 2011. Once again, the pricing incentives or requirements of domestic-only markets factored highly in the increased average price, and may not represent the price or value attainable by projects in the international marketplace. Overall, this price is the aggregation of hundreds of diverse prices that vary greatly by project standard, location and other environmental and social co-benefits – ranging from less than $1/$tCO_2e$ to over $100/$tCO_2e$ in 2011.

Table 1: Volume, Value, and Prices in the Forest Carbon Markets (Primary & Secondary Markets)[1]

		VOLUME		VALUE		AVERAGE PRICE	
MARKET	HISTORICAL	2010	2011	2010	2011	2010	2011
Voluntary OTC	76.4 M	27.8 M	16.7 M	$157.8 M	$172 M	$5.6	$10.3
California /WC pre-compliance	2.0 M	0.5 M	1.6 M	-	$13 M	-	$8.1
CCX	2.9 M	0.1 M	0 M	$0.2 M	-	$1.2	-
Voluntary Total	**81.4 M**	**28.4 M**	**18.3 M**	**$158 M**	**185 M**	**$5.6**	**$9.2**
CDM/JI	15.3 M	1.4 M	5.9 M	$6.3 M	$23 M	$4.5	$3.9
NSW GGAS	6.3 M	2.3 M	-	$13 M	-	-	-
NZ ETS	0.9 M	0.2 M	-	$0.3 M	-	$13	-
Other / Unknown	1.9 M	0.4 M	1.5 M	-	$29M	-	$19.7
Compliance Total	**24.5 M**	**4.4 M**	**7.3 M**	**$25.0 M**	**$52 M**	**$4.6**	**$7.2**
GRAND TOTAL	**105.9 M**	**33 M**	**26 M**	**$177 M**	**$237 M**	**$5.5**	**$9.2**
Primary Market	*95 M*	*32 M*	*21 M*	*$143*	*$143 M*	*$5.5*	*$8.1*
Secondary Market	*11.3 M*	*1.2 M*	*4.9 M*	*$4.8 M*	*$54.7 M*	*$7.6*	*$12.1*

*Source: Ecosystem Marketplace. Notes: Based on 965 observations in 2011; >1,000 total historical observations. "Other" category includes markets with fewer than three data points. *2008-2010 values for the NSW GGAS market should be considered conservative due to limited market price data.*

As seen in Table 1,[1] **primary transactions** (project developers' initial contracts) led the marketplace and, overall, pricing behaved according to market principles – increasing as credits moved through the value chain from developer to secondary market players to end users. Within this trend, however, we find that in the voluntary markets, developers sold the largest volumes directly to end users at below-average prices, and a smaller volume into the secondary markets at slightly above-average prices. Suppliers say this goes a long way toward explaining why contracts between developers and secondary market offset providers – still the forest carbon market's single largest source of private sector demand – fell by more than half in 2011.

A range of sectors – public, private and non-profit – develop forest carbon offset projects. Last year saw an uptick in the volume of credits contracted from government- and NGO-led projects. This trend speaks to the emerging relationship between national or bilateral activities to reduce emissions from deforestation and forest degradation (REDD+), and the NGOs that funders appear to be tapping to carry out or coordinate project-level REDD+ pilots.

Afforestation and Reforestation Projects Firmly Planted at the Top

Even as projects that reduce emissions from deforestation and forest degradation (REDD) consumed the greater part of international climate actors' attention, contracted credit volumes from **afforestation/reforestation** (A/R) projects reached new heights – whether or not one includes the large CDM A/R market. The bulk of these transactions involved credits contracted to purely voluntary corporate buyers and were many years in the making. The median start date reported for A/R project crediting periods indicates that the largest number of project activities were initiated at least five years ago.

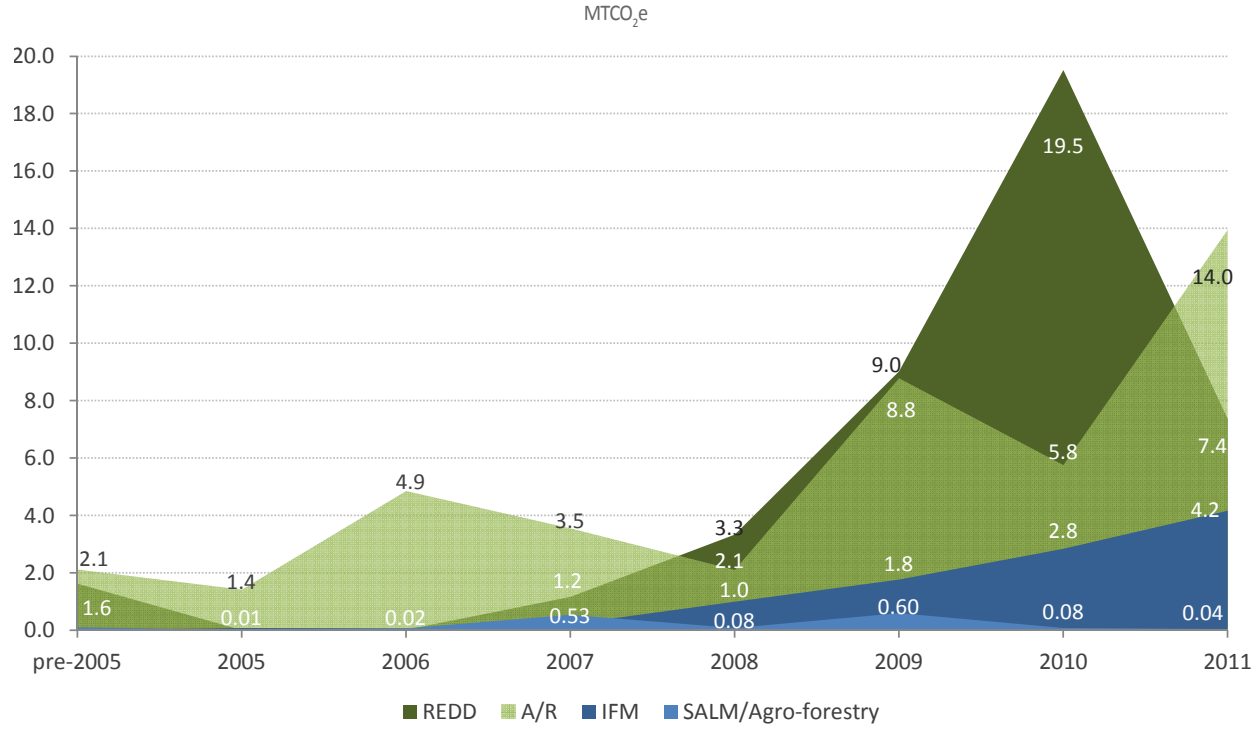
Behind A/R, **REDD** credit transaction volumes fell by 62% last year as projects came to terms with the unexpected complexities and costs of newly available methodologies; decreased demand from recession-constrained European buyers; and the intricacies of tenure, community building and evolving policy environments that characterized global challenges to REDD project implementation and finance in 2011.

Despite encountering a morass of political and market uncertainties, REDD project developers forged ahead with several market breakthroughs in 2011, seeing the **first REDD credits verified and issued** to the Verified Carbon Standard (VCS), new approaches to crediting projects in the context of jurisdictional programs – and a trend toward identifying complementary revenue streams to help stabilize projects' financial resources in times of lean market demand and to enhance REDD's contribution to adaptation and sustainable livelihoods.

Improved Forest Management (IFM) projects were the preferred project type feeding into North America's compliance markets, which pushed IFM credit volumes to a new level in 2011. Last year also saw the first glimpse of credits from **Sustainable Agricultural Land Use** (SALM) projects which – like IFM – see increased uptake due to the strong business case for adopting more sustainable land management practices. A smaller volume of credits was transacted from agro-forestry projects, though these activities were reported within A/R, REDD and managed forest project areas – and credited as one of these categories.

1 Volumes not tied to a price were multiplied by each marketplace's average price and added to its total. This change in methodology means that annual total values may differ from previous reports.

Figure 1: Historical Transacted Volumes by Project Type, All Markets



Source: Ecosystem Marketplace. Notes: Based on 603 observations in 2011; 731 total historical observations.

Sustainable Forestry and Agriculture the Most-Used Approaches to Avoid Deforestation

REDD, IFM, A/R and SALM/agro-forestry each encompass a variety of activities within their project areas. For REDD projects, activities that help to avoid the projects' drivers of deforestation ran the full spectrum available tools, the most popular being **improved forest management, smallholder to commercial scale sustainable agricultural practices**, as well as introducing sustainable energy alternatives to wood fuel and A/R activities. REDD projects exemplify what developers point to as an emerging trend to view project types more holistically rather than as discrete activities. REDD+ projects often incorporate A/R, IFM and sustainable agriculture – and sometimes small scale energy alternatives – that are simply credited under the umbrella of "REDD+" but in fact impact a much larger land area than is currently recognized.

Forest Carbon Projects Impact 18 Million Hectares Historically

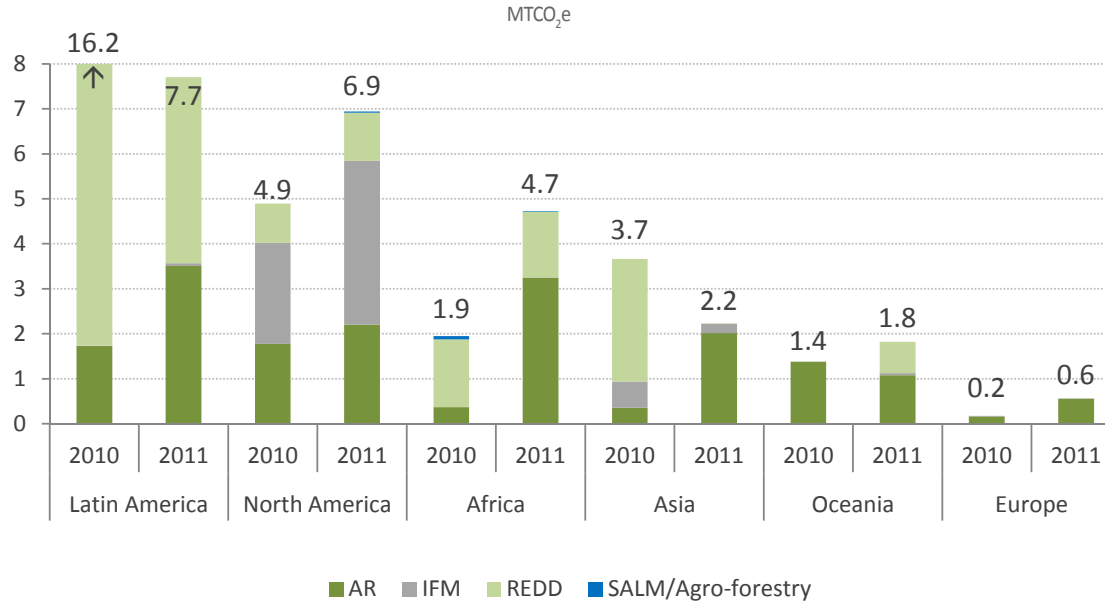
Forest carbon credits are each tied to land areas that feature unique environmental conditions and tenure arrangements. In the pursuit of risk mitigation and simplified project documentation, the largest number of projects that successfully contracted credits were situated on private land (53 projects contracting 11 $MtCO_2e$) – though the largest growth in volumes was seen among project areas featuring **collective or customary land rights**. The extent to which this designation also confers ownership of the carbon stock to community smallholders varies by country location. Another 3 $MtCO_2e$ of credits were generated on government-owned public lands, where some project developers have worked in tandem with under-resourced domestic conservation agencies to define, implement and monitor adherence to formal land use plans. The smallest volume of credits was generated from projects that went the route of obtaining land or conservation concessions, owing their low uptake to legal and administrative complexity.

Worldwide, projects that successfully contracted credits in 2011 were situated on 5 million forested hectares – 4.2 million ha of which was attributed to REDD projects. Combined with the areas impacted by historical projects that did not contract credits in 2011, forest carbon project developers reported their activities affect a total of 18 million hectares. Including historical projects that did not contract credits, the vast majority of this broader land area is also attributed to REDD projects (14 million ha), which as mentioned above support a wide variety of activities within their formal project boundaries.

Americas Retain Top Status for Forest Carbon Offset Supply

Supply of forestry credits varies highly by region. The volumes of credits contracted is not only a function of forest resources or threats but also the region's policy environment. Again in 2011, developers reported the largest volume of credits contracted from projects based in **Latin America and Caribbean countries** (LAC). The region reported the highest concentration of projects and inroads made to domestic voluntary market development. LAC countries nevertheless saw volumes fall 52% as developers encountered many of the challenges inherent to REDD projects, as well as country policies that tended to focus their efforts in 2011 on climate and forest measures other than those that directly incentivize project-level activities.

Figure 2: Transacted Volume by Project Location (Region) and Type



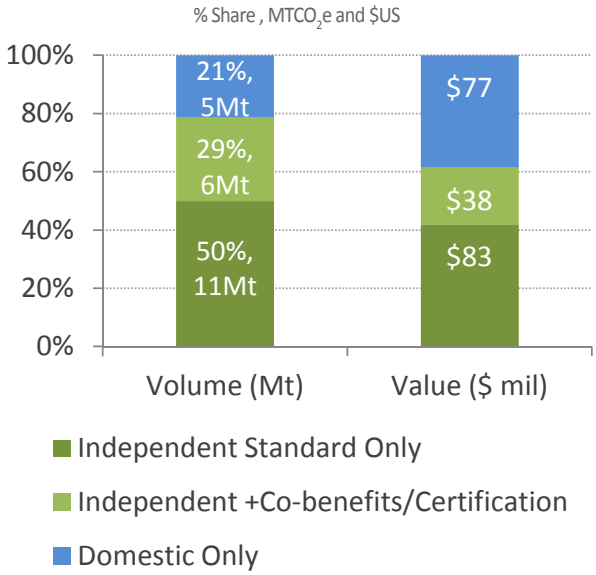
Source: Ecosystem Marketlace. Note: Based on 828 observations.

North America and Africa both posted increased market share in 2011, resulting from very different demand drivers. In North America, both supply and demand were split between purely voluntary action and compliance/pre-compliance demand from British Columbia and California-facing market players. In **Africa**, 97% of credits were sold to voluntary buyers in the EU. In **Asia**, volumes fell but developers reported significant technical developments on the ground, while volumes from projects in **Australia and New Zealand** got a boost over 2010 as developers made their way to the starting line for the Australian carbon price mechanism via the Carbon Farming Initiative (CFI) offset program.

VCS and CDM Vied for Ranking as Most-Used Independent Standard

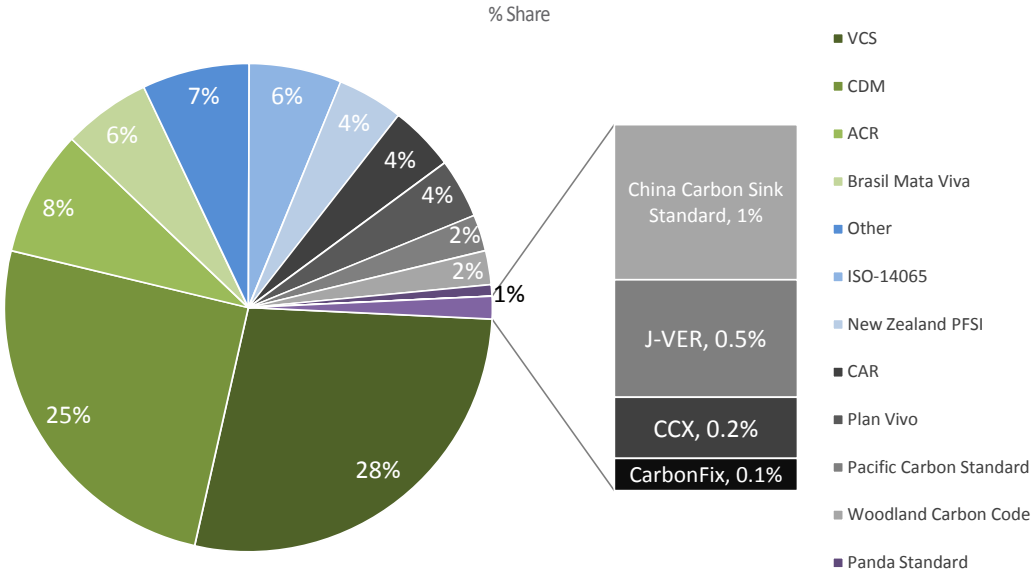
In 2011, the **VCS** retained its top spot among independent standards that offer methodologies for a variety of project types and regions, capturing 28% of overall global market share for carbon accounting standards with 6.5 $MtCO_2e$ transacted. In contrast to 2010 when the vast majority of VCS credits stemmed from REDD activities, this year's survey also tracked large volume contracts from VCS A/R and IFM projects. Behind VCS, **CDM** methodologies underpinned a record volume of credits sold to international compliance buyers. **American Carbon Registry** (ACR) forest carbon project offsets also transacted at record volumes in 2011. Though ACR projects were primarily US-facing in 2011, ACR also saw several international projects under development to the 2011 release of its first internally applicable REDD methodology.

Figure 3: Market Share by Standard Type, 2011



Source: Ecosystem Marketlace. Note: Based on 1,260 observations.

Figure 4: Market Share for Independent and Domestic Standards



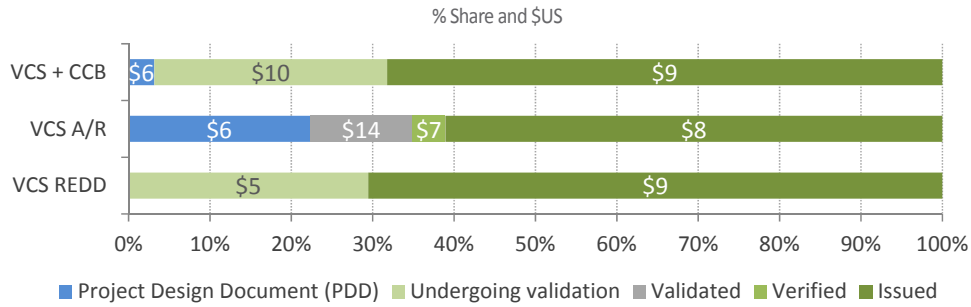
Source: Ecosystem Marketlace. Note: Based on 948 observations.

Meanwhile, the US pre-compliance market was divided between project pursuing early action credits for California's cap and trade scheme through the **Climate Action Reserve's** (CAR) US Forest Projects Protocol, versus those projects going straight to compliance protocols available in the state's regulatory text. The regulation protocols are adapted from the CAR protocol but do not require projects to undergo two project assessments – as is the case with projects originally developed under CAR. Purely domestic standards – both voluntary and compliance-facing – were reported being behind 21% of contracted volume and 39% of market value. Some of these programs have already been mentioned – others include New Zealand's Permanent Forest Sink Initiative (PFSI), China's Panda Standard and China Carbon Sink Standard, Japan's Verified Emissions Reduction Program (J-VER), Brasil Mata Viva and the Oklahoma Carbon Program.

Another 29% of credits using independent standards combined their carbon accounting tools with the certification of additional social and environmental benefits through the **Climate, Community and Biodiversity Standards (CCB)** – or were developed within land areas that secured additional certification for sustainable forestry or agricultural land use. Projects in this category achieved higher average prices overall.

With respect to price, most independent standards exhibited a wide range of prices that were determined by various project attributes. Two other important components of credit pricing that can be analyzed alongside the project standard are the project type and the stage the project had achieved at the time of transaction. Figure 5 shows that **VCS REDD project prices** exhibit the most typical pricing pattern rewarding the lower delivery risk associated with issued tonnes. Because of VCS REDD credits' relative "newness" in the marketplace, their pricing became fairly transparent as market players exchanged price observations throughout the year. Otherwise, even prices analyzed at this depth reveal very little in the way of trends due to the opacity and small size of the international marketplace for credits developed to independent standards. The price spreads for credits from standards within compliance and domestic markets were comparably narrower.

Figure 5: Market Share and Price by Popular Forest Project Types, All Markets 2011

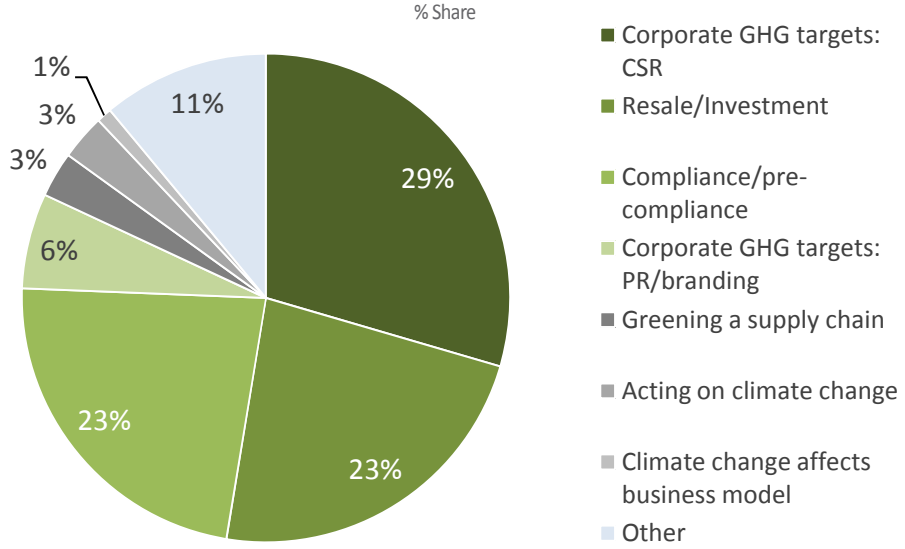


Source: Ecosystem Marketlace. Note: Based on 414 observations.

Most standards described above utilize a handful of **offset registries** to serialize, transfer and track their credits. In 2011, registries reported record issuance and retirement volumes. The majority of newly issued forestry credits were house on the Markit Environmental Registry, which supports one leg of the VCS registry system and also several other standards including CarbonFix, Plan Vivo and several domestic standards. In 2012, the CDM registry issued the first ever temporary credits (tCERs) from CDM A/R projects in Ethiopia and Brazil.

As seen in the burgeoning number and value of domestic programs, forest carbon project developers have followed the global carbon markets down the path of market fragmentation. This is also apparent in the profiles of forest offset buyers who range from sovereign country-scale buyers seeking tCERs to US-based intermediaries preparing for regional compliance demand to developing country corporates wading into corporate social responsibility commitments via domestic voluntary programs.

Figure 6: Market Share by Private Sector Buyer Motivation, All Markets 2011



Source: Ecosystem Marketlace. Note: Based on 621 observations.

Last year, **European buyers** contracted the largest volumes of credits, to surrender on behalf of their Kyoto Protocol obligations and/or to achieve voluntary aims. They were also the largest source of demand for credits from developing countries, but in 2011 a growing volume of credits from EU-based forestry programs like the UK Forestry Commission's Woodland Carbon Code also went to domestic buyers in their programs' respective countries. Domestic demand was not only relegated to the ranks of developed country buyers, but also saw examples of buyers China seeking Panda Standard or other local program credits, and Latin American exporters greening their end of multinationals' supply chains. As in previous years, buyers in the US were responsible for contracting the largest total volume of buyers in any one country, and primarily sought credits from projects within their own borders.

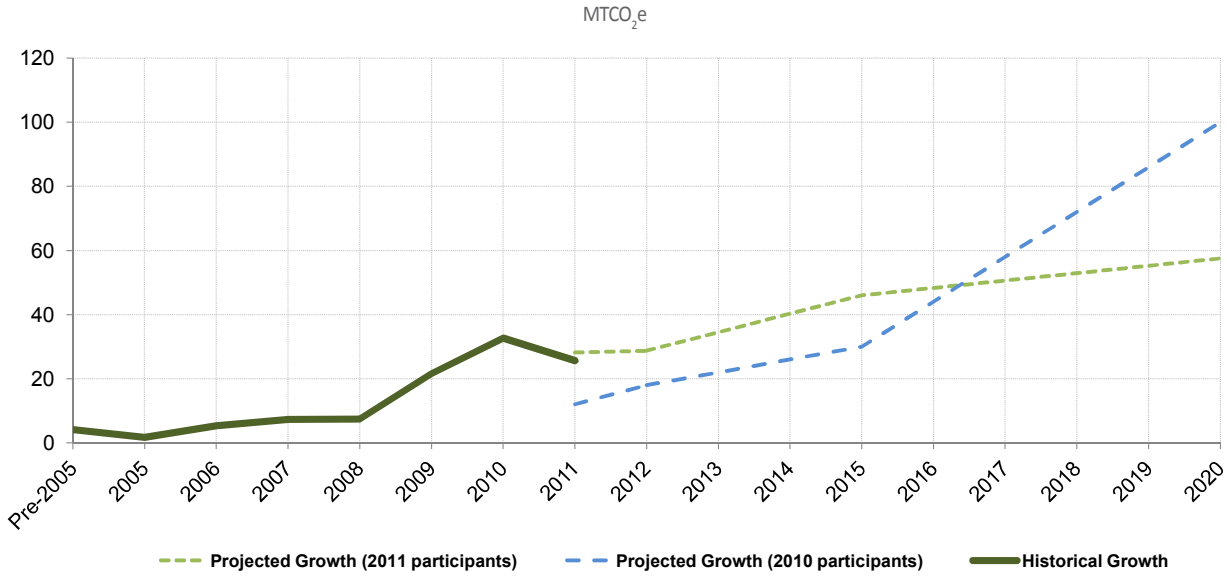
Reflecting the fact that the majority of forest carbon offset transactions occurred in the voluntary markets, the most prominent motivation for transactions is buying offsets in pursuit of CSR targets. Buyers motivated by resale and/or investment contracted another quarter of forest carbon offset volumes. Buyers with an eye on existing or potential compliance markets worldwide – from California to Chile – also contracted credits with the expectation of future regulations or to surrender at the end of Kyoto Protocol's first commitment phase (close of 2012). Other motivations fit squarely in the category of voluntary commitments. This includes "greening" a supply chain or acting on climate change in response to its impact on their business models.

Project Developers Await Steady Long-Term Growth

Forest carbon suppliers were asked again this year to predict the future of the forest carbon market and the volumes they expect from their own projects. While these predictions are subjective, they provide useful insight into the current temperament of the market and indications of where it might be headed. Developers responding to this question only slightly overestimated the size of the 2011 forest carbon market, predicting 28 $MtCO_2e$, when 26 $MtCO_2e$ was actually contracted.

Looking ahead, they expect transaction volumes in the current year (2012) to remain steady and contract an estimated 29 $MtCO_2e$. This estimate is perhaps the most accurate, as this survey was conducted in the first quarter of 2012 and many ways captures developers' immediate outlook on prospective transactions. Beyond 2012, and in contrast to 2010 developers' projections, respondents in 2011 were more conservative about their long-term outlook, anticipating a leveling off of growth after 2015 but no major disruptive events.

Figure 7: Project Developer Predictions, All Markets 2010-2011



Source: Ecosystem Marketlace. Note: Based on 832 observations from 37 developers.

Developers reported a total of 32 $MtCO_2e$ in reductions that they intended to contract in 2011 but instead carried over into 2012. Had developers contracted all volumes in their portfolios, the total 2011 volume would have been closer to 58 $MtCO_2e$. Looking ahead, developers anticipate generating another 243 $MtCO_2e$ from new project activities from 2012-2016. The makeup of this volume varies greatly from existing portfolios, where developers expect to double the volume of A/R credits that remained in their portfolios at the end of 2011 – as well to increase their current supply of REDD credits 41 times over (to 182 $MtCO_2e$ through 2016) and IFM credits, which may increase 1 ½ times over their current portfolio volumes.

Marketplace Branching Out in 2012

In the first three quarters of 2012, the landscape for forest carbon markets continues to evolve as different types of actors and project approaches enter the mix – and turn the market's lens on new ways to measure and monetize forest services. Efforts to "nest" project activities within jurisdictional frameworks – or to trial Free, Prior and Informed Consent procedures – that were mere blips on the radar in 2011, have recently come into clear view. So, too, have innovative approaches to blue carbon, milestones in credit issuance and the start of new compliance markets that all acknowledge forestry's integral role in the fight against climate change.

Developers report that the new year has also carried over some existing challenges identified in our 2011 data, as the struggle continues for developers to identify fresh sources of offset demand in the international voluntary markets – where new buyers have been slow to step up to the plate in response to extenuating economic circumstances. In response, 2012 has seen some effort to reignite international voluntary demand for offsets through programs like the Code REDD campaign, intended to raise corporate awareness around the critical need for REDD.

Some of the most promising project incentives are entering the market at the domestic level – like the Australian government's $250 million fund to kick start purely voluntary domestic activities. As seen with government offset purchase programs in other sectors, this type of action could serve as a successful bridge to compliance market "readiness," innovation and scaled up project activities – primarily benefitting projects that are literally in the right place at the right time. But if recent events are any indication, "purely domestic" markets for forest carbon maybe expanding their own field of vision, seeing the majority of active and pending regional to national marketplaces now weighing linkages with other regions at various depths and scale. This may in turn push forestry to the

front of the agenda as each program weighs the relative merits of its domestic approach against the use of more fungible independent standards and registries.

At the project level, both our data and discussions with market players reveal a genesis of new structures for developing and financing international forestry projects – as developers demonstrate increasingly sophisticated relationships between forest carbon assets and other agricultural commodity markets; formalize the community role in REDD; and deepen their relationships with the agencies responsible for piloting donor-funded forestry initiatives in hopes of gaining access to that value as it slowly makes it way to projects on the ground.

With one eye on these nascent opportunities and the other on immediate project needs, developers, standards bodies and their stakeholders carry on in their quest to take the forest carbon market to the next level in 2012 – forging new tools for market tracking, and collaborating between standards and with buyers and governments themselves to ensure that forest carbon consciousness is at the heart of the year's key corporate and policy decisions.

Table of Contents

Acronyms

A/R	Afforestation/reforestation
AAU	Assigned Amount Unit
AC	Avoided Conversion
ACCU	Australian Carbon Credit Unit
ACR	American Carbon Registry
AFOLU	Agriculture, Forestry and Other Land Use
ARB	Air Resources Board
BC	British Columbia
BOCM	Bilateral Offset Credit Mechanism
CAR	Climate Action Reserve
CCB	Climate, Community and Biodiversity Standard
CCO	California Compliance Offset
CCX	Chicago Climate Exchange
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CFI	Carbon Farming Initiative
CPM	Carbon Pricing Mechanism
CSR	Corporate Social Responsibility
DAFF	Department of Agriculture, Fisheries and Forestry
ERC	Ecosystem Restoration Concession
ERU	Emission Reduction Units
ETS	Emissions Trading Scheme
FCPF	Forest Carbon Partnership Facility
FFI	Fauna and Flora International
FIP	Forest Investment Program
FPIC	Free, Prior and Informed Consent
FSC	Forest Stewardship Council
GCCL	General Climate Change Law
GCF	Governors' Climate and Forests Task Force
IFM	Improved Forest Management

J-VER	Japan's Verified Emissions Reduction Program
JI	Joint Implementation
JICA	Japanese International Cooperation Agency
lCER	Long-term Certified Emission Reductions
ICROA	International Carbon Reduction and Offsets Alliance
LDC	Least Developed Country
NGAC	New South Wales Greenhouse Abatement Certificate
NSW GGAS	New South Wales Greenhouse Gas Reduction Scheme
NZ FOA	New Zealand Forest Owner Association
OTC	Over-the-Counter
PCE	Parliamentary Commissioner for the Environment
PCT	Pacific Carbon Trust
PEFC	Programme for the Endorsement of Forest Certification
PES	Payment for Ecosystem Services
PPD	Project Design Document
PFSI	Permanent Forest Sink Initiative
QHEX	Qinghai Environment and Energy Exchange
REDD	Reducing Emission from Deforestation and forest Degradation
RGGI	Regional Greenhouse Gas Initiative
RMU	Removal Unit
RRI	Rights and Resources Initiative
SALM	Sustainable Agricultural Land Use
SNV	Netherlands Development Organization
tCER	Temporary Certified Emission Reductions
tCO2e	Units of Metric Tonnes of Carbon Dioxide Equivalent
UK DFID	UK Department for International Development
UN FAO	UN Food and Agriculture Organization
UN REDD	UN REDD Programme
UNDRIP	UN Declaration on the Rights of Indigenous Peoples
VCS	Verified Carbon Standard
VER	Verified Emissions Reductions
WCS	Wildlife Conservation Society
WRI	World Resources Institute
WWF	World Wildlife Fund

Glossary of Common Report Terms

Afforestation/Reforestation (AR): The establishment of forest on areas without forest cover, capturing additional carbon in new tree biomass and other carbon pools; emissions reductions occur primarily through additional sequestration.

Agro-forestry: Land is managed using intermingled agricultural and forestry strategies, sequestering additional carbon in trees and/or soil and reducing carbon emissions compared to business-as-usual agricultural practices; emissions reductions may occur through additional sequestration and/or avoided emissions.

Baseline: The estimate of GHG emissions, population, GDP, common practice and other factors that would have occurred without undertaking any climate change mitigation

Carbon credit/offset: In this report series, a carbon credit is defined as an instrument representing the reduction, avoidance or sequestration of one metric tonne of CO_2 or GHG equivalent.

Co-benefits: Additional environmental, social or other benefits arising from a carbon project that are quantified based on metrics or indicators defined by the project developer; a co-benefits certification program; or third-party carbon project standard that accounts for both climate and co-benefits. Some registries and standards enable co-benefits certification to be "tagged" onto issued carbon credits, if quantification and verification of co-benefits are not already embedded in a carbon project standard

Compliance markets: Marketplaces through which regulated entities obtain and surrender emissions permits (allowances) or offsets in order to meet predetermined regulatory targets. In the case of cap-and-trade programs, participants – often including both emitters and financial intermediaries – are allowed to trade allowances (and often ofsets) in order to make a profit from unused allowances or offsets, or to meet. regulatory requirements.

Improved Forest Management (IFM): Existing forest areas are managed to increase carbon storage and/or to reduce carbon losses from harvesting or other silvicultural treatments; emissions reductions may occur through additional sequestration and/or avoided emissions.

Issuance/issued credits: Once a carbon offset project has been validated, verified and undergone other required processes, carbon credits can be issued to the project owner with a unique identifier; and tracked, transferred and retired by a designated registry

Reduced Emissions from Deforestation and Forest Degradation (REDD and REDD+): Existing forest areas with demonstrable risk of land-use change or reduced carbon storage are conserved, resulting in the avoidance of a business-as-usual scenario that would have produced higher emissions; emissions reductions occur primarily through avoided emissions. In 2010, negotiators in Cancun defined the "plus" as encompassing reduced emissions from deforestation and forest degradation, as well as additional efforts to sustainably manage forests, and conserve and enhance carbon stocks.

Registry: A registry issues, holds and transfers carbon credits, which are given unique serial numbers to track them throughout their lifetime, and can also retire credits. In compliance markets, each scheme has its own registry designation. In the voluntary market, there are independent registries available

Retirement: The point at which a carbon credit that is purchased voluntarily is permanently set aside by its owner in a designated registry – effectively taking the carbon credit's unique serial number out of circulation. Retiring credits through a registry ensures that credits cannot be re-sold – of particular importance if the buyer's intent is to claim the credits' emissions reductions against a carbon reduction or neutrality target.

Sequestration: The long-term storage of carbon in the biosphere or subsurface terrestrial features in order to reduce its concentration in the atmosphere

Standard: A set of project design, monitoring and reporting criteria to which carbon offsetting activities and/or projects' environmental, social and other co-benefits can be certified or verified. In the voluntary markets, a number of competing standards have emerged with the intent to increase credibility in the marketplace. More recently, national and sub-national regulated markets have also designed standards specific to regional needs, for voluntary or regulatory use.

Sustainable Agricultural Land Use (SALM): Land is managed to increase carbon stocks in the agricultural landscape. Project activities may include use of cover crops, improved tillage practices and agroforestry, among other practices.

Transaction ("transacted"/"contracted"): We consider "transactions" to occur at the point that credits are contracted or suppliers otherwise agree to deliver credits immediately or in the future. Payment and delivery of issued credits can occur simultaneously ("spot" transaction); payment can occur immediately ("pre-pay") or upon delivery ("pay on delivery") for credits expected to be issued in the future; and contracts can specify a firm volume of credits to deliver ("firm" or "fixed" delivery), or specify that delivery and payment are based on the volume of credits actually issued to the project in the future ("unit contingent"). This report tracks all of the above contract types – as well as some types of options contracts – as "transactions."

Validation: The approval of carbon offset projects in their planning stages, when projects must submit for approval information on project design, including information on baseline scenarios, monitoring schemes and methodologies for calculating emission reductions

Voluntary (or Verified) Emissions Reductions (VERs): General term for offset credits transacted in the voluntary carbon markets

Verification: The process of verifying emissions credits generated by an offset project to a particular standard, which quantifies the amount of actual emission reductions to guarantee that this amount aligns with the number of credits to be issued to the project; or to verify the delivery of a project's stated environmental, social and other co-benefits

Voluntary carbon markets: Markets through which firms, individuals and organizations voluntarily buy emissions reduction credits to counterbalance their net carbon emissions

Foreword

The role that forests play in climate regulation is indisputable. Despite this knowledge, forests entered the main stage of climate policy discussions a few years ago. The many contributions of trees intersect an entanglement of ethical, political, ecological and financial variables. In the past, this web was one reason why forests were sidelined in international climate negotiations--- to the detriment of ecosystems around the world. Now that forests have entered the thick of both international and domestic policy discussions, actors must navigate instead of avoid these complexities – in order to put a meaningful price on forests' climate impacts and other ecosystem services. In response, stakeholders are operating at continually more sophisticated levels.

The title of this year's report, Leveraging the Landscape, alludes to the notion that forest carbon offset projects are increasingly eying the full range of emissions reduction opportunities within their landscapes. More broadly, it refers to the "landscape" of complexities and actors involved in protecting forests. This arena intertwines disciplines including climate science, policy, law, finance and economics. Thankfully, stakeholders in this space are not starting from scratch but are instead leveraging over 20 years of experience.

Forest Trends launched Ecosystem Marketplace seven years ago in response to a call from a growing community of practice in the field of payments for ecosystem services. Although an inspiring array of projects and programs were being implemented around the world, basic information about these investments remained limited. Transparent and reliable information is critical in any marketplace. We believe it is particularly critical in these multifaceted forest carbon markets – for empowering stakeholders from indigenous communities to climate policy negotiators to private sector offset buyers and investors .

We hope this third annual State of the Forest Carbon Markets report will facilitate in leveraging the experiences of over 451 forestry projects that have transacted credits or are in development and shared data to this report series. Thank you to the many individuals who contributed to the following analysis. We look forward to working with you again to continue covering this evolving marketplace.

Michael B. Jenkins,
President and CEO, Forest Trends

Katherine Hamilton,
Director, Ecosystem Marketplace

1. Methodology

This report is designed to track global transactions of emissions reductions from forest carbon projects. It is primarily based on data collected from forest carbon project developers. It covers both compliance carbon markets—such as the Kyoto Protocol-based markets, the New Zealand Emissions Trading Scheme (NZ ETS), and the New South Wales Greenhouse Gas Abatement Scheme (NSW GGAS)—and voluntary transactions of forest carbon offsets that occur "over the counter" (or the "Voluntary OTC Markets").

1.1 Accounting Framework

For the purpose of this report, we define a transaction as a signed contract between a seller and a buyer to deliver carbon credits – either in 2011 or in the future – in exchange for funds. Respondents to the survey were asked to report market activity within the framework of contracted transactions. Annual market volumes and prices are reported according to the years in which each contract was signed. These volumes include contract types with future or optional delivery of credits and/or funds and thus are not synonymous with already-executed delivery of credits in exchange for funds. Due to the complex nature and timing of delivery under these contracts, we chose this accounting methodology as the most feasible for estimating aggregate market activity.

The marketplaces tracked in this report host transactions from a wide variety of projects commonly referred to as "carbon credits" or "carbon offsets." Although most projects in these markets now transact credits as financial instruments with specified units (e.g., Verified Emissions Reductions or VERs, temporary Certified Emissions Reductions or tCERs, etc.), we have not excluded projects or transactions where emission reduction benefits are conveyed to a buyer without the creation of credits in a technical sense. The use of the terms "offsets" and "credits" throughout this report incorporates this broader scope of emission reduction benefits being transacted in the marketplace.

This report provides analysis of forest carbon projects that are market-linked. It does not cover non-market-linked government payments for ecosystem services (PES) programs in which forest carbon assets are valued or the numerous "demonstration" projects that have begun around the world that have no links to carbon markets.

Market participants, observers, and stakeholders will benefit from greater transparency and access to information about forest carbon projects in general. We have therefore not applied any subjective filtering to exclude data based on perceived quality of the offsets contracted, the type of contracts used, or of the projects themselves. Nevertheless, we did follow up with dozens of respondents to confirm and clarify problematic or inconsistent survey responses.

The volumes of transactions presented throughout this report are specified in units of metric tonnes of carbon dioxide equivalent (tCO_2e). Millions of metric tonnes of carbon dioxide equivalent are represented hereafter as $MtCO_2e$. All monetary values are reported in US Dollars unless otherwise noted. All variables are volume-weighted for significance (including prices) unless presented as an actual volume or project count. Market share is determined by dividing by the total volume associated with the question – not by the total market size. Related to this, we do not extrapolate data except when explicitly stated.

1.2 Data Sources

The principal source of data for this report is an online survey designed for developers of forest carbon projects. Survey responses were paired with secondary market data from the *State of the Voluntary Carbon Markets 2012* report. This annual analysis of the voluntary carbon markets was also the source of some primary market data not provided through the forest carbon project developer's survey. These surveys were both available online between January 28 and April 15, 2012. Invitations were sent to roughly 1,400 organizations identified as potential carbon market suppliers, including participants from previous carbon market reports by Ecosystem Marketplace. Further notices were also advertised via electronic distribution lists and newsletters including but not limited to Forests-L, Climate-L, Ecosystem Marketplace's News Briefs and on the Forest Carbon Portal website (www.forestcarbonportal.com).

Responses from project developers and other market players were complemented with data provided by structural market service providers such as standards organizations and registry operators, including information retrieved from public records as well as through direct communication with representatives at these organizations. These additional data sources are referenced throughout the report where appropriate.

1.3 Confidentiality

This report presents data in an aggregated manner to prevent attribution to individual respondents. Price points are presented only if three or more responses were available. Any data presented that identifies specific organizations has been confirmed and approved by each organization or was publicly available.

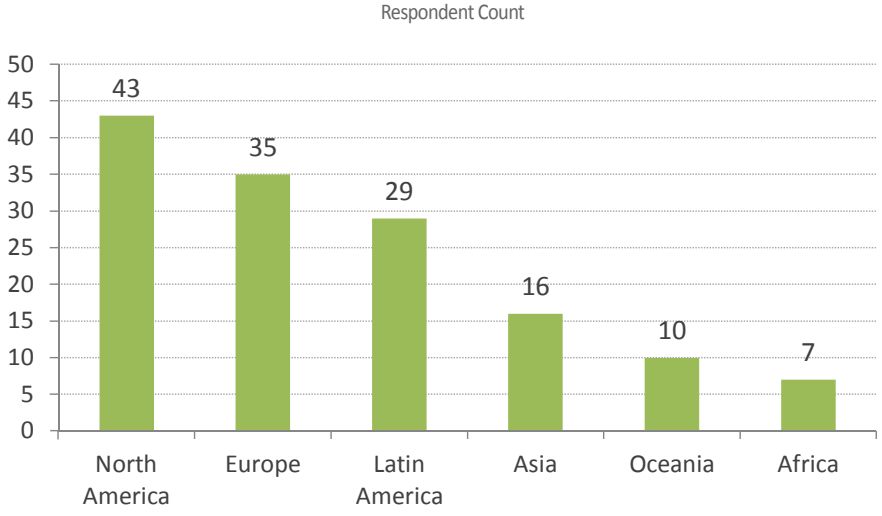
Many of the projects reported to the *State of the Forest Carbon Markets 2012* survey have chosen to be featured in the international Forest Carbon Project Inventory on Ecosystem Marketplace's Forest Carbon Portal website. Project-level details and contact information for each of these projects can be found at www.forestcarbonportal.com.

1.4 Survey Response Rates

The data presented in this report is built upon direct responses to the forest carbon project developers' survey in 2012 from 140 organizations. These organizations provided project-level information in varying degrees of depth for 215 projects – 105 of which transacted credits in 2011. Another 35 suppliers reported an additional 75 unique forest carbon credit transactions through the *State of the Voluntary Carbon Markets 2012* survey of both primary and secondary market activities. Combining the data collected this year from both the voluntary and forest carbon market reports as well as from previous years, this report captures a total data set from 451 individual forest carbon projects taking place in 40 countries around the world.

The largest number of responses was from organizations headquartered in the United States (32), followed by the United Kingdom (14), Canada (11), Brazil (10), Australia (7), Italy (7), Germany (6), Mexico (5), and the Netherlands (4). All other countries contained 3 or fewer organizations that responded to this survey. For the regional distribution of responding organizations, see Figure 8.

Figure 8: Response Rate by Project Developer Headquarters Region



Source: Ecosystem Marketplace. Based on 140 observations.

2. Global Market Overview

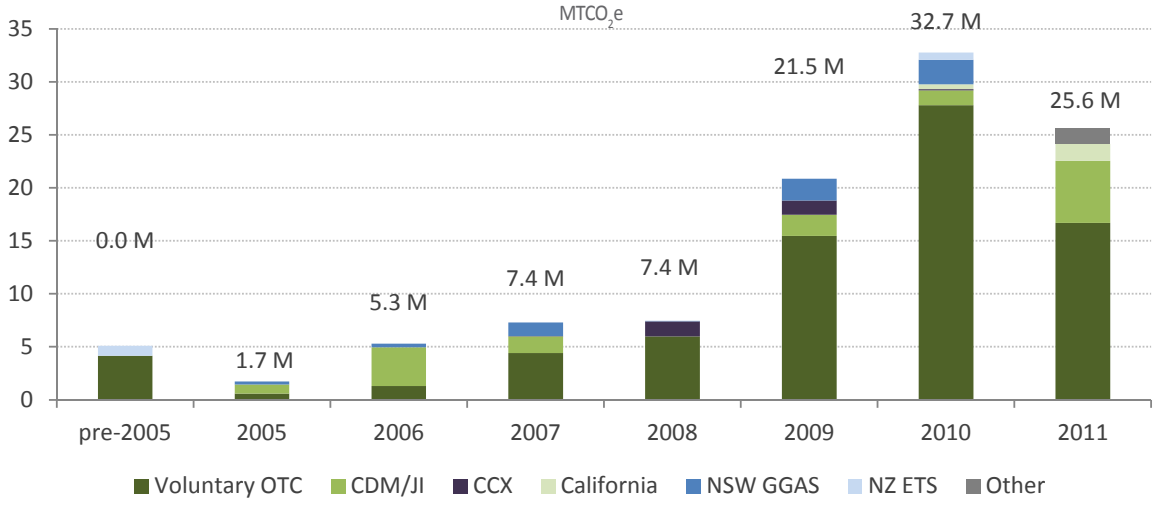
In 2011, forest carbon project developers reported the highest overall value ever attributed to the global marketplace for forestry offsets – totaling $237 million. While values increased 29%, transaction volumes declined 22% from 2010 record volumes. In 2011, 26 $MtCO_2e$ were contracted for immediate or future delivery. In all cases, demand and prices were again highly stratified according to buyer motivations, suppliers' market roles and type of forest carbon project.

The voluntary market[2] contributed most to the markets' decline in volumes, contracting 36% less volume than in 2010. This can be attributed to global carbon price pressures, new methodologies and a host of other factors addressed in detail in the Section "Voluntary Market Trends."[3] CDM projects, on the other hand, contracted 49% more volume in 2011 as projects ramped up operations to issue credits before the end of the first Kyoto compliance period (Section Clean Development Mechanism Market Trends). Meanwhile, several suppliers in the New Zealand and New South Wales compliance markets shifted their attention to voluntary buyers or wound down operations as the Australian carbon price came online without a provision for recognizing forestry credits from existing program. Developers in these marketplaces reported too few compliance transactions to report in aggregate.

For the first time in this survey, suppliers reported a growing volume of credits contracted by buyers in response to regulatory signals in North America, including British Columbia's (BC) Carbon Neutral Government directive, the Alberta Carbon Market and California's impending compliance carbon program.

To demonstrate their market size, volumes contracted in the California pre-compliance market are presented separately in Figures 9 and 10, but are included in voluntary market analysis throughout this report, as the California compliance market was not yet active in 2011. Alberta, British Columbia and Australia program offset volumes are captured in the "other" compliance/pre-compliance markets category due to the small number of transactions reported from these marketplaces.

Figure 9: Historical Transaction Volumes by Forest Carbon Market

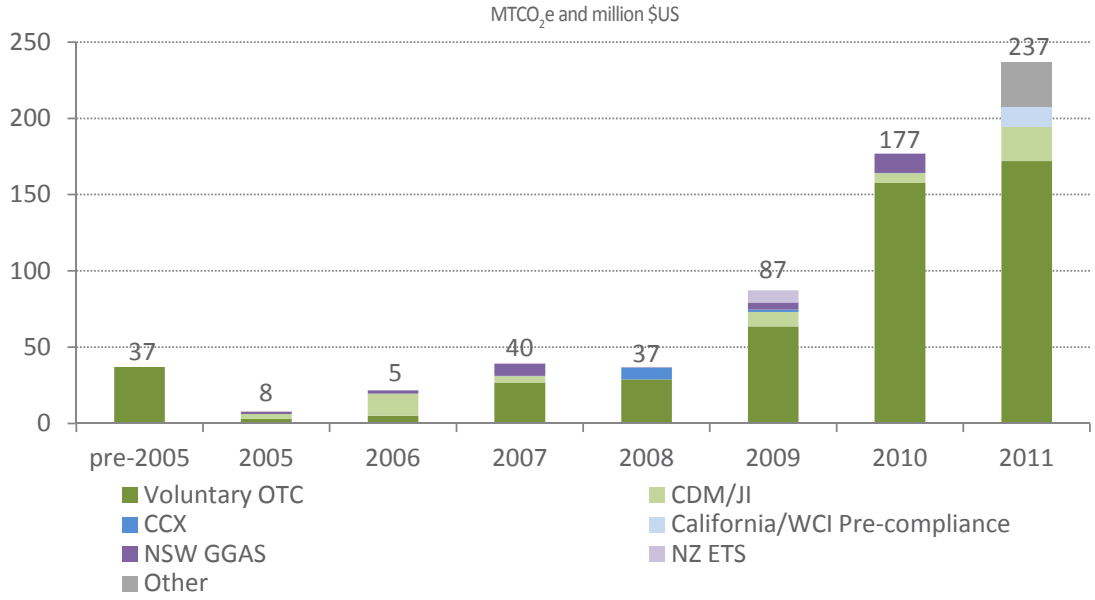


Source: Ecosystem Marketplace. Note: Based on 653 observations.

2 The voluntary market represents transactions that occur over the counter ("OTC"), rather than on a formal exchange. Voluntary action is typically motivated by social responsibility or to prepare for a compliance scheme – and is not mandated by any existing government directive or regulation. Compliance market transactions involve credits developed and contracted for use against regulatory obligations to reduce emissions, which can be partially met by offset purchases in some regions.

3 Lower transaction volumes reported in the 2011 voluntary market may also be attributed to the loss of one survey respondent that reported significant transaction volumes in the 2010 and 2011 *State of* report surveys. Excluding this supplier's volume from the 2010 market, volumes contracted in 2011 fell by 22%.

Figure 10: Historical Value by Forest Carbon Market[4]



*Source: Ecosystem Marketplace. Based on 965 observations. *2008-2010 values for the NSW GGAS market should be considered conservative due to limited market price data.*

2.1 Volume and Value: Price Peak

Survey respondents reported that the overall market value of forest carbon offset transactions reached $237 million in 2011. Reported values increased 33% from $177 million in 2010.

As in previous years, most of this value was created in the voluntary market. However, the largest growth in value creation occurred in the compliance markets, where projects in the CDM markets and other domestic markets benefitted from a high "set" price of $25/$tCO_2e$ for government buyers in the British Clumbia scheme and larger CDM transaction volumes.

The global average forest carbon price – in 2011, $9.2/$tCO_2e$ – marks the starting point for a discussion of market price dynamics, but is the aggregation of hundreds of reported price points that vary greatly by project standard, location and other environmental and social co-benefits – ranging from less than $1/$tCO_2e$ to over $100/$tCO_2e$ in 2011. Other report sections provide more in-depth discussion and analysis around prices in the voluntary markets (Section "Voluntary Market Trends"), the CDM (Section "Clean Devlopment Market Trends), by project type (Section "Project Level Trends"), standard (Section "Standards"), and region (starting on page 51).

The value of 2011 transactions alone was 1 ½ times the value of pledges so far made to the UN-REDD programme to support REDD readiness activities – and in many cases represents direct support for project-level activities.

All told, this report series has tracked a cumulative 106 $MtCO_2e$ in offsets contracted from 451 forest carbon projects historically, valued at $644 million over time (Figure 11). While these figures pale in comparison to the size of the global carbon markets (10,281 $MtCO_2e$ worth $176,020 million in 2011) the value of 2011 transactions alone was almost twice the value of pledges so far made to the UN-REDD Programme[5] to support REDD readiness activities; or slightly more than the $219 million pledged by donor countries to the Forest Carbon Partnership Facility's newly active Carbon Fund.[6] As demonstrated in this report, much of this value was contributed by hundreds of companies acting on a voluntary basis in response to – or in spite of – a relatively weak or uncertain regulatory environment.

4 Volumes not tied to a price were multiplied by each marketplace's average price and added to its total. This change in methodology means that annual total values may differ from previous reports.

5 $121 million as of September 2012. http://mptf.undp.org/factsheet/fund/CCF00

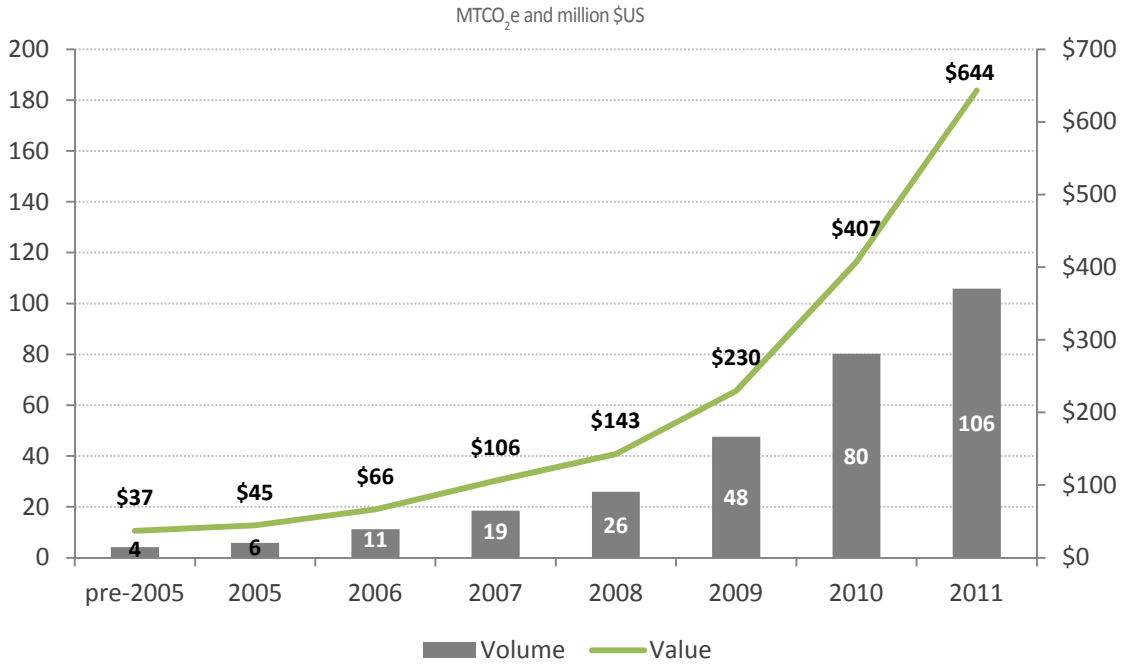
6 http://www.forestcarbonpartnership.org/fcp/node/12

Table 2: Volume, Value, and Prices in the Forest Carbon Markets (Primary & Secondary Markets)[6]

		VOLUME		VALUE		AVERAGE PRICE	
MARKET	HISTORICAL	2010	2011	2010	2011	2010	2011
Voluntary OTC	76.4 M	27.8 M	16.7 M	$157.8 M	$172 M	$5.6	$10.3
California /WC pre-compliance	2.0 M	0.5 M	1.6 M	-	$13 M	-	$8.1
CCX	2.9 M	0.1 M	0 M	$0.2 M	-	$1.2	-
Voluntary Total	**81.4 M**	**28.4 M**	**18.3 M**	**$158 M**	**185 M**	**$5.6**	**$9.2**
CDM/JI	15.3 M	1.4 M	5.9 M	$6.3 M	$23 M	$4.5	$3.9
NSW GGAS	6.3 M	2.3 M	-	$13 M	-	-	-
NZ ETS	0.9 M	0.2 M	-	$0.3 M	-	$13	-
Other / Unknown	1.9 M	0.4 M	1.5 M	-	$29M	-	$19.7
Compliance Total	**24.5 M**	**4.4 M**	**7.3 M**	**$25.0 M**	**$52 M**	**$4.6**	**$7.2**
GRAND TOTAL	**105.9 M**	**33 M**	**26 M**	**$177 M**	**$237 M**	**$5.5**	**$9.2**
Primary Market	*95 M*	*32 M*	*21 M*	*$143*	*$143 M*	*$5.5*	*$8.1*
Secondary Market	*11.3 M*	*1.2 M*	*4.9 M*	*$4.8 M*	*$54.7 M*	*$7.6*	*$12.1*

*Source: Ecosystem Marketplace. Notes: Based on 965 observations in 2011; >1,000 total historical observations. "Other" category includes markets with fewer than three data points. *2008-2010 values for the NSW GGAS market should be considered conservative due to limited market price data.*

Figure 11: Cumulative Volume and Forest Carbon Market Transactions, All Markets



Source: Ecosystem Marketplace. Based on 695 observations.

2.2 Global Distribution: Compliance Climbs

Across the globe, forestry offsets were contracted from projects in 41 country locations. In 2011, projects in the voluntary OTC marketplace added 11 new country locations to the roster of countries hosting forest carbon offset projects. By comparison, registered CDM A/R activities expanded to one new country in 2011. Project developers in both markets are in many ways limited by countries' sovereign and market risks – but CDM projects face the additional hurdle of requiring formal government approval from the host country, which could be slowed considerably by governments with limited capacity. They are also by design relegated to developing country locations, where one in every five CDM A/R projects registered or undergoing validation is based in a Least Developed Country (LDC). By comparison, the voluntary market offers an array of options for project types and methodologies that are applicable across many geographies.

7 Volumes not tied to a price were multiplied by each marketplace's average price and added to its total. This change in methodology means that annual total values may differ from previous reports..

Table 3: Cumulative Number of Projects and Country Locations, Voluntary vs. CDM Forest Carbon Markets

Cumulative Number of Forest Project Country Locations, CDM vs. Voluntary							
	2005	2006	2007	2008	2009	2010	2011
CDM	1	10	13	13	16	18	19
OTC	18	20	27	31	34	42	53
Cumulative Number of Forest Projects, CDM vs. Voluntary							
	2005	2006	2007	2008	2009	2010	2011
CDM	1	10	14	14	19	22	40
OTC	18	26	44	58	83	132	179

Source: Ecosystem Marketplace and UNEP Risoe CDM/JI Pipeline Analysis and Database. Based on 291 responses.

Table 3 illustrates that new project-level activities within the voluntary OTC market continued unabated in 2011, when suppliers reported 47 projects that transacted credits for the first time last year – comparable to the 53 newly active projects tracked in 2010. The CDM also saw a large number of newly active projects in 2011 (18), many of which were pursuing registration ahead of the end of the Kyoto Protocol's first compliance period in December 2012.

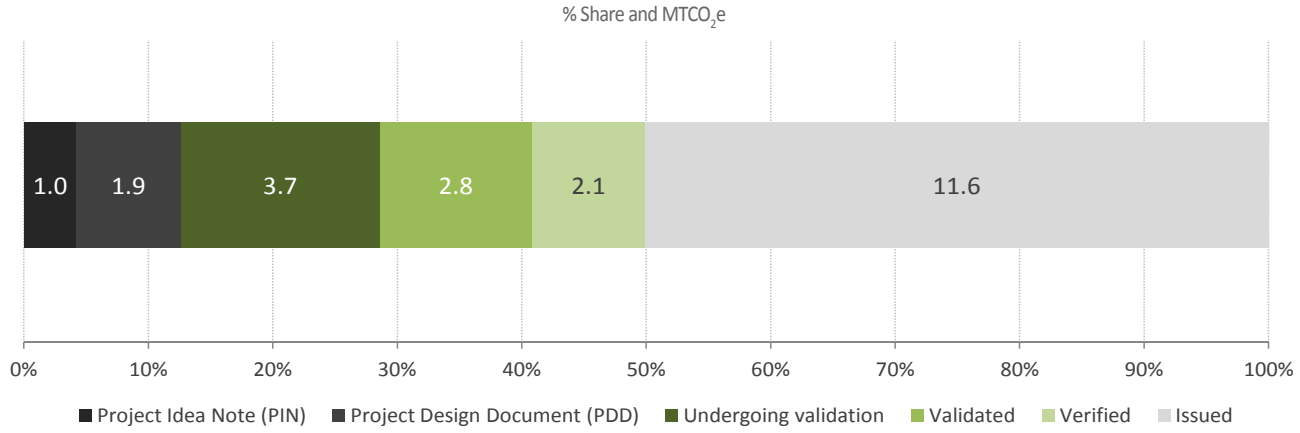
2.3 Project Stage: From Idea to Issued

Whether they involve planting, protecting or better managing forests, forestry projects sequester or avoid greenhouse gas emissions – even if they do not receive or retire carbon credits. While 41% of forest carbon credits contracted in 2011 was from projects that had not yet achieved verification, most investments occur with the expectation that the project will verify and issue – and in some cases retire – carbon credits.

Credits can be traded and surrendered in a compliance marketplace - or retired in the voluntary carbon marketplace - only once they have been verified and issued.In some cases, voluntary corporate buyers prefer making carbon neutrality claims based on their purchase and retirement of credits. For example, in cases such as the New Zealand Commerce Commission's Guidelines for Carbon Claims, buyers are even obligated to disclose to consumers when their carbon neutral claims involve credits that have been forward sold and not yet issued. [8]

Due to the complexities of project accounting, many projects have only begun to issue credits. In 2011, 6.7 $MtCO_2e$ were issued by major registries, which also reported another 1.6 $MtCO_2e$ retired. This represents the largest volume of forest carbon credits ever issued in a single year – and so also eligible for retirement. For more information on registry activity in 2011, see Section "Registries: Raising the Bar."

Figure 12: Market Share (Labeled by $MTCO_2e$) by Project Stage at Time of Transition



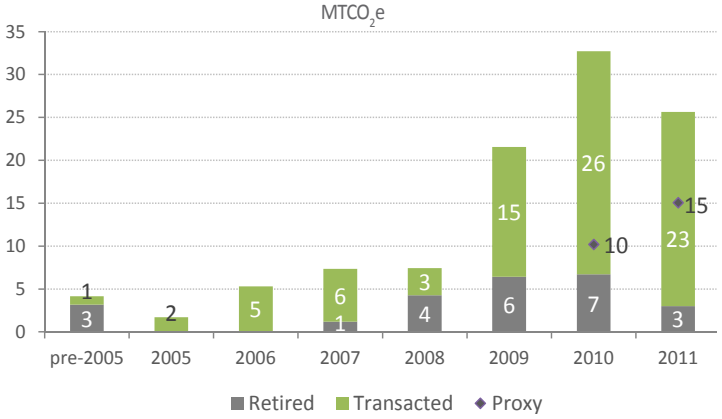
Source: Ecosystem Marketplace. Note: Based on 497 observations.

8 http://www.comcom.govt.nz/media-releases/detail/2009/guidelinesoncarbonclaimsandthefair/

In comparison to registry data, *State of* survey respondents reported that 12 $MtCO_2e$ of credits transacted in 2011 (across all project and market types) were issued. Combined with credits that were verified but had not yet been issued on a registry, a total of 59% of all transacted volumes and 57% of all value created in the market were contracted from late stage projects and eligible for retirement.

Of the total 13.8 $MtCO_2e$ that suppliers contracted from projects that achieved verification, 22% or 3 $MtCO_2e$ was reported in our survey as retired. Cumulatively, the volume of retired credits reported in our survey exceeds the volume of credits that have been issued by major registries to date. This volume not only includes tonnes that suppliers are contractually obligated to retire once they're issued, but also credits that suppliers or programs designate as "retired" within internal registry systems that are not associated with major third-party offset standards.

Figure 13: Historical Transaction and Retirement Volumes (All Markets)

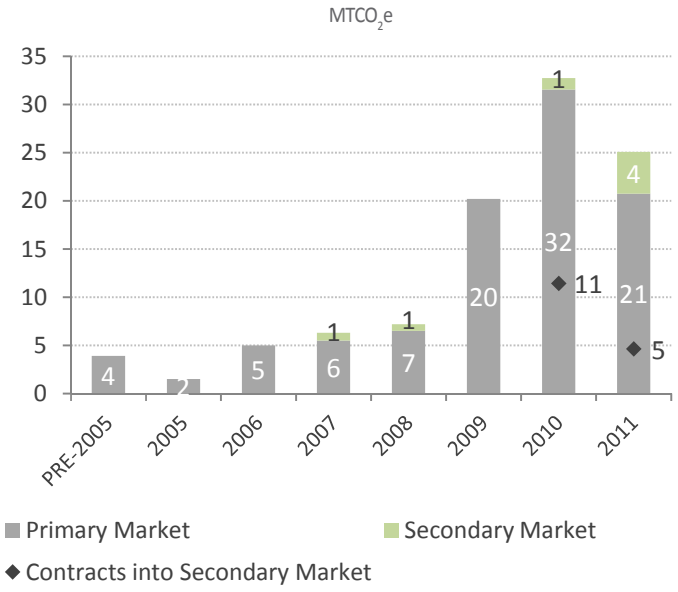


Source: Ecosystem Marketplace. Based on 517 observations.

Because some suppliers cannot confirm the fate of their credits once ownership changes hands, we also look at another question in the survey regarding buyer motivations to determine what volume of transacted credits could possibly be retired, in 2011 or in the future. Seen in Figure 13, this is the "proxy" retirement figure and represents the proportion of credits sold to buyers who indicated their intention to retire the credits. This figure is higher in 2011 (while actual retirements in 2011 are lower) as a result of more specific survey language around current-year versus future retirements.

2.4 The Supply Chain: Going Once, Going Twice

Figure 14: Volumes Contracted from Primary versus Secondary Market Sellers, and Sold by Developers *into* Secondary Market, All Years



Source: Ecosystem Marketplace. Based on 704 observations.

The primary market for forestry credits is defined as the initial transaction of credits from the project developer to the first buyer in line – this can be a credit retailer or wholesaler (i.e., the "secondary market") or a buyer of credits for "end use" in the voluntary or compliance markets. Compared to the broader CDM or voluntary markets – where 88%[9] and 56% of credits were transacted by secondary market players in 2011, respectively – primary transactions of credits sold into the secondary market or directly to end users dominate activity in the forest carbon markets (see also Box 4 "Primary Markets Skipping the Middleman").

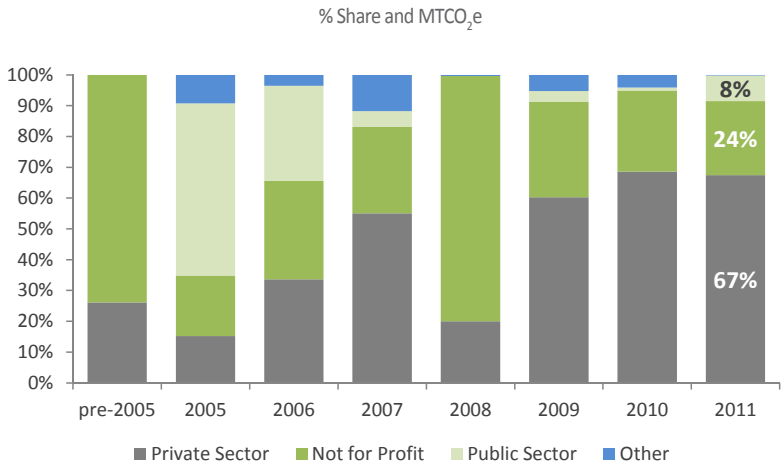
Figure 14 illustrates a larger volume of credits contracted by secondary market offset suppliers in 2011, owing both to the large volume of credits contracted *into* the secondary markets in 2010 and the larger volume of issued or verified tonnes available. Suppliers reported that two out of three credits transacted in the secondary market were verified. A downward trend in the volume of tonnes contracted *to* secondary market players – as well as issues with primary market pricing – suggest that the secondary market for forest carbon offsets remains limited.

9 World Bank. State and Trends of the Carbon Markets 2012.

2.5 Supply by Sector

Project developers' profit status varies widely from well-established non-profits executing large multi-year contracts in some years to government agencies supplying credits from domestic projects, to traditional corporate actors. In 2011, the public sector saw small but significant growth in its market share of credits supplied, while the market share for both private sector entities and NGOs has remained relatively steady since 2009. In 2011, private sector actors again held fast to their position as the market's dominant source of forest carbon offset supply – partly due to private actors' mobilization around emerging and future compliance markets that have considered recognition of forest carbon credits.

Figure 15: Historic Market Share of Credits Supplied, by Supplier Profit Status



Source: Ecosystem Marketplace. Based on 654 observations.

While non-profits' market share remained stable in 2011, it should be considered more significant in light of the fact that a large non-profit respondent in survey years 2009 and 2010 did not provide a survey response in 2011 – meaning that the balance was comprised of new activities from NGO actors.

As some of the earliest actors in the forest carbon space, non-profits play a critical role in facilitating finance for project-level activities, with contributions from a variety of actors. Non-profits like the Nature Conservancy and Conservation International first experimented with forest carbon offset projects over two decades ago, when offsetting emerged as a means of supporting their mission-driven forest conservation and preservation activities.

More recently, non-profits have looked beyond their traditional relationships with government and bilateral funders to become advisors or implementing partners for large corporates like the Walt Disney Company and Starbucks, seeking private sector sources of finance to fund their traditional activities. Building on their forest conservation mission and relationships, NGOs also play a major role in leveraging REDD+ and other land use funds from bilateral and multilateral donors to advance carbon market opportunities – for example, World Wildlife Fund's (WWF) partnership with Germany in Vietnam, Laos and Thailand (the "CarBi" and TREEMAPS projects), and Conservation International's regional REDD+ work in Peru and Madagascar supported by Norway.

Seeing the largest growth of any profit sector in 2011 were forest carbon offset volumes transacted or brokered by public sector agencies. Some of these transactions originated from projects managed by governmental or quasi-governmental agencies – both domestic and internationally-based – which also play an increasingly important role in the implementation of bilateral REDD funds at the project level. Others included volumes reported from programs like Japan's domestic J-VER offset scheme which includes a methodology for forest management; New Zealand's carboNZero program operated by a Crown research institute; the British Columbia Crown corporation Pacific Carbon Trust; and various other national and subnational forest agencies that partly finance forest conservation via carbon credit sales. Many of these public agency programs provide the necessary methodologies, frameworks and demand signals to incentivize project development – but rely on supply from projects originating in the private sector.

3. International Forest Carbon: Voluntary vs. CDM

Historically and in the present day, transactions in the forest carbon marketplace are primarily driven by buyers that voluntarily pursue emissions reduction targets or are preparing for potential regulation. Because there is no formal regulatory driver or exchange mechanism underpinning these transactions, most of them materialize as privately negotiated contracts in the voluntary **"Over-the-Counter"** (OTC) market.

Following the phase-out of the Chicago Climate Exchange (CCX) at the end of 2010, the voluntary OTC market is one of only two active marketplaces with an international scope – the other being the United Nation's **Clean Development Mechanism (CDM)**, which currently offers credits from A/R projects approved by the CDM Executive Board that are primarily designed for compliance use again commitments made to the international Kyoto Protocol.

As seen in the previous section (Figure 9), the voluntary market has captured the largest volume (76.4 $MtCO_2e$) and number of projects actually contracting credits (83) of any marketplace for forest carbon offsets over the last 20 years. This section introduces both challenges and highlights encountered by actors in this marketplace in 2011 and the first half of 2012 – which are further reflected in analysis throughout this report. As the second largest international forest carbon market, CDM forestry sector trends are also presented in this section. Other domestic markets in California, Oceania, and elsewhere are described in their respective regional sections. Voluntary OTC and CDM markets add new projects, new geographies in 2011.

3.1 Voluntary Market Trends

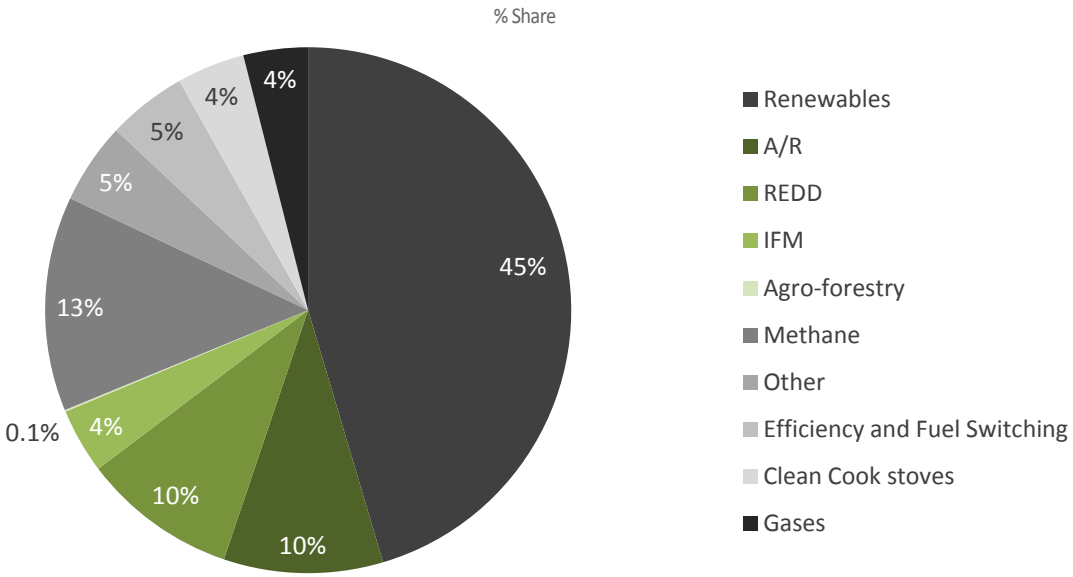
Voluntary demand for forest carbon credits is subject to the whims of consumer preferences, global economic conditions and competing offset products – not to mention the sometimes slow-paced development of project guidance and regulatory frameworks. Several of these factors contributed to the decline in volume of forest carbon offsets transacted in the voluntary market in 2011 (-36%). Because of the highly segmented nature of voluntary demand for offsets contracted OTC, however, these figures fail to tell the "whole truth" about both gains and setbacks tracked within various market segments last year – many of which are introduced here, and elaborated more fully throughout this report.

REDD projects stalled as A/R and IFM activities reached new heights in market share. All forest project types, combined, contracted 24% of volumes transacted in the voluntary markets. This represents a 48% decrease from forest carbon projects' 2010 market share that can be attributed to a steep drop in the volume of credits voluntarily contracted from REDD projects – despite market entry of the first verified and issued REDD tonnes under the VCS in 2011. REDD projects nonetheless contracted the highest value of any project type in the voluntary markets, owing to the above average prices paid for newly issued tonnes. A/R projects continued their steady market gains as buyers supported both new projects and those that have incubated in the voluntary market for several years. Demand for IFM credits was split between purely voluntary buyers and those seeking offsets to take a position ahead of the start of California's cap-and-trade program.

Registries and standards reported a record number of VER issuances and retirements from forestry activities. Of note, the market saw the first VCS REDD credits verified and issued in 2011 to a Kenyan project that was also among the first to be verified to and "tagged" with the additional CCBA certification. Throughout 2011-2012, independent standards have expanded their programs into new landscapes from wetlands to agricultural land use – and investigated methods for jurisdictional-level accounting and registry systems. Forestry and land use remained a focus of most newly developed standards, including protocols found within emerging domestic regulations.

Projects encountered technical delays as they adjusted to and worked through the requirements and costs of new REDD project methodologies or compliance offset regulations; or designed and implemented Free, Prior and Informed Consent (FPIC) processes guided by little in the way of existing best-practice; or in some cases continued to await project sign-off from necessary government entities. Here, developers say the market could benefit from greater transparency and standardization from standards and verifiers regarding the costs and time required to pass key milestones in the project cycle – to offer certainty to more commercially sensitive investors.

Figure 16: Market Share by Category and Forest Carbon Project Type, Voluntary OTC Markets Only, 2011



Source: Ecosystem Marketplace and Bloomberg New Energy Finance. Notes: based on 977 observations.

Lack of clarity regarding carbon rights and FPIC best practice stemmed from slow progress in developing national and international rules, safeguards and clear processes that actors could reference to guide their engagement with communities. In its absence, the presence of "carbon cowboys" continued to plague the marketplace – and in some cases negatively impacted legitimate activities and increased the real or perceived risk of project activities and investments.

The European debt crisis created a market environment where increasing price pressure from both economic factors and competitive drivers saw higher demand for issued renewable energy credits, which were abundantly available – and which were often substituted for higher-priced forestry credits. This trend had a palpable effect on the voluntary forest carbon market, where European firms have traditionally acted as a prominent source of investment in and demand for forestry offsets. Again in 2011, European buyers accounted for 50% of all forest carbon offsets voluntarily contracted OTC.

The slow pace of international negotiations and regulatory decision-making, in combination with a recession-constrained private sector, challenged developers and emerging private sector funds to secure financing necessary to support new project development. While an uncertain international policy environment is nothing new to project-level actors, suppliers say that international negotiators' failure to maintain momentum and stable pricing within *existing* international market mechanisms like the CDM challenged them to bring new investment to market-based forestry mechanisms. Uncertainty regarding market specifications in California, Oceania and other domestic markets – as well as a lack of clarity, recognition or regulation of carbon rights in some developing countries – also caused some project timelines to lag.

Projects developers and investors emphasized complementary revenue streams to mitigate the investment risks associated with projects that may otherwise be wholly dependent upon carbon offset revenues. The relevance of this development of course varies by projects' unique situations, methodologies and claims to additionality. It also emerges in the context of a broader conversation about the intrinsic link between forest conservation and management, food security and sustainable livelihoods, emphasized in documents such as the UK Department for International Development's (DFID) *Sustainable Livelihoods Guidance Sheets*[10] and the emergence of methodologies supporting comprehensive land-use strategies.

Government support for voluntary market forestry mechanisms. Countries and states as diverse as California; Oklahoma; Acre, Brazil; the UK; the Netherlands; British Columbia, Canada; and Japan leveraged voluntary market programs to underpin and/or fund forestry efforts. In California's cap-and-trade program, Climate Action Reserve (CAR) offsets from certain domestic forestry project types are eligible for early action crediting. In addition, California is likely to become the first compliance market to recognize the use

10 Available here: http://www.eldis.org/vfile/upload/1/document/0901/section2.pdf

of international REDD credits, potentially tapping 3rd party voluntary standards like the Verified Carbon Standard (VCS) or American Carbon Registry (ACR) that have both introduced jurisdiction-scale accounting and crediting approaches.

Underpinning all of these developments, one observes the dizzying level of innovation, public-private collaboration and problem solving that has come to characterize the voluntary market. The last point in particular speaks to the cross pollination o,f both finance and ideas *between marketplaces* that – as seen in the next section – is necessary to make markets work for forestry.

3.2 Clean Development Mechanism Market Trends

The Kyoto Protocol is an international agreement adopted in 1997, aimed at fighting global warming by reducing GHG concentrations in the atmosphere. The protocol entered into force in 2005 and requires 37 industrialized countries—known as Annex I countries—to reduce their GHG emissions to 5% below 1990 levels between 2008-2012. The protocol leverages cost-cutting features known as "flexibility mechanisms" that allow Annex I countries to purchase and/or trade emissions reduction credits – including the Clean Development Mechanism (CDM), Joint Implementation (JI), and Emissions Trading – e.g., the multilateral European Emissions Trading Scheme (EU ETS).

As the primary offset mechanisms within the Kyoto market, both the CDM and JI support forest carbon credit creation. The CDM is designed to encourage investment in sustainable development projects in developing (or non-Annex I) countries and allows Annex I countries to meet a portion of their emission reduction commitments by purchasing Certified Emission Reductions (CERs) generated from projects in those countries. The JI mechanism allows Annex I countries to meet a portion of their reduction commitments by investing in emission reduction projects in other Annex I countries. While the JI allows for a broader scope of forestry activities, no J/I credit transactions have been reported in this survey, though projects have been tracked as utilizing its forestry provisions. Therefore, we will focus hereafter on the CDM.

Forestry projects have faced a variety of hurdles under the CDM. First, A/R is the only forest project type allowed by the CDM Executive Board. Because of CDM designers' concern for the potential impermanence of forest carbon sequestration being credited, they introduced the temporary CER (tCER), and the long-term CER (lCER). tCERs are short-term in nature, expiring at the end of the commitment period following the one in which they are issued, while lCERs expire at the end the project's crediting period(s). Before they expire, buyers are on the hook to replace these temporary CERs with permanent CERs from other sectors, or more tCERs. The short term nature of tCERs has significantly limited demand. Additionally, Annex I countries may only use A/R credits for up to 5% of their emissions obligations in the first compliance period (2008-2012); and projects can also only undergo verification once in every five-year compliance period.

Table 4: CDM Forestry Market at a Glance, All Years and 2011

tCER PROJECT BASICS	2006	2007	2008	2009	2010	2011
# Projects registered	1	0	0	10	7	18
# Projects initiated comment period*	3	4	20	16	10	9
Average time to registration from initiation of comment period *(in days, by year comment period was initiated)*	1,083	878	665	751	429	NA
tCERs MARKET BASICS	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Volume contracted *($MtCO_2e$)*	3.6	1.1	N/A	2.0	1.4	5.9
Volume weighted average price *($\$/tCO_2e$)*	$4.2	$4.2	N/A	$4.7	$4.5	$3.9
Total market value *($ millions)*	$14.4	$4.5	N/A	$9.4	$6.3	$21
% of all contracted A/R volumes	75%	30%	N/A	23%	24%	42%
TOP SOURCES OF PROJECT FINANCE:		**TOP BUYER SECTORS:**				
Multilateral public source	1	Government				1
Private equity investment	2	Energy sector				2
Private loan	3	Carbon market *(secondary market)*				3

**Includes only registered projects and projects at validation (excludes terminated validations)*

Source: Ecosystem Marketplace and UNEP Risoe CDM/JI Pipeline Analysis and Database, as of September 30, 2012.

CDM A/R projects contract largest volume, value to date. In 2011, forest carbon projects under the CDM contracted the largest volumes (5.9 $MtCO_2e$) ever tracked from the CDM A/R market in this report series (Table 4). While the average price of CDM A/R credits fell slightly in unison with the global price of compliance carbon (but as always, tracking slightly lower than the average price for permanent CERs), the market's value also reached a new height of $23 million last year.

This development is in line with the quickening pace of activities at the project level – where in 2011, the CDM Executive Board approved the largest number of new projects ever registered in a single year. Historically, A/R projects have comprised a very small proportion of the total number of projects registered under the CDM – even now, they make up 1% of the CDM project portfolio, where over 70% of registered projects originate from renewable energy activities.

The jump in project registrations in 2011 can be attributed to both overt and nuanced market developments, according to Ellysar Baroudy of the World Bank's BioCarbon Fund – the largest buyer of CDM A/R credits to date and an advocate for a more streamlined, accessible CDM A/R mechanism. Baroudy explains that most projects desire to verify their credits as late as possible in the current compliance period. Doing so allows them to accrue reductions for as long as possible and so maximize their verified volumes – important, since they only get one shot at verification per five-year period.

The process of project registration itself has become more efficient over time, as well. This can be seen in Table 4, where the average number of days from the outset of project validation (when projects' public comment period opens) to actual project registration was an average of 429 days for validations initiated in 2010 – significantly less time than in previous years.

With regard to efficiency, however, the market still has room for advancement – says a BioCarbon Fund report that highlights areas for improvement at all stops along CDM A/R projects' route to market.[11] Most recommendations focus on the need for greater capacity building – among project developers, designated national authorities and operational entities – to understand and administer project documentation according to regular and reasonable timelines. This was more relevant for early CDM A/R methodologies, which were complex even for technical experts and have been largely passed over in favor of more recently streamlined project approaches. Demonstrating its recognition of the need for simplification, the CDM Executive Board itself stepped up in 2010 to publish its own – and the sector's first – "top-down," internally developed A/R project methodology.

Project finance complicated by forest project rules. In 2012, the CDM A/R market celebrated a few major milestones, including the first verification and issuance of tCERs from within the CDM system. The successful Brazilian project was registered in mid-2010 after approximately 780 days in the CDM registration queue – and from there, just under two years to obtain issued tonnes. Another more recent accomplishment was the registration of the Oceanium Mangrove Restoration Project, one of the world's first examples of a validated "blue carbon" project. Of significance, this project received financial support from food product multinational company Groupe Danone's Fund for Nature and offers an example of private sector support for a CDM A/R project.

As in all segments of the CDM market, lagging demand remains a critical barrier to scaling up the CDM A/R market. A few challenges to expanded project finance are unique to this marketplace, however. For example, addressing buyer confusion about temporary credits; overcoming the lack of appetite for forestry credits among European compliance entities; restructuring certain CDM rules to draw investment to projects at critical stages in their lifecycle; driving demand from a broader variety of actors.

Regarding the first issue, CDM A/R stakeholders have suggested that the UNFCCC's Subsidiary Body for Scientific and Technological Advice consider alternative mechanisms to address project non-permanence. Certain elements of the CDM's treatment of forestry, including the concept of tCERs, were innovative in their time but have since been outpaced by options like buffer pools – that mitigate project reversal risk and ease the liability placed on buyers and regulators. To allay BioCarbon Fund investor's concerns about credit permanence, the fund obtains and maintains a pool of permanent replacement credits on their behalf – but does not view this as a long-term market solution.

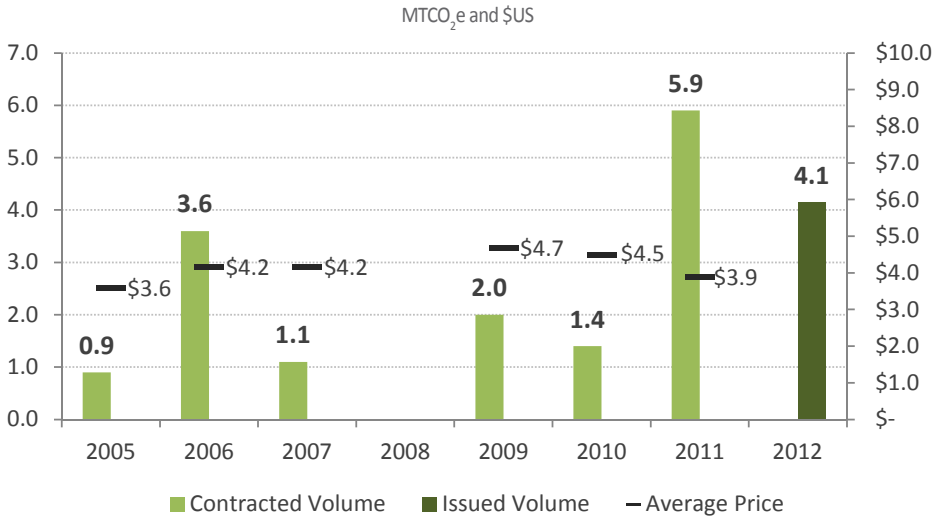
On the topic of demand, over the years the private sector's appetite for forest carbon credits has evolved and expanded. Within the EU ETS, however – the largest destination market for permanent CERs – policy makers continue to express reservations about forest project risks through policies that ban compliance entities' use of forest carbon offsets in the scheme, including tCERs. The ban, which has now been extended beyond 2012, is one of the largest deterrents to private sector investment in and demand for CDM A/R credits. The CDM's limitation of project verification to once per compliance period further complicates investor interest in the market

[11] Available here: http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/57853-A_BioCarbon_LOW-RES.pdf

– in contrast to the voluntary market where projects can verify volumes as frequently as desired (and possible) in order to deliver issued credits and secure payments that can support ongoing project activities, investor returns or other upfront capital repayment.

These challenges go a long way toward explaining why demand for tCERs has so far been mainly relegated to the realm of Kyoto-compliant country buyers – the most common buyers of tCERs. The voluntary OTC market is an alternative option for CDM A/R projects, but there, tCERs are measured against several alternative credits types within the forestry sector which do feature permanent forestry credits and have gone further toward establishing brand recognition among voluntary buyers.

Figure 17: tCERs – Historical Transacted & Issued Volume, Average Price



Source: Ecosystem Marketplace and UNEP Risoe CDM/JI Pipeline Analysis and Database.

The private sector's general disengagement from CDM A/R has forced some projects to finance at least their early costs with riskier mechanisms like private loans (Table 15) and makes it more difficult to meet a threshold of financial stability necessary to attract investors like the BioCarbon Fund. Until CDM A/R projects are bestowed the more permanent and flexible crediting options afforded to A/R projects developed under independent programs – and until EU ETS entities are permitted to use the credits – the market may be challenged to achieve a scale on par with non-forestry CERs or other independent programs.

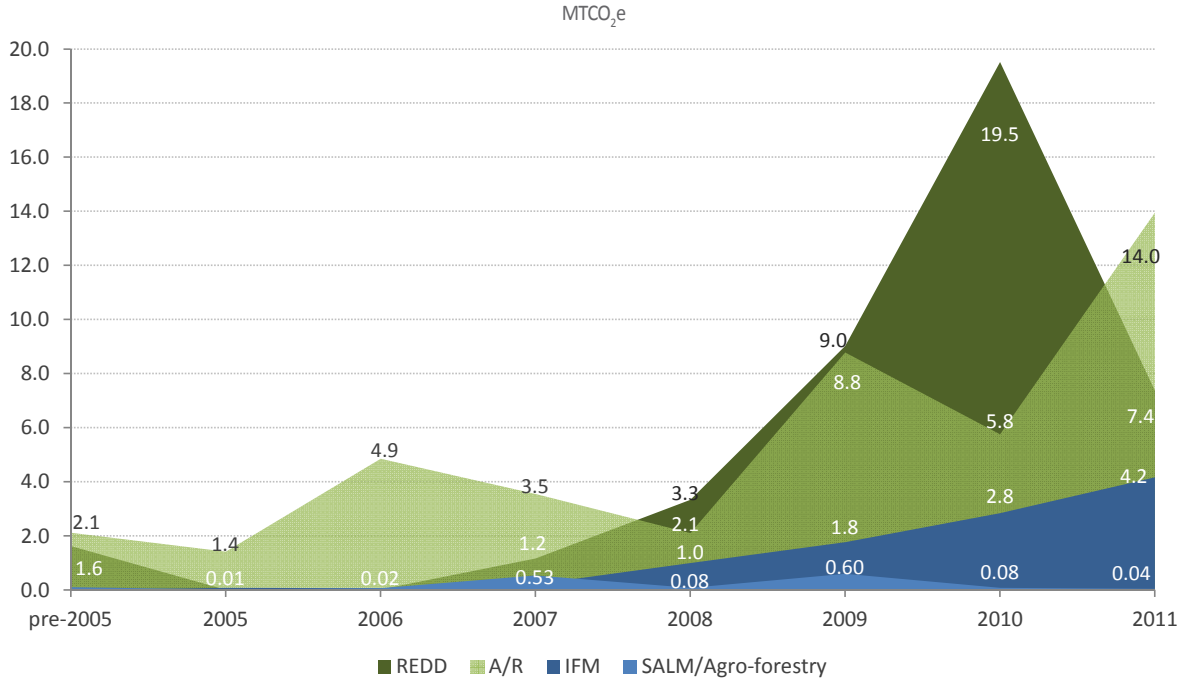
4. Project-Level Activities

Every forest carbon offset project is as unique as its surrounding geography, ecology, and political, historical and economic topography. While no two projects are exactly alike, though, the market has made strides toward the use of common typologies to describe major forestry strategies and standardized accounting paradigms used to quantify forests' emissions reductions or sequestration (see Glossary for definitions of major project types).

As can be seen in Figure 18, the earliest types of forestry projects generated reductions (and some of the first carbon offsets) came from tree planting and forest conservation. As the field became more sophisticated, technically complex REDD projects moved into the background and early CDM A/R methodologies took the stage. This can be seen in the steady presence of A/R activities in the market's "early" years – through to the present, as private sector A/R transactions in the voluntary market surpassed compliance demand for tCERs.

As new methodologies and prospective demand reemerged for REDD, so too did very large project activities – leading to the project type's surge in 2010. Meanwhile, complementary agro-forestry activities – often incorporated into REDD or A/R projects – and IFM projects developed with an eye toward compliance carbon marketplaces helped to grow the forestry sector to its now-significant role among climate mitigation efforts.

Figure 18: Historical Transacted Volume by Project Type



Source: Ecosystem Marketplace. Notes: Based on 603 observations in 2011; 731 total historical observations.

4.1 A/R Projects: Reforestation Reigned

In 2011, demand from both voluntary and compliance market buyers led A/R project developers to contract the largest volume ever tracked from the project type – and the largest cumulative volume of any forest project type, historically (43 $MtCO_2e$). The boom for this project type can be partially attributed to relatively mature methodologies and long-running projects.

Due to tree planting projects' inherent carbon sequestration cycle – in which larger volumes of CO_2 are stored in the projects as time passes and plantings mature (and so are eligible for crediting) – many A/R projects implemented years ago are only now producing credits. Over half of A/R volumes contracted in 2011, however, were credits that had *not* yet been issued, and the most common form of contracts for credit payment and delivery involved pre-payments for future credit delivery. Suppliers say that many tonnes that were issued over the last 18 months were already contracted in previous years for delivery upon issuance – i.e., they are already spoken for. The larger volume of credits contracted *in 2011* have yet to be verified.

This means that the projects were still in their early stages of planting and measurement, the stage at which A/R projects are most in need of finance. Because of voluntary buyers' continued affinity for supporting tree planting projects – combined with the ramp of project activities under the CDM ahead of 2012 – A/R project developers were fortunate to contract the equivalent of between 1 ½ and 4 years' worth of expected annual issuance volumes across all surveyed projects (on average) – the only project type to do so (Table 13).

Forward selling in any of its many forms is often required to cover (or recoup) the high up-front cost of project development. As seen in Table 5, credit prices tend to reflect the lesser risk associated with buying credits (Spot, \$12.3/tCO_2e) versus earlier stage investments at lower price points. The exception were credits undergoing validation – where the high price reflects developed country buyers' early stage support for domestic forestry efforts in the US and UK.

Table 5: A/R Projects Unpacked

TOTAL: 2011	Volume MtCO$_2$e	Avg. Price $US
	14 M	$6.3/t
Contract Type		
Pre-Pay, fixed delivery	3	$7.8
Pre-Pay, unit contingent delivery	3	$4.8
ERPA (unknown structure)	5	$4.3
Pay-on-delivery	3	$4.8
Spot	1	$12.3
Project Stage		
Issued	6	$6.6
Validated	3	$4.1
Verified	2	$4.9
Undergoing validation	2	$14
PDD	1	NA
Credit Vintage		
Pre-'05 => '07	1	$5.9
'08 => '11	3	$10.5
'12 => Post-'15	6	$6.1

Source: Ecosystem Marketplace. Notes: Based on 915 observations.

Because their project finance and delivery structures differ from other project types, developers say that A/R projects require investors that can play the "long game." Says Chandler Van Voorhis, managing partner for US-based GreenTrees, "With these projects, you're building an asset class that starts with a slow yield and ramps up over time. The market got its start with these projects, but then those with 'short term money' turned to other project types because the return was slow. Now we try to identify buyers who are comfortable with long-term investments."

Indeed, one of GreenTrees' buyers was US railway Norfolk Southern, which was also one of the largest buyers in the 2011 voluntary market. That transaction, among several dozen others, financed the largest volume of post-2011 emissions reductions among any forest project type.

4.2 REDD Projects: It Ain't Easy Being REDD

After powering to the top of forest market charts in 2010, the volume of credits transacted from REDD projects returned to pre-2009 levels last year – transacting 7.4 MtCO$_2$e (-62%).

In 2011, it seemed to developers that many gains made the year before were followed by a new host of operational and political complications. In the last quarter of 2010, the market saw the first long-awaited REDD methodologies approved under VCS, as well as what many viewed as considerable progress made around REDD+ at the UNFCCC's 2010 16th Conference of Parties in Cancun and also within California's cap-and-trade program; and the voluntary market in 2010 reported the largest volumes ever transacted from the sector – much of which was sought by formerly forestry-averse European corporates.

Moving into the new year, Wildlife Works' fast-moving Kenyan REDD project brought the first-ever verified VCS REDD credits to market in February and ACR introduced its first international REDD methodology. As the year progressed, however, only one other REDD project achieved verification; the California market faced internal challenges to implementation; projects encountered longer timelines to market than originally anticipated (or budgeted); the European debt crisis sparked a recession-driven retreat from the forest carbon space; and 2011's international climate negotiations posted incremental but sub-revolutionary progress.

All of these developments highlight the fact that REDD projects are being developed within the context of major extenuating challenges not encountered to the same degree by other project types, even within the broader carbon market. Project developers point out that if progress seems slow, it's because REDD projects are intertwined with some of the world's knottiest issues – from community development to land tenure systems to international country relations. As they come around to the reality of these challenges, it seems to those in the REDD market that current actors are much more serious and realistic now than just a few years ago.

In this light, REDD projects may not have topped the market charts in 2011, but made significant headway considering the breadth of international actions they intersect. For example, while UN negotiators have yet to decide how to structure "performance-based payments" within a REDD+ framework, funders from UN-REDD to the World Bank to bilateral donor countries worldwide continue to pledge new millions of dollars to a mix of national and sub-national "REDD readiness" and direct project-level activities. Throughout 2011 and into 2012, UN-REDD and the Forest Carbon Partnership Facility (two of the largest REDD+ funders) also gathered feedback on their draft guidelines for obtaining stakeholders' Free, Prior and Informed Consent (FPIC) and stakeholder engagement, while early efforts were underway within REDD+ countries to begin developing national systems for MRV and project safeguards.

Meeting them halfway, REDD+ project developers on the ground (including several captured in this report) complemented this work by attracting millions in private sector investment to support REDD+ projects in their early stages (Table 6), collecting data and developing baselines in tandem with regional entities, and test driving some of the first efforts to undergo and document a Free, Prior and Informed Consent (FPIC) process.[12]

Table 6: REDD Projects Unpacked

Total: 2011	Volume $MtCO_2e$	Avg. Price $US
	7.4 M	**$8.5** ($11 w/ outlier)
Contract Type		
Pay-on-delivery	5	$8.9
Spot	1	$8.2
Pre-Pay	1	$5.2
Project Stage		
Issued	4	$8.3
Undergoing Validation	1	$9.9
PDD	1	$11.5
PIN	1	$4
Credit Vintage		
Pre-'05 => '07	3	$7
'08 => '11	4	$7.6
'12 => Post-'15	1	$4

Source: Ecosystem Marketplace. Based on 915 observations.

On the infrastructure side, independent standards VCS, the American Carbon Registry (ACR) and CAR (under its Mexico Forest Project Protocol) all moved forward with crediting systems that accommodate jurisdiction scale emissions reductions – and the projects partly responsible for them. Market players expect that emerging domestic markets like California will prefer to "link" with other regional programs at a jurisdictional scale – demonstrated by California's MOU with states in Brazil and Mexico and ongoing engagement with these standards.

Given the REDD market's enduring uncertainties, the slowdown in new REDD project activities (Figure 18) and investment is hardly surprising. It also partly explains why less flexible contract types that require pre-payment see a lower price per tonne – as well as those in earlier stages of development (Table 6). In the current year, REDD project developers and industry associations like the newly launched Code REDD Campaign are drawing attention to the innovative, piloting role that project-level activities and investments play in the context of developing new market mechanisms.

4.3 IFM Volumes: Climbing toward Compliance

Volumes contracted from forest management projects remained on a steady incline in 2011, as the credits were increasingly sought by buyers in a few domestic marketplaces.

Most notable among these were from projects that are potentially eligible to generate offsets for buyers in California to utilize for compliance with the state's future cap and trade scheme. California pre-compliance demand comprised 1.6 $MtCO_2e$ of all IFM volumes. While on the rise, volumes in this sector remained small compared to other Cali-compliant project types as buyers and developers alike adjusted their contract structures and pricing according to whether buyers or seller would wear the risk of an emissions reversal.

12 Read more about the Surui Carbon Project's FPIC experience here (http://www.theredddesk.org/sites/default/files/resources/pdf/2011/surui_fpic.pdf) and the GIZ "Clipad" project's FPIC process here (http://www.forestcarbonasia.org/articles/lao-german-redd-project-pioneers-fpic-in-sayabouri-province-laos/).

More recently, the registration of IFM projects under CAR is on the rise, as these traditionally voluntary market tonnes can also act as early action credits. To qualify as early action credits that can be converted to Air Resources Board (ARB) Offsets for compliance use, however, they must undergo a re-evaluation of their project baseline and re-verification by an ARB-approved verifier, as well as deduct credits to be allocated to a buffer pool – all of which carries with it a certain degree of risk. This is one reason why IFM projects did not report contracting a significant volume of post-2011 reductions, as many are waiting to register, verify and issue volumes directly under the ARB's compliance protocol rather than undergo two separate project assessments.

Or they *will* do so, once the state's compliance program is actually operational – currently, all California IFM projects remain at an impasse until the state approves verifiers and offset project registries, giving the green light to begin processing compliance-grade IFM credits under the early action and compliance protocols.

Once that happens, market players report that IFM projects in the pipeline have the greatest potential for large volume reductions over the life of the marketplace.[13] This is also seen in our survey respondents' anticipated California offset pipelines – where IFM projects developed for California compliance buyers make up almost half of the eligible supply pipeline in 2012-2015 (Figure 19).

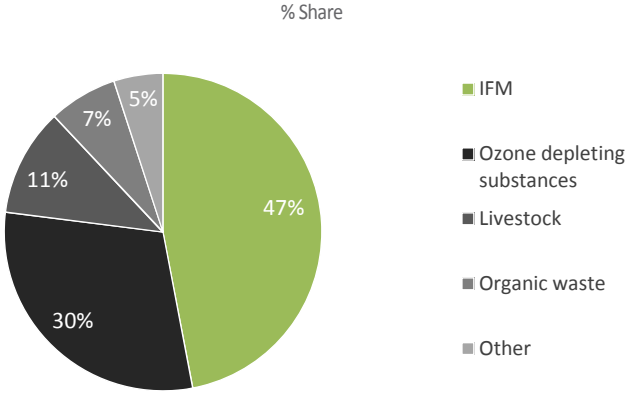
To the north, large volumes were also contracted by the Pacific Carbon Trust and the government of British Columbia to help move local agencies toward their goal of carbon neutral government. The credits were generated from a project in Canada utilizing the world's first internationally-applicable IFM methodology, approved under the VCS in 2010. A smaller volume of credits were also contracted from micro- to small-scale projects based in Japan and sold to buyers through the Japan Verified Emissions Reduction program (J-VER), which is run by the Japanese Ministry of the Environment.

Table 7: IFM Projects Unpacked

Total: 2011	Volume $MtCO_2e$	Avg. Price $US
	4.2 M	$12.7
Contract Type		
Pay-on-delivery	2	$8.6
Spot	1.3	$14
Pre-pay, fixed delivery	.04	$14
Project Stage		
Issued	2	$14
Undergoing validation	1.2	$8.2
Verified	.2	$14
PIN	.1	$10
Credit Vintage		
'08 => '11	1	$11
'12 => Post-'15	1	NA

Source: Ecosystem Marketplace. Notes: Based on 915 observations.

Figure 19: Market Share of Suppliers' Expected Pipelines (of 36 $MtCO_2e$)



Source: Ecosystem Marketplace. Based on 49 observations.

4.4 Agro-forestry and Sustainable Agricultural Land Use: Small Volumes, Big Plans

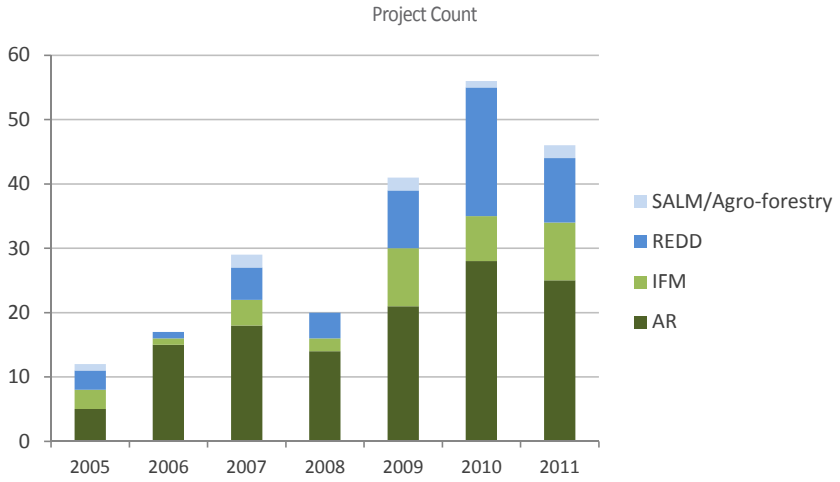
In this report series, agro-forestry projects have traditionally been the smallest and least-traded of all project types. This was again true in 2011, when they contracted less than 1 $MtCO_2e$ of credits, though the year did see growth in the number of new projects implemented (Figure 20). Agro-forestry activities are often implemented alongside other project interventions in IFM, A/R and REDD projects – there are no existing standalone agro-forestry methodologies, so this activity is typically credited under one of these categories .

Sustainable agricultural land management projects reported similarly small volumes in 2011, but nonetheless saw significant progress as the global climate community began to stress the importance of "climate smart agriculture" in pursuit of sustainable community livelihoods and adaptation. Of significance to the voluntary OTC market, the VCS in late 2011 approved its first methodology for Sustainable Agricultural Land Use (SALM) – which measures multiple types of land-use change and management (including A/R, agro-forestry and soil carbon sequestration) in a holistic manner.

13 Read the American Carbon Registry's Compliance Offset Supply Forecast here: http://americancarbonregistry.org/acr-compliance-offset-supply-forecast-for-the-ca-cap-and-trade-program

To kick things off, the World Bank BioCarbon Fund developed the first agricultural land management methodology under the VCS and purchased credits from Vi Agroforestry's project in Kenya, the pilot project which was developed together with the methodology. The Sustainable Agricultural Land Management (SALM) methodology impacts both management practices and crop yields, but smallholder producer associations reportedly have not yet received sufficient demand for agricultural carbon offsets from their downstream processors to roll out agricultural carbon projects at scale. Market actors hope that the SALM methodology will unite product carbon footprint accounting – which is evolving as best practice but too often ignores farm-based emissions – with a land-based accounting approach that can inform on-farm decisions such as crop yield in relation to the carbon intensity of inputs and agricultural practices.

Figure 20: Historical New Project Activities by Type

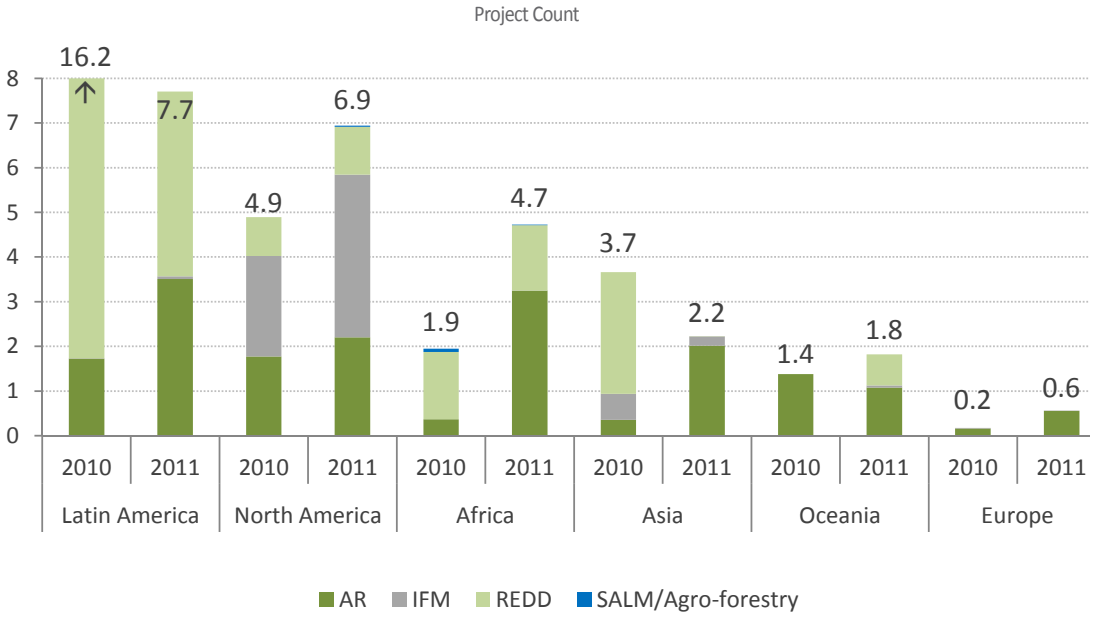


Source: Ecosystem Marketplace. Based on 366 responses.

4.5 Project Location: Global Glimpses of Green

Forest carbon offset projects are implemented around the globe. In 2011, the forest carbon markets extended carbon finance to 41 country locations. Slightly down from 48 country locations in 2010, new projects were nevertheless identified in both developing and developed regions .

Figure 21: Transacted Volume by Project Location (Region) and Type



Source: Ecosystem Marketplace. Based on 828 observations.

Most decisions regarding forest carbon projects are inherently place-based – each project takes on both the risks and possibilities of its setting. Project developers identify a variety of factors that determine the distribution of project types and demand for credits across regions. The more prominent issues that influence project location and market outcomes include: political risk; market risk (e.g., shift in demand for credits from region); environmental risk (e.g., drought, flooding affects carbon stocks); availability of applicable methodologies; formal regulation/recognition of carbon rights; land tenure and community willingness; relationship with local partners; existing domestic emissions regulations – and a host of other considerations..

In 2011, the status of domestic forest policies contributed highly to developers' ability to attract finance and move forward with project implementation. This is one reason why projects in countries with massive forest carbon potential – especially in the Amazon, Congo, and Mekong forest basins and Indonesia – were hard-pressed to overcome the regions' policy barriers in order to sustain market growth. Several projects in these regions continue even now to await government agency sign-off, concession approval, domestic and international REDD policy decisions or other kind of formal green light. They were also more likely to encounter complex property issues related to tenure and carbon ownership.

Developed countries with more amenable legal climates and greater certainty that regulators would recognize forest carbon credits all experienced growth in 2011 – particularly projects in North America which saw 42% growth over 2010. At least some of this growth was not from compliance-facing entities but instead from major corporates that entered the offsets market for the first time last year in pursuit of CSR targets. Many developers in the US, and also Oceania, said the largest proportion of buyers were nonetheless hesitant to sign or exercise long-term contracts in light of uncertain policy environments.

Due to the unique location-based considerations within each region, these trends are discussed in greater detail in the Section "Regional Deep Dive."

Table 8: Market Share of Top 10 Project Locations (Country)

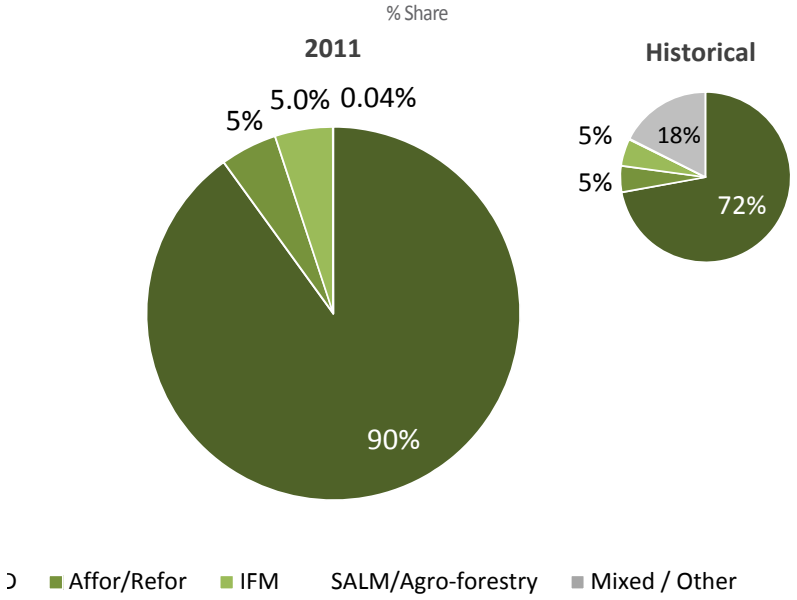
Brazil	30%
United States	18%
Canada	13%
Uganda	11%
Kenya	8%
India	7%
New Zealand	7%
Peru	2%
Australia	2%
China	2%

Source: Ecosystem Marketplace. Based on 828 observations.

4.6 Land Area: On-the-Ground Impact

Forest carbon projects that transacted credits in 2011 impacted a total of 5 million hectares of forest. If added to projects under development that did not transact credits in 2011, this equals just over one quarter of the total 18 million hectares that are currently under forest carbon development according to our survey .

Figure 22: Share of Total Land Area Impacted, by Project Type, All Years and 2011 Only



Source: Ecosystem Marketplace. Notes: Based on 396 observations. "Impacted" measures the number of hectares associated with projects (and their activities) that transacted credits in 2011.

The majority of "active" land area was associated with a growing number of REDD projects that – despite seeing smaller volumes transacted in 2011 – continued to have the largest impact on forested land, by area. A/R projects, in contrast, transacted the largest volume of credits, which were generated by 92 projects covering a significantly smaller project area. A/R projects successfully contracted credits for delivery from 39% of their total project land area under development, worldwide.

Table 9: Project Area in Detail, All Project Types

Project Type:	Transacted ($MtCO_2e$)			# Active* Projects	Ha impacted (million ha)			Total Project Area (million ha)	% Area Impacted
	Historical	2010	2011	2011	Historical	2010	2011	2011	2011
A/R	82.7	5.8	14	92	0.6	0.1	0.2	0.6	39.3%
REDD	84.2	19.5	7.4	35	9.1	3.2	4.2	13.8	30.6%
IFM	18.7	2.8	3.6	34	0.6	0.2	0.2	3.4	6.2%
Ag + Agro-Forestry	3.1	0.1	0.1	6	0.02	0.0	0.002	0.4	0.5%
TOTAL	187	28	25	167	12.5	5.3	4.7	18.2	

Source: Ecosystem Marketplace. Based on 396 observations.

4.7 Project Activities: Lay of the Land

REDD Activities: Reducing Deforestation, "Plus" Some

REDD projects cover a significant project land area and a large proportion of market activity – but how do the market's largest scale projects actually avoid the drivers of deforestation and forest degradation? To find out, we asked project developers to identify the activities within their REDD projects that help to circumvent their project areas' prominent drivers.

The most popular REDD project interventions – implemented within project boundaries – include sustainable forest management, transition to sustainable energy sources and agricultural land management, based on the number of projects reporting these activities and their associated transaction volume (Table 10).

Most of these activities fall under the umbrella of "REDD+". In 2010, negotiators in Cancun defined the "plus" as encompassing reduced emissions from deforestation and forest degradation, as well as additional efforts to sustainably manage forests, and conserve and enhance carbon stocks. In the voluntary market for REDD, these activities may be better understood as IFM, A/R and sustainable agricultural land management – but because they occur within the REDD project area are accounted for and credited simply as "REDD."

A total of 57 REDD projects employ at least one of these approaches in their project area and 16 of these projects transacted credits in 2011 – of a total 72 REDD projects reporting. These projects, which fit most formal definitions of "REDD+", contracted 3.8 $MtCO_2e$ in 2011, or 52% of all transacted REDD volumes. Other REDD projects likely also engage in these activities and did not respond to the survey question. Therefore, REDD projects are simply designated as such and without the "+" in other sections of this report.

Table 10: REDD Project Activities

	Volume	Value	Total # Active* Projects	Total Area Impacted	# of Projects by Region (active and inactive*)			Volume by Region**		
ACTIVITY	$MtCO_2e$	$ Mill.	Count	Mill. Ha	LAC	Africa	Asia	LAC	Africa	Asia
Smallholder Sustainable Ag	0.3	$1.8	6	5	9	9	7	0.2	<1 Mt	<1 Mt
Commercial Sustainable Ag	1.1	$8.2	4	0.5	3	1	2	0.2	<1 Mt	NA
Afforestation/Reforestation	1	$8	5	3.6	9	6	8	0.1	<1 Mt	<1 Mt
Sustainable Energy	2	$20	6	4.3	3	9	5	1.0	1	<1 Mt
Sustainable Forest Mgmt.	2.6	$20.4	12	6	20	7	6	2.1	<1 Mt	<1 Mt
Ecotourism	1	$8	6	4	6	6	6	0.1	1	<1 Mt
Other	1.8	$11	5	3.4	5	5	5	0.8	1	NA

*Source: Ecosystem Marketplace. Notes: Based on 42 observations. *"Active" means those projects that transacted credits in 2011, while "inactive" projects were under development or otherwise unable to contract credits. "Total Area Impacted" measures the number of hectares associated with projects that transacted credits and engaged in the above analyzed activities. **"<1 Mt" indicates that credits were transacted but not reported here to protect confidentiality of responses.*

Sustainable forest management, which is the most popular REDD activity worldwide, sees its share of fans – who contend that sustainable forest and agricultural product revenues are a necessary complement to carbon revenues – and critics who view even sustainable harvest as a slippery slope to more harmful activities within a conservation project. The higher transaction volumes from projects employing these activities may in some cases point to investors' desire to balance carbon market risks with complementary revenues from projects' other sustainable commodities; or the presence of preexisting harvest activities conducted within concessions that come under the jurisdiction of a REDD project management plan. Depending on the dominance of IFM activities, it may be determined that a project is more appropriately credited as IFM – at least a few projects have been forced to go this route in recent years.

Latin American projects that employed sustainable forest management (i.e., reduced carbon losses from harvesting/extraction processes) and agricultural land management within their project areas contracted the largest volume of credits from the largest number of projects. These activities speak to the region's dominant forest pressures, including illegal or unplanned forest extraction and agricultural pressures – both commercial (productive, input-driven) and smallholder (subsistence, labor-driven).

In Africa, REDD activities similarly reflect the region's prominent deforestation drivers including the extraction of subsistence fuel wood and unsustainable charcoal production and use. Here, sustainable energy projects components include the transition to sustainable charcoal production and alternative cooking implements like clean cookstoves. Formally accounting for energy project activities like cookstoves, however, is currently not included within the VCS AFOLU framework.

In Asia, REDD projects similarly address smallholder agricultural emissions and also engage in A/R activities – where agro-forestry and plantation activities are hoped to reduce pressures on the project area. The small volumes from these various activities, reflected in Table 10, speaks mostly to the low overall volume of credits reported as contracted from Asia-based REDD projects in 2011 (Figure 21).

While ecotourism is also employed in projects worldwide, developers say that for many regions in critical need of REDD interventions, ecotourism is not a plausible intervention due to environmental hazards, a lack of infrastructure and/or the absence of a strong tourism sector. For those projects that do have an ecotourism component, carbon revenues may be used to support the development of needed infrastructure, but are often unpredictable and tied to the health of the tourism industry – which like offset demand is subject to change based on developed countries' economic performance.

Tree Planting and Forest Management Activities: Going Native

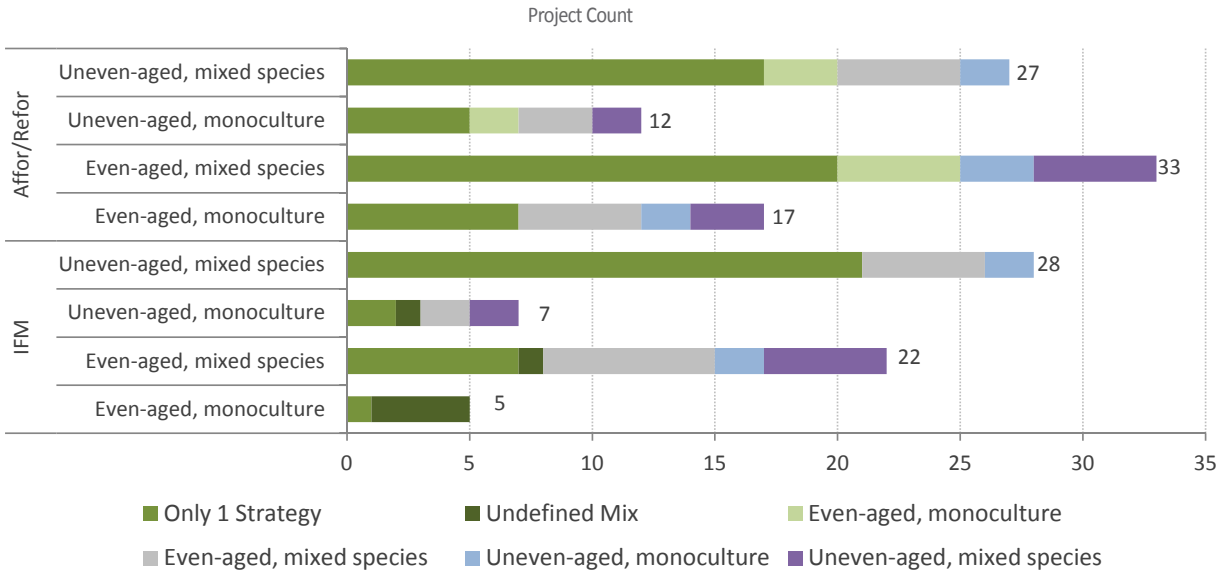
As seen in the previous section, one project area is often home to several different techniques for silviculture and conservation. Regarding forest management strategies, project developers were asked to identify their project approach(es) among six options:

- Even-aged, Monoculture—all trees are the same species and age
- Even-aged, Mixed Species—all trees are the same age, but include multiple species
- Uneven-aged, Monoculture—all trees from the same species, but with multiple age classes
- Uneven-aged, Mixed Species—trees from multiple species and age classes
- Agro-forestry—mixed forestry and agricultural land use
- Not Actively Managed—no planned silvicultural activities

Of the 71 projects that gave responses, 19 reported applying more than one management strategy in the project area. These strategies – and where they overlap – are illustrated in Figure 23. The largest number of projects reported using uneven-aged management (42 projects), most commonly with mixed species. Exclusive planting or management of uneven-aged mixed species forests was a common approach for both IFM and A/R projects (35 projects), unlike 2010 when the strategy was more often employed by A/R projects. For IFM projects, even-aged management was less common than other management strategies. Experience shows that projects typically begin with partial planting and scale up – mitigating the risk of bad seedling quality, or allowing land managers to build capacity and experience. Additional planting may also occur over time to compensate for mortality.

Of the A/R projects that provided responses, 10 reported applying even-aged monoculture management in combination with other approaches. No A/R projects reported applying a strictly even-aged monoculture strategy, compared to 3 projects that indicated doing so in 2010.

Figure 23: Primary and Mixed Forest Management Strategies by Project Count

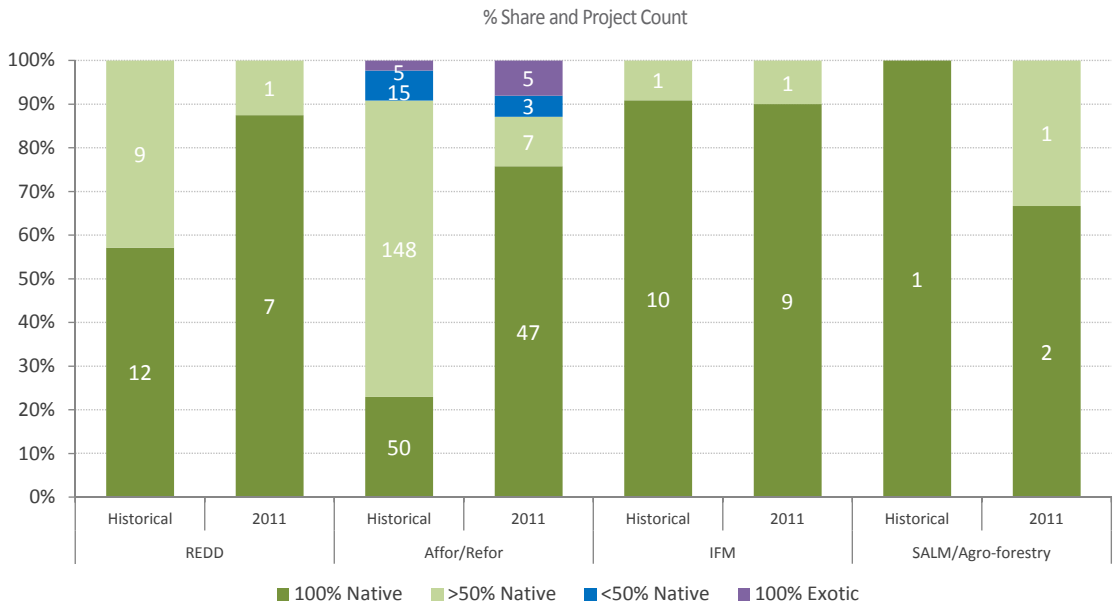


Source: Ecosystem Marketplace. Notes: Based on 114 observations. This charts illustrates the number of projects that used only one management strategy, and the number of projects engaged in each combination of strategies.

Some market observers express concerns that forest carbon incentives will myopically focus attention on carbon alone and encourage deployment of fast-growing plantations. However, survey results such as this continue to demonstrate that this practice is more rumor than reality. In addition to the findings above, Figure 24 also illustrates an active decrease in the proportion of projects planting even a portion of non-native species (within most project types), when comparing historical project responses through 2010 with 2011-only developer responses.

Of the A/R projects that provided responses, 10 reported applying even-aged monoculture management *in combination with* other approaches. No A/R projects reported applying a strictly even-aged monoculture strategy, compared to 3 projects that indicated doing so in 2010.

Figure 24: Change in Use of Native and Exotic Species in Planting Activities



Source: Ecosystem Marketplace. Notes: Based on 158 observations. This chart illustrates market share by number of projects reporting planting strategies. Because one project could plant (and report) multiple species types, the total number of 2011 responses exceeds the question response rate and project count.

This change in practice over time is incentivized by standards and programs that limit or ban the use of non-native species in tree planting projects – like the Plan Vivo standard's 100% native species requirement. In addition, co-benefits certification standards like the CCB Standard, have arisen and found widespread use to document net benefits to local biodiversity and the conservation of native and threatened species. In the case of a few survey respondents, tree planting activities have include simultaneous removal of (and accounting for) non-native invasive species.

Primarily non-native plantings continue to occur within the A/R classification, where eight projects reported planting less than 50% native species in their project area – or purely non-native species. Overall, these projects cover approximately 62,000 ha, or 10% of the total reported A/R project area, globally. In most cases, these projects reported start dates preceding the corporate CSR market's now-dominant role in forest offset demand, and preference for native species.

4.8 Land Tenure: Communities Take the Stage

Forest carbon offset projects are rarely developed in a vacuum, but instead require the consent of landowners, governments or communities – and often in combination. Given that land tenure reform is one of the stickiest topics within development policy today, it is little wonder that the complexity associated with a project's land tenure scenario can make or break its budget, investor appeal and ultimate viability.

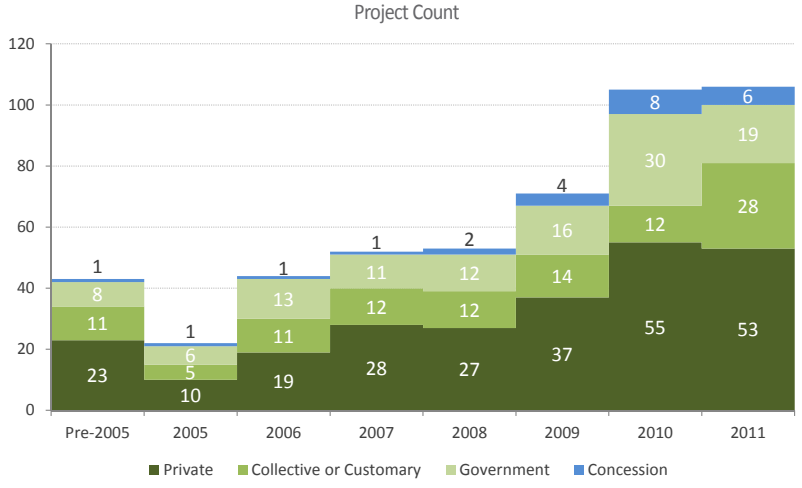
For this reason, again in 2011 the largest number of forest carbon projects were sited on private lands (53 projects) – where securing claims to land and carbon is more of a commercial transaction than a political process (Figure 25). Here one finds the largest number of projects based in a developed country, owing to their relatively straightforward recognition of property rights .

Even with private lands, the issue of ownership can be complex, however, as property titles change hands over time and sometimes frequently – often requiring developers to turn to easements or similar legal mechanisms that will bind carbon project commitments to the project area. Within the California compliance market for forest carbon credits, for example, developers say that the state's requirement of a 100-year commitment to continue project activities brings to light the challenges of monitoring and enforcing very long-term project activities on private land (which one developer mused would soon become "a new, fun area of domestic property law").

Projects on private lands were not only relegated to developed countries, but were increasingly found within developing regions – when and where private land rights are recognized. In the case of the only two REDD projects that were issued credits under the VCS in 2011, both were developed on private lands – in Kenya (private, group-owned ranches) and Belize (private landowner). Regarding the Belize project, developer Jeff Waldon of Forest Carbon Offsets explains, "A major criteria when selecting the project location was political stability and as a former British colony, Belize has a tenure system very similar to our own [in the US]. We understood that if you can't solve the tenure issue, it's hard to even get started."

While private lands remained the primary sites for forest projects that transacted credits in 2011, the largest growth in numbers came from projects on lands with collective or customary tenure – where land tenure and carbon rights have traditionally been a critical area for assessing the risk and uncertainty of developing forest carbon projects. In some ways, forest carbon projects have benefitted from the greater awareness raised by organizations like the Rights and Resources Initiative (RRI) – as well as by forest communities themselves – about the need for greater clarity and recognition of community forest ownership. UNFCCC stakeholders' ongoing discussions about safeguards and national forest governance structures has also illuminated forestry's integral community components, and the challenges to understanding and improving existing livelihoods at the project-level – let alone at a national scale.

Figure 25: Historical Project Count by Tenure Type



Source: Ecosystem Marketplace. Note: Based on 150 responses.

Despite this growing awareness, RRI reports that while the world has seen an unprecedented rise in tropical forest community land rights, enforcement

remains low.[14] Remarks RRI's Jeffrey Hatcher, "Despite tremendous progress in establishing legal tenure regimes, a lack of political will and bureaucratic obstacles make it a struggle to implement any real action in most forest-rich developing nations. The exorbitant technical and financial costs of addressing these hurdles are often beyond the means of rural communities." The above-average price of credits from projects developed on community lands reflects the high cost of the projects' long timelines and their human dimension (Figure 11). It is worth noting that, perhaps in an effort to mitigate property risks, 1 in 3 projects with collective or customary tenure are developed in conjunction with at least one other tenure type.

Table 11: Tenure Type by Average Price, Project Type and Project Developer Profit Status

		Project Type (Project Count)			Developer Sector (Project Count)		
	Avg. Price	Affor/Refor	REDD	IFM	Private	NGO	Public
Private	$6.4	37	10	11	23	28	1
Collective/ Customary	$9.8	17	9	7	12	14	2
Government	$6.4	14	4	2	10	8	1
Concession	$6.1	2	3	NA	4	2	NA

Source: Ecosystem Marketplace. Notes: Based on 150 responses. Because one project could be sited on multiple tenure types, the total number of responses exceeds the response rate and project count.

Box 1: FPIC in the Carbon Context

The legal principle of Free, Prior and Informed Consent (FPIC) – which recognizes communities' right to give or withhold consent to development projects sited on collective or customary lands – is nothing new in the world of international development. The concept of FPIC was first outlined within the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) (1), adopted in 2007, and has since been applied to major infrastructural development projects the world over. Like other development projects, carbon projects occupy a growing swath of indigenous land area and are feeling pressure from project stakeholders to obtain community consent prior to implementation.

So how is FPIC structured within the context of a forest carbon project? According to draft Guidelines on FPIC circulated by the UN-REDD Programme (2), key FPIC elements are defined as:

- "Free: Should be free of coercion, corruption, interference, and external pressure
- Prior: Mutually agreed period of time in advance of an activity or process when consent should be sought
- Informed: The type of information that should be provided prior to seeking consent and also as part of the ongoing consent process
- Consent: Customary decisions made by indigenous peoples and other forest dependent communities reached through their socio-cultural decision-making process"

Clear community consent is already a requirement for nested and non-nested REDD+ projects that aim to register on ACR and/or to verify community co-benefits to the CCB Standards, where CCB's Joanna Durbin views the FPIC process as "a methodology for achieving existing CCB requirements," rather than an add-on to project timelines.

While this survey did not include a question about developers' pursuit of FPIC, respondents raised several areas of potential research, including: How can we ensure that auditors are properly equipped to verify FPIC procedures? How long do projects typically spend on the FPIC process? What is the legal status of the resulting document or agreement? Should the FPIC process be conducted by a third party or include some involvement from the developer?

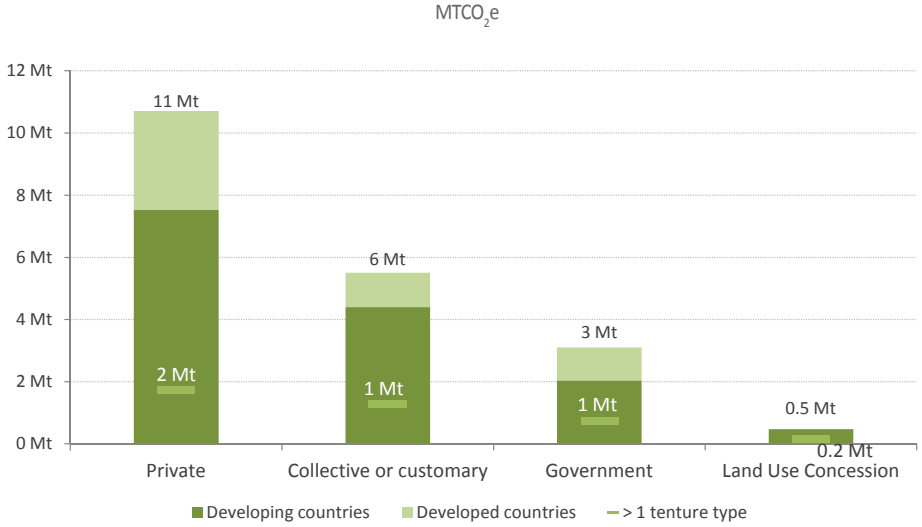
(1) http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf
(2) http://www.un-redd.org/Stakeholder_Engagement/Guidelines_on_FPIC/tabid/55718/Default.aspx

14 Read more at: http://www.rightsandresources.org/blog.php?id=1246

Last year, the UN Food and Agriculture Organization (FAO)'s 5-year *Global Forest Resources Assessment* also reported that while the proportion of lands under collective or customary tenure had grown, approximately 80% of the world's forests are publicly owned. Conservation International's Agustin Silvani observes that in developing countries that house a large proportion of the world's forest resources, the government agencies tasked with public lands management often find themselves at the bottom of the pecking order when it comes to budget allocation. Here, he says, is where carbon finance can make a difference, "because in countries where resources are already stretched, the provision of finance and conservation services by third parties can relieve some of that budgetary pressure and also ensure that these areas are protected."

To describe some publicly managed areas, Silvani uses the term "paper parks" – areas that are protected on paper but not in reality – at least not fully – due to governments' financial constraints. Conservation International works with one such project in Peru's San Martin region Alto Mayo Protected Forest, which faced deforestation pressures from illegal settlers' subsistence agricultural and coffee farming activities. Here, Conservation International worked for several years with relevant government agencies to establish a new forest management model called Conservation Agreements (*Acuerdos de Conservación*) that granted legitimacy both to Conservation International as project managers and provided an alternative to the migrant settlers who faced an uncertain legal position.

Figure 26: Transacted Volume by Tenure Type (Including >1 Tenure Type), and Location by Economic Designation



Source: Ecosystem Marketplace. Notes: Based on 533 observations

Under the conservation agreement model, Conservation International developed alternative land management plans in partnership with the government and existing tenants that defined long-term sustainable land use in the area – and was granted the authority to monetize the area's carbon assets in order to finance the switch to sustainable farming practices.

"This is a win-win model we hope to share with others facing difficult tenure scenarios, where they can work with endangered public lands and local communities while the government retains full authority over its lands and doesn't feel like it's giving anything away," says Silvani. "It's one example of how developers can find innovative solutions to overcome the tricky tenure situations that can otherwise kill projects."

Looking at another public/private tenure model, another 22 projects reported making use of concessions – only 6 of these projects transacted credits. In most developing countries, land use concessions are typically granted to mining, logging and other extractive industries but, relevant to carbon projects, can be granted for natural resource conservation under the same model. Commonly, the concession holder pays an upfront fee per hectare to obtain the concession. This model also does not confer permanent ownership, but instead acts as a long-term land use right permit – the closest thing to renting an ecosystem. From there, agreements differ as to how annual maintenance payments are made to the concession granter to retain tenure.

In developing countries, land use concessions are a fairly well-developed mechanism – on paper. In reality, the fully burdened cost of a project can climb much higher than its sticker price if governments are slow to act or introduce additional administrative steps, or existing extractive industries protest the concession (publicly or not), among other political risks. Regarding the low count of active projects using environmental land use concessions, project developer InfiniteEarth's Todd Lemons – who has been navigating Indonesia's concession process for over four years – says, "If you don't see a lot of concession-based projects out there, it's probably because many of them died on the vine before implementation."

He predicts that in the future, fewer projects will choose to go down that path after seeing the complexities that projects like his have faced. "Unfortunately," he adds, "concessions are often the only route for projects in the world's most threatened forest regions. But then if it were easy, there wouldn't be a need for them in the first place."

5. Forest Carbon Standards and Registries

5.1 Standards: Seeking Validation[15]

In the context of standards for forest carbon project development, the market is "letting a hundred flowers blossom." Indeed, no other sector in the carbon markets sees as many existing and still-emerging standards for project development (22 as of mid-2012) as developers and compliance programs try different standards on for size.

In 2011, the forest carbon markets added two new standards to the roster – Australia's land-use-only Carbon Farming Initiative offset program and British Columbia's Pacific Carbon Standard, which serve both domestic regulation-based and voluntary markets. In 2012, efforts are still underway by organizations seeking to make their mark in the nascent marketplace – with the Natural Forest Standard released for public comment mid-year and the Brazil-facing Rainforest Standard launched at the Rio+20 Earth Summit (see Annex "Standard Profiles").

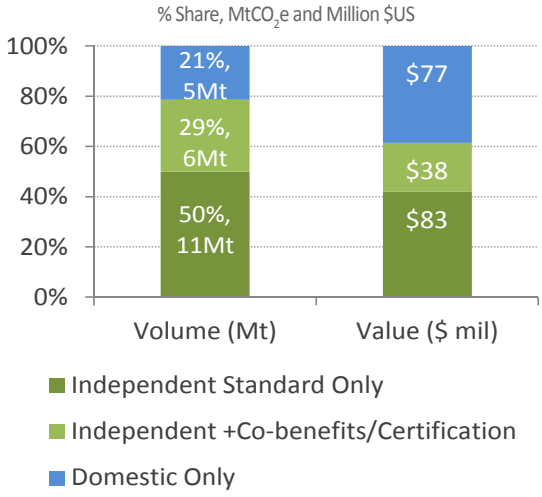
As standards and the projects they support make their way through uncharted waters, registries, too, are rising to the challenge to offer systems that track forest projects with multiple layers of benefits – at multiple scales. In this section, we highlight these and other key trends with respect to market infrastructure.

Overview of Standard Use in 2011: Driving Home Reductions

Forest carbon market players often ask themselves, "Does the market really need so many standards?" Whether they view standard proliferation as a help or hindrance to market scale, though, most admit that every geographic and cultural situation is unique, and the market has yet to – and may never – achieve consensus around a single "best practice" approach. Therefore, standards and methodologies for measuring project baselines, leakage, risk and co-benefits remain highly customized and numerous.

Some project developers have gone the route of developing methodologies through independent frameworks like the VCS and ACR, while others have advanced approaches that are tailored to one country or region. Figure 27 shows that the larger number and volume of activities occurring around domestic forest standards created a sizeable shift in market share in favor of domestic approaches. This is even more apparent in the value of domestic programs, which captured 39% of market value (up from 25% in 2010).

Figure 27: Market Share by Standard Type, 2011



Source: Ecosystem Marketplace. Based on 1,260 observations.

Independent Forest Offset Standards: VCS Holds Top Spot, while CDM and ACR Move Up Charts

Independent standards – those that offer or enable methodologies from a variety of locations and forestry project types – remained the prevailing force in the marketplace in 2011. Of these, projects using the VCS standard to develop, register and issue credits maintained a slight lead over those developed for the CDM market. Compared to 2010, when VCS-guided activities were dominated by REDD projects and topped market charts, 2011 saw more subdued VCS project transaction volumes (6.5 MtCO2e) contracted from a variety of project types (42% A/R, 38% REDD, 20% IFM). VCS projects captured 28% of total market share among both independent

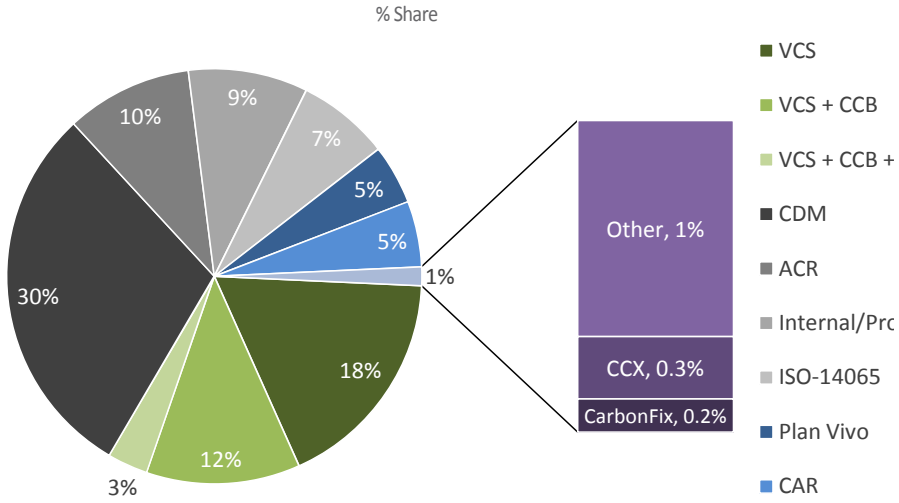
15 **A note on figures:** Because of the unique designs – and in some cases, challenges – presented by domestic programs, this year's report analyzes them in a separate category from other independent third-party standards. We also separately explore standards that exclusively account for project co-benefits – which are not carbon accounting standards in their own right but are "tagged" onto carbon accounting standards. For a full comparison of standards, see Figure XX in Executive Summary.

and domestic forest carbon standards, and 33% of volumes attributed to its peer group of independent third-party standards. VCS reported a number of technical accomplishments in the last 18 months, launching new frameworks for wetlands conservation & restoration activities (including peatlands); avoided conversion of grasslands; and its Jurisdictional Nested REDD+ Requirements (Box 2).

Right behind VCS projects, A/R projects developed using CDM methodologies to sell into Kyoto compliance markets carried almost another one third of contracted volumes, resulting from developers' drive to register and issue volumes ahead of the end of Kyoto's first compliance period (Section "Clean Development Mechanism Market Trends"). VCS A/R projects also exclusively utilize readily available CDM A/R methodologies to guide project development but will issue the credits through the VCS for sale to voluntary buyers.

For the first time in this report series, volumes generated under the ACR standard represent the third largest category of activities, owing to their popularity among purely voluntary buyers based primarily in the US. While traditionally US-facing, however, 2011-12 saw ACR introduce its first international REDD methodologies and nested REDD+ standard; as well as approve a modular methodology approach to coastal wetlands restoration; and develop approaches to stacking GHG and water quality credits from agricultural land management, with pilots underway in Maryland and Puerto Rico. This report survey tracked a few early-stage international ACR projects – none of which had yet contracted credits in 2011.

Figure 28: Market Share for Independent Plus Major Co-Benefits Standards



Source: Ecosystem Marketplace. Note: Based on 618 observations.

New Volumes, Partnerships in Niche "Ex-Ante" Market

Volumes contracted under the Plan Vivo program grew from .2 $MtCO_2e$ in 2010 to 1 $MtCO_2e$ in 2011, following the standard's relatively small but sustained market growth. As seen in Figure28, both Plan Vivo and CarbonFix projects – which also contracted <1 $MtCO_2e$ again in 2011 – saw above average prices owing to their niche market appeal to CSR buyers. It is worth noting that both standards were applied primarily to A/R projects in 2011, though Plan Vivo also supports REDD and agro-forestry activities.

Plan Vivo and CarbonFix also uniquely offer "ex ante" project crediting, which means that projects can issue and retire credits for reductions before they occur. Under this arrangement, Plan Vivo considers a credit's vintage to be the year that the credit is issued, rather than when the tonne is reduced. CarbonFix, on the other hand, issues credits for future years based on when reductions are expected to take place, and their expected annual issuance.

In fall 2012, the voluntary market saw its first effort at consolidation among existing standards with the Gold Standard's acquisition of CarbonFix, as well as its freshly minted MOU with the Forest Stewardship Council (FSC). The Gold Standard and CarbonFix collaboration will see the Gold Standard synthesize its sustainable development requirements and CarbonFix A/R guidance, and in the future perhaps also pursue other project activities like sustainable agriculture, IFM and a landscape approach to land use crediting.

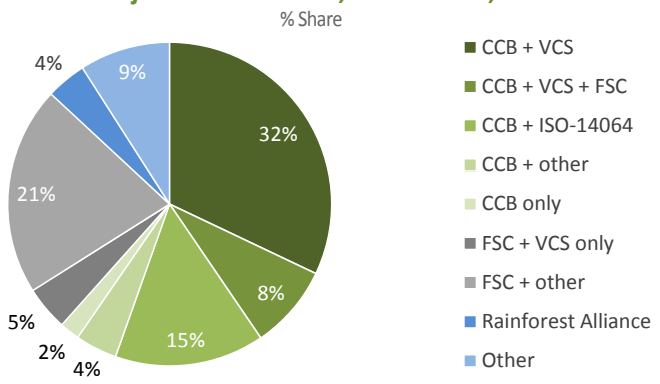
The Gold Standard's collaboration with FSC – both organizations endorsed by the World Wildlife Fund (WWF) – will see them jointly leverage their respective approaches to social and environmental safeguards and carbon certification. It remains to be seen if or how these collaborators will recognize projects developed under other carbon standards within FSC-certified forests, other WWF forest programs like the newly launched New Generation Plantations project.[16]

[16] Available here: http://www.newgenerationplantations.com/index.php

Co-benefits or Other Certifications: Tagged onto 30% of Carbon Volumes

Forest project impacts extend beyond carbon sequestration to their surrounding environment – as habitats, watersheds and community resources. Projects that wish to certify their additional contributions or sustainable use may follow the guidance of standards like the CCB (for all forest project types), FSC (for sustainable forest management/afforestation) or the Rainforest Alliance's certification of sustainable agriculture. Because 98% of credits claiming these certifications were also pursuing certification under a carbon standard – co-benefits certifications do not by themselves quantify projects' carbon attributes – we examine them separately in Figure 29. Transacted credits that are tagged with these additional certifications are also included in our analysis under their primary carbon standard.

Figure 29: Market Share of Co-benefits and Other Project Certifications, All Markets, 2011



Source: Ecosystem Marketplace. Note: Based on 748 observations.

Figures 28 and 29 both show that projects certified to CCB Standards were the most popular among 2011 buyers. The largest volume of these credits was attributed to projects developed under a VCS methodology, where projects that are certified to additional co-benefits guidance are formally "tagged" with the certification in a VCS registry. For VCS credits to be tagged with the CCB Standards, the project must have gone beyond validation and been verified with the CCB Standards, demonstrating that the claimed social and environmental benefits were actually delivered.

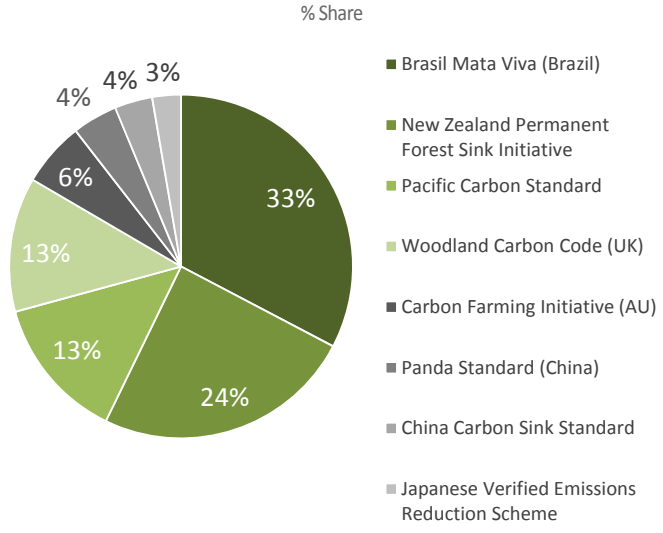
While CCB Standards are appropriate for use within any land project type (including agriculture), the FSC Forest Management certification was applied primarily to project areas hosting A/R activities with a silviculture regime, as tracked in our survey. Rainforest Alliance certification was also achieved within a few REDD or A/R projects with additional agro-forestry and/or sustainable agriculture activities. Other certifications less commonly reported include fair trade and organic labels, the Forest Garden Products Certification, and the Programme for the Endorsement of Forest Certification (PEFC) – all combined, these were applied to another .7 $MtCO_2e$ of contracted tonnes.

Domestic-Only Forestry Standards: No Place like Home

The growth in the number of and volumes attributed to country-specific standards is not simply explained as domestic CSR preference for "backyard" projects – in 2011 just over half of credits generated to voluntary market domestic standards like the Panda Standard and Brasil Mata Viva were contracted to international buyers. Last year, domestic standards grew their numbers in the category of compliance offset protocols. Here, standards like Australia's Carbon Farming Initiative and California's compliance offset protocols reported early project development and contracts – even before the programs were prepared to verify and issue tonnes in 2011. California compliance offset volumes are included in the "other" category to protect respondent confidentiality – this category also includes small volumes from the NSW GGAS program and forestry units from the NZ ETS.

As previously mentioned, credits generated to domestic standards represented 21% of market share and $83 million in market value. This is primarily due to the high prices reported by voluntary programs like the Japan Verified Emissions Reduction Program (J-VER: average $119/$tCO_2e$) and Brasil Mata Viva (average US$24/$tCO_2e$ for 1.4 $MtCO_2e$), and compliance credits contracted under the Pacific Carbon Standard to government agencies pursuing British Columbia's Carbon Neutral Government directive ($25/tCO2e for .6 $MtCO_2e$). These three survey responses – all reported by program representatives – should be considered outliers relative to broader pricing behaviors.

Figure 30: Market Share by Domestic Project Standard



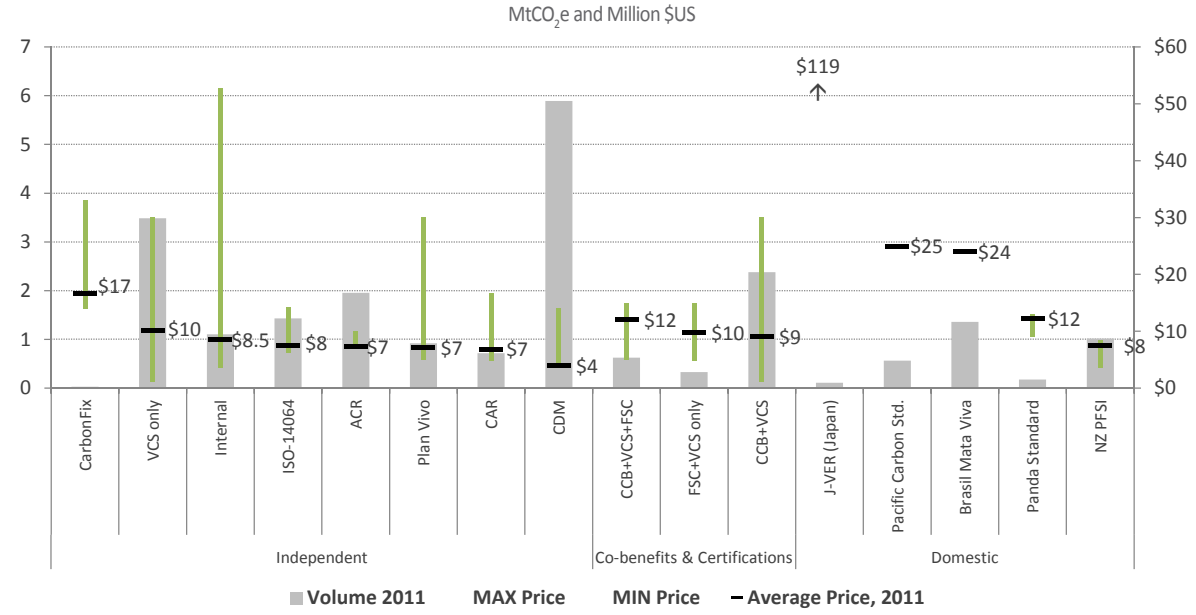
Source: Ecosystem Marketplace. Note: Based on 618 observations.

Price by Forest Carbon and Co-Benefits Standards: No Trend in Sight

When considered individually, no project variable by itself – from project location to type to size – has a statistically significant impact on forest carbon credit price. The same is true of the choice of carbon and co-benefits standard use, due to the forest carbon market's small size and lack of intra-year price transparency. Figure 31 shows that while CarbonFix project developers reported relatively small transaction volumes, they obtained above average pricing. So, too, did projects utilizing an internally-developed project approach. Such projects were mostly based in Latin America, or in Annex I countries where most carbon standards will not recognize projects due to double-counting rules. Such projects nevertheless obtained higher average prices from purely voluntary domestic buyers.

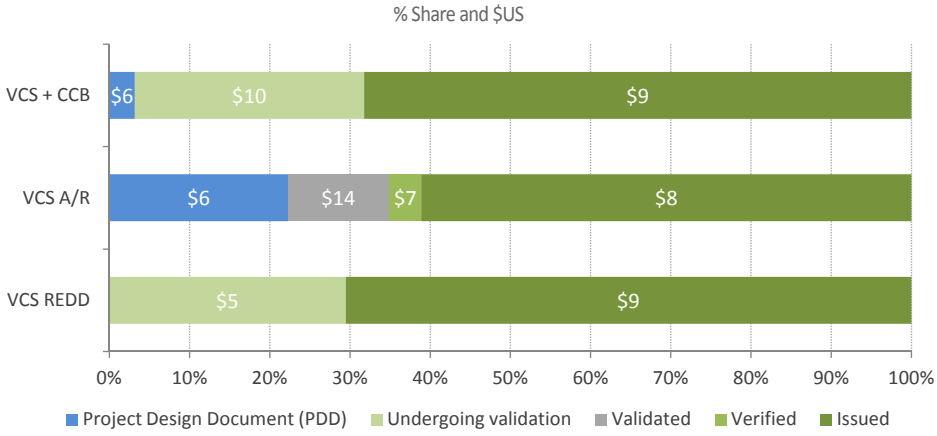
VCS forest carbon projects in particular saw a 156% increase in their average price ($10/tCO$_2$e in 2011), owing to the higher price seen across all VCS project types, as well the BC Government's purchase of VCS tonnes at $25/tCO$_2$e prior to the availability of the Pacific Carbon Standard. Excluding this transaction, the VCS average price was $8.5/tCO$_2$e. VCS projects that were also certified to the CCB saw an additional average $.50/tCO$_2$e over this price ($9.1/tCO$_2$e), while those combining VCS, CCB, and FSC certification contracted credits for an average $12/tCO$_2$e. This above average price may be attributed to the desirability of achieving additional certification for projects' underlying commodities .

Figure 31: Transacted Price and Volume by Forest Carbon and Co-Benefits Standards, All Markets 2011



Source: Ecosystem Marketplace. Note: Based on 1,060 observations.

Figure 32: Market Share and Price by Project Stage*



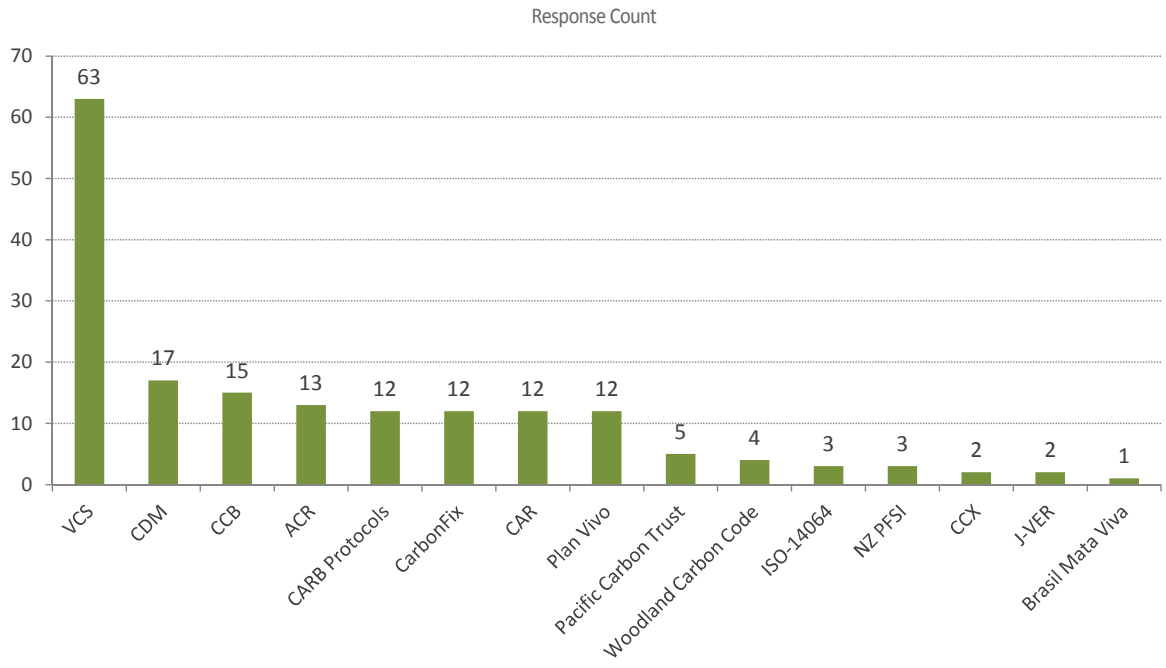
*Source: Ecosystem Marketplace. Notes: Based on 414 observations. * Limited to transaction types with at least three data points.*

As can be seen in Figure 32, VCS REDD project prices exhibit the most typical pricing pattern rewarding the lower delivery risk associated with issued tonnes. Because of VCS REDD credits' relative "newness" in the marketplace, their pricing became fairly transparent as market players exchanged price observations throughout the year. Otherwise, prices by project stage reveal very little in the way of trends, even when compared to the same information within the broader voluntary OTC marketplace.

Future Standards Use: VCS Tops Most Wanted List

In another part of our survey we ask developers which standards they intend to use again in 2012. Not surprisingly, the vast majority of question respondents (63) indicated their intention to utilize the VCS standard for existing or new project activities – up from 49 2010 respondents. Interestingly, behind VCS, another 17 respondents showed their preference for developing CDM A/R projects targeting compliance buyers – indicating their interest in getting in on the ground floor of the next Kyoto Protocol compliance period beginning January 1, 2013. This is up from 11 respondents that reported CDM A/R projects in 2011 .

Figure 33: Future Standards Preferences by 2011 Respondents



Source: Ecosystem Marketplace. Note: Based on 98 responses.

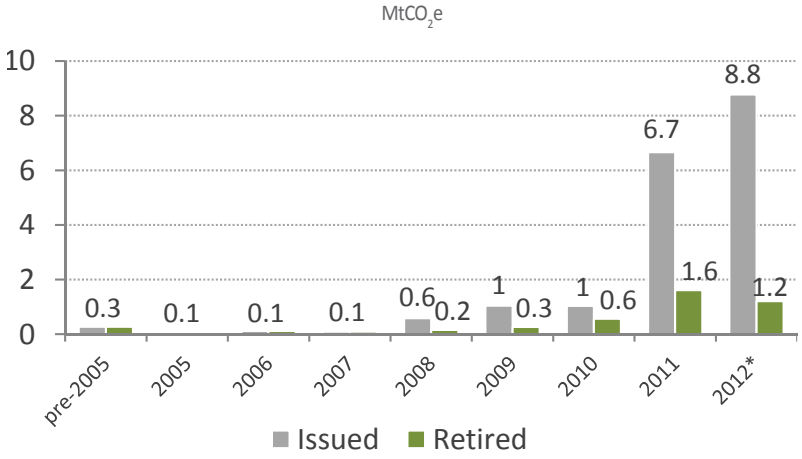
Compared to 2010 respondents' strong preference for California Air Resources Board compliance offset protocols ("CARB Protocols"), this year the regulation-based protocols were ranked alongside forestry protocols available through CAR and – ahead by one response count – ACR. The CarbonFix standard also more up-votes than in 2010, while developers ranked Plan Vivo further down the list, compared to 2010 when it was the fourth-most sought-after standard.

This year's rankings also see increased interest in domestic-only standards like newcomer Pacific Carbon Trust, as well as the Woodland Carbon Code and New Zealand PFSI – all of which saw more than 2 project developers interested in their programs. Most of these responses represent new interest in the programs, as the PFSI was only one of these standards carried over from 2010. Important to note, these ranking represent a count of suppliers interested in the above standards; are not volume weighted for significance and represent a small subset of the total number of projects captured in our survey (98 of 215).

5.2 Registries: Raising the Bar

As the forest carbon markets' layers of players, certifications and domestic programs deepen, registries that track the lives of forest credits are more critical than ever. In 2011, registry trends moved in tandem with both project and policy developments. Most significantly, registries reported the largest ever volume of issued and retired credits in 2011. While A/R projects in particular have issued credits in previous years, a new volume of REDD credits from VCS REDD methodologies took stage last year – kick-started

Figure 34: Historical Issued and Retired Credit Volumes



Source: Tracks land use project registry data reported for VCS, CAR, Plan Vivo, CarbonFix, CCB, PFSI and Pacific Carbon Standard. Does not include CarbonFix retirement volumes or any issued or retired land use credits under the Chicago Climate Exchange.

**Volumes tracked through June 31, 2012*

by project developer Wildlife Works' Kenyan Kasigau Corridor REDD project's issuance of credits from the market's first mega-sized REDD project. Following this, other projects have slowly but surely made their way through the pipeline, to issue a total volume of 6.7 $MtCO_2e$ in 2011 alone. 84% of this volume was issued via Markit Registry – a home for VCS credits and also four domestic forestry standards tracked in this report, including the Pacific Carbon Standard that issued sequestration credits at volumes on par with large-scale VCS projects .

Behind Markit, APX also issued 1 $MtCO_2e$ in 2011. APX Inc. acts as Markit's counterpart in the VCS registry system and also provides the underlying infrastructure for the CAR registry and – as of mid-2012 – the ACR registry. Before this year, ACR administered its registry in-house. Previously, too, Markit and APX were joined by the Caisse des Dépôts registry in the three-part VCS registry system. Caisse des Dépôts announced in late 2011 that it was winding down operations – and the lone AFOLU project to register and issue credits under this registry was transitioned to Markit in September 2012. On the compliance market side, the CDM registry issued the first ever tCERs in 2012, totaling at least 4.1 $MtCO_2e$ and accounting for the large jump in issued volumes in 2012. In addition to this, voluntary registries issued 4.6 $MtCO_2e$ in the first half of the year.

While issuance and supply are the base ingredients of market activity, what comes before and after this step are also key to understanding a forest carbon credit's full lifecycle. For example, during the verification process for all independent standards and some domestic standards, auditors determine the risk profile of a forest carbon project (based on the risk of a reversal of sequestration), and assign a proportion of credits to be sidelined in a "buffer pool" account. For VCS in particular, if over time a project's risk rating remains stable or improves, some volume from the buffer may returned to the project owner.

For the first time, this year's report Annex on Standard Profiles reports on the size of each standard's buffer pool relative to the total volume of credits issued. By mid-2012, the size of all standards' buffer pools combined totaled 4.4 $MtCO_2e$ – which includes a large volume donation of non-forest carbon credits to the ACR buffer. This is one example of why and how these numbers provide an overview of the size of standards' buffer pools, but should considered alongside the fact that every standard manages its buffer pool differently – including the date at which each standard began requiring buffer pool contributions; how they manage intentional versus unintentional reversals; and what reversals are compensated for by the buffer pool versus the project owners themselves.

ACR also offers a product called the *Carbon Reduction Guarantee*, a risk-mitigation product for forest carbon projects that enables any company registering forest carbon projects on ACR to use the risk-mitigation product to wholly guarantee their projects against unforeseeable environmental threats or reversals in lieu of contributing to a buffer pool. Other standards like VCS say they are open to exploring alternatives to the buffer pool mechanism, but are still investigating the costs versus potential savings of various approaches.

On the other side of credit issuance, buyers in both the voluntary and compliance markets may surrender or retire credits via a registry to prevent them from being re-sold in the future. Registries reported record retirement volumes in 2011 – reflecting the record volume of issued credits that are eligible for retirement. Last year, retired volumes increased 186% over volumes seen in 2010. Unlike other numbers in this report that describe transaction activities in 2011, credits retired in 2011 may have been contracted for delivery and retirement several years before the credits were issued. This is especially true of projects with an acute need for upfront project finance and a long-time horizon.

Box 2: Market Infrastructure Building the Nest

This report primarily explores credits contracted from individual REDD projects being developed from the ground up. Zooming out, however, regulators are exploring ways to account for forest finance and potentially credit REDD activities at a larger scale – from the "top down." Hence the emergence of bilateral and multilateral payments to national actors through funds like the Forest Investment Program (FIP), UN-REDD Programme and Forest Carbon Partnership Facility (FCPF). In their early stages, many of these payments are tied to "REDD readiness" – including the development of national and sub-national emissions reference levels.

As these commitments and actions are implemented, what happens to projects already under development on the ground? Several independent standards and registries are leading the charge to answer this question on behalf of their project stakeholders – by supporting "nested" project approaches. Under a purely national – or in some cases sub-national – REDD finance and accounting approach, funds and credits would flow directly to/from governments based on their emissions performance against national or sub-national reference level emissions (the baseline). In this case, emissions reductions are accounted for across the entire jurisdiction and credited only at the highest (national) level. In such a case, any project level crediting would be double-counted, and so could not receive and monetize credits.

Under a nested approach, multiple levels of accounting are integrated to ensure that results at the national level are the equal to the sum of emission reductions at lower levels. Project baselines and monitoring are synced with regional or national reference levels and programs; can be credited directly; and regularly true up their accounting against national levels. In fall 2012, the VCS released a live version of its Jurisdictional Nested REDD+ Requirements (JNR), providing a framework to account for and credit state, provincial and national REDD+ policies and programs as well as individual REDD+ projects, developed in coordination with a number of national and subnational government representatives and a broad range of stakeholders.

Other standards have focused only at the project level, providing guidance for projects that may become nested in larger REDD+ programs, but not for accounting at the national or subnational jurisdictional level. In late 2011, CAR sought public comments for its draft Mexico Forest Project Protocol – including some provisions for nested projects developed with working group members like the Governors' Climate and Forests Task Force (GCF) and VCS. Also in 2012, ACR launched its Nested REDD+ Standard, which includes technical and safeguards requirements for registration of REDD+ projects nested within a jurisdictional framework, while Markit registry announced an MOU with Brazil's State of Acre (a GCF member) to develop the world's first state-level REDD+ registry system. VCS has also signed an MOU with Acre to utilize the VCS JNR in the development of their subnational REDD+ program.

Table 12 demonstrates the extent to which projects themselves are currently engaged with regional or national entities, or standards themselves, in the development of their project baselines. While all of these efforts are early stage, eight projects have already expressed their desire to serve as nested pilot projects. Others reported achieving various stages of technical engagement with relevant government entities to "nest" their projects in the future – while the largest number of respondents understand that nesting will be relevant to their project area but are unsure of how to engage with the relevant agency.

Our data also shows an interesting reciprocal relationship between private sector finance to these early stage projects ($13 million) and the presence of larger institutional contributions to more advanced project activities (last column) – illustrating the private sector's continuing catalytic role in the REDD space.

Table 12: Data on Project-level Engagement with REDD+ "Nesting" Initiatives

	Volume 2011	Value 2011	# Active Projects	Total # Projects	Area Impacted	# of Projects by Region (active and inactive*)			Bilateral, multilateral recipients
NESTING STAGE	Mt	$ mill	Count	Count	Million Ha	LAC	Africa	Asia	Count
Uncertain how to engage	1.2	$13.1	3	10	2.2	6	3	2	0
Preliminary/technical discussions	0.8	$3.1	4	20	2.3	8	5	7	9
Active in regional baseline development	0.2	$1.2	4	14	4.8	9	3	NA	5
Seeking approval or developing pilot	0.2	$1.3	3	8	1.5	3	NA	NA	4
TOTAL	**2.4**	**$18.6**	**14**	**52**	**10.8**	**26**	**11**	**9**	**18**

Source: Ecosystem Marketplace. Note: Based on 52 projects.

6. Project Finance

Because the forest carbon markets behave more like markets for differentiated products than commodities markets, the price of forest carbon credits is often determined by dozens of factors – some of which are apparent in our data and others are known only to the buyer and seller. This section explores forest project finance in its own right, including the terms by which payment and credit delivery were agreed, the price relationship between primary and secondary market sellers, other sources of project finance – and the resources project developers say they need, compared to what they *got* in 2011.

6.1 Project Needs: Count Your Billions One by One

Over the last 18 months, the global carbon price crash has left no primary market unscathed. Forest carbon project developers feel it, too – and first expressed their frustration with competitively low priced technology-based offsets circulating in the secondary markets in our 2012 *State of the Voluntary Carbon Market*s report. Indeed, prices for some of the market's traditional technology-based offset types, like wind and hydropower credits, hit new lows in 2011. Meanwhile, more charismatic project types – including forestry – buoyed the market with higher prices relative to their 2010 levels.

But despite the fact that most credits sold from forest carbon project types retained their value in 2011, developers continue to claim that price pressures are forcing them to settle on prices that will not sustain their projects. So what is the ideal price point they're seeking?

To answer this question, this year's survey asked developers to specify what they think the price of carbon *should* be to support their project's existing and future activities; specifically, how many years' worth of annual expected reductions they need to sell at what price to cover or recoup any remaining upfront capital expenses and ongoing operating expenses; and what percent of their projects' expected range of annual reductions this entails. We did not ask developers to specify what proportion of their estimates are comprised of profit margin – therefore, it should be assumed that some unspecified profit margin is included in estimates on top of their coverage ratio, reflecting the full value necessary for projects to remain viable.

Our survey findings are presented in Table 13, where the first tier of data shows that developers need or desire to contract credits at a median primary price of \$12/tCO_2e across all project types – approximately \$2.8/tCO_2e more than the reported *actual* market-wide average in 2011 (\$9.2/tCO_2e), which includes both primary and secondary transactions. This varies by project type, where A/R projects reported requiring the highest price per tonne – while in 2011, they transacted at the lowest average price per tonne. Had projects contracted credits at their desired prices, the overall value of the marketplace would have been closer to \$316 million in 2011, 34% greater than the current value (\$237 million).

> *"As methodologies become more consolidated and there are more working examples of REDD projects sharing information, developers will be better equipped to anticipate project costs in the future."*
>
> *– Justin Whalen, Face the Future*

Moving down a tier, suppliers reported that projects captured in this report survey are expected to generate an estimated 24 $MtCO_2e$ – 53 $MtCO_2e$ in emissions reductions annually, across all project types. Within this category, REDD projects are responsible for approximately twice the reductions of other types. Surprisingly, despite their currently small market activity compared to other project types, IFM project developers anticipate annual issuance volumes on par with currently more numerous A/R projects. This reflects a number of projects that are waiting for California's ARB to give the green light for verification and registration processes to commence, allowing projects to register directly with the compliance offset program on ARB-approved Offset Project Registries.

In 2011, only A/R projects were able to contract volumes that exceeded their market-wide expected annual issuance, i.e. they were able to forward sell between 1 and 3.6 years' worth of credits. This is the average range – individual project performance varies and should be considered alongside the fact that less than half of A/R volumes contracted in 2011 received payment in 2011 (Table 5).

Table 13: Comparison of Actual and Desired Price and Volume, and Estimated Annual Reductions

Prices and volumes projects contracted in 2011, versus what developers desire or need:						
	A/R		**REDD**		**IFM**	
2011 Average Price (*actual*)	$6		$8 ($11 with outlier)		$10	
Desired Price*	$13		$11.5		$12	
2011 Value (*actual*)	$88 M		$88 M		$53 M	
Project start date 2011 respondents *(median)*	2007		2010		2009	
Estimated annual reductions: volumes contracted versus volumes developers need to sell:						
	Low	**High**	**Low**	**High**	**Low**	**High**
Supplier-estimated annual reductions	4 Mt	12 Mt	13 Mt	25 Mt	6 Mt	11 Mt
2011 Volume Contracted (*actual*)	14 Mt		7 Mt		4 Mt	
Years' worth of expected annual issuance sold in 2011	3.6	1.1	.6	.3	.6	.3
Years' worth of expected annual issuance need to sell*	15 years		10 years		2.5 years	
Values if developers contracted credits at the volumes and prices needed or desired to support projects:						
	Low	**High**	**Low**	**High**	**Low**	**High**
Desired value/year to support existing projects *(based on desired price and estimated years needed to sell – in million $US)**	$59	$186	$106	$214	$96	$170
Total value required to support existing projects *(supplier estimated, no timeframe – in million $US)**	$886	$2,784	$1,056	$2,144	$243	$440

*Source: Ecosystem Marketplace. Notes: Based on 1.314 observations. *Because a large number of respondents reported on project needs but did not transact credits in 2011, we analyzed this data using the median desired price and years reported rather than volume weighted responses. These median variables were then applied to all respondents' data according to project type, for rows marked with "*".*

A/R project developers also reported needing to sell 5 more years' worth of expected annual issuance than any other project type, to remain viable. Based on both this and their desired price, A/R projects in this survey are estimated to require between $.9 and $2.8 billion over an unspecified number of years – but presumably in the near to medium term. This is attributed to the projects' high up-front costs that include not only measurement and planting but also project monitoring and additional plantings in the case of natural or man-made destruction to any project area over the its lifetime.

To a large extent, A/R project estimates may be taken at face value – as many are operated by experienced foresters, are based on mature, tried-and-true methodologies and are some of the longest-running projects in the marketplace according to median project start dates. In contrast, developers we interviewed suggest that the lower estimates offered by REDD project developers represents a current gap in information about the total costs that projects are likely to incur in coming years – not only forest protection but also potential credit replacements, promoting alternative livelihoods, benefit sharing, rising opportunity costs with respect to land use, and what project developers report to be some of the highest project audit costs in the marketplace. Coincidentally, REDD projects are also some of the newest on the scene.

"It's difficult to pin down or predict the costs for a new REDD project since each project will need to address drivers of deforestation and avoid GHG emissions in different ways and at different costs depending on the project's unique situation, scale and geographic location," developer Face the Future's Justin Whalen observes. "As methodologies become more consolidated and there are more working examples of REDD projects sharing information, developers will be better equipped to anticipate project costs in the future."

While IFM project developers' desired price sits between those of REDD and A/R projects, IFM projects reportedly require a fraction of the sales volume. This is partly due to the nature of IFM project activities which sometimes include optimizing timber harvest for

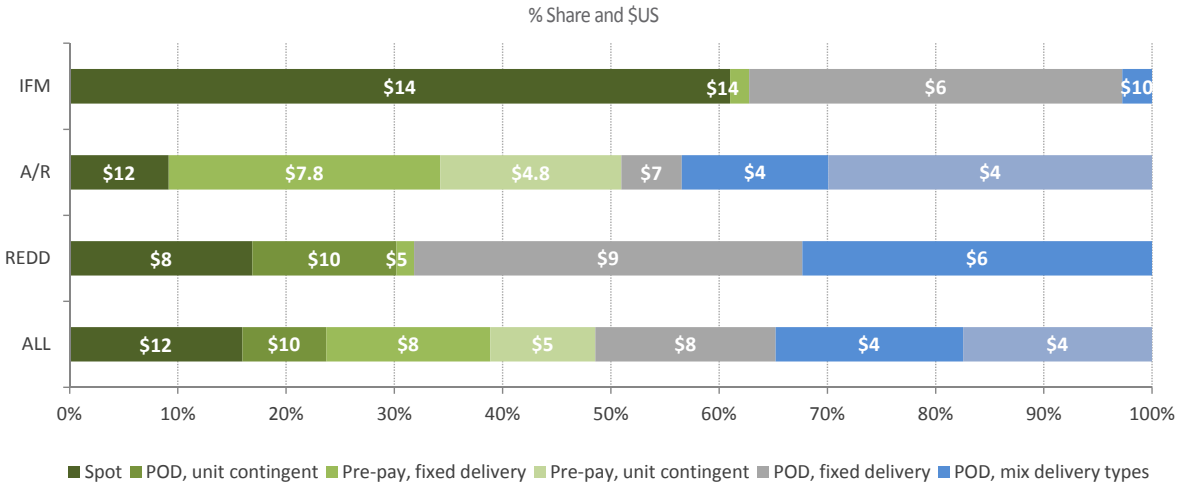
carbon sequestration – deriving complementary revenue from timber or other wood product sales. IFM projects also typically have a shorter time horizon to market and straightforward land tenure (most are based in developed countries, with a few exceptions).

Overall, developers reported needing $2.2 – $5.4 billion to support existing and future activities from surveyed projects. Given that this range represents developers' back-of-the-envelope survey estimates, each made according to their projects' unique financing and cash flow timelines, this account is best considered a starting point for understanding and addressing shortfalls in demand: where and why A/R projects succeeded where others failed to contract necessary volumes; how the market can systematize accounting and better estimate costs for projects' "qualitative" aspects; how successful projects leverage carbon payments against other revenue streams; and what is required of market actors and decision-makers to raise market demand and thus value in the near term – as many projects need to forward sell future issuances and receive pre-payment now to cover existing costs.

6.2 Contractual Arrangements: Bill Me Later

The terms upon which buyers and sellers agree to pay for and deliver credits also have an impact on price. For this reason, we asked developers to specify their contract structure (Figure 35). Overall, 9.2 $MtCO_2e$ of transacted forest carbon credits received immediate payment in 2011 (spot or pre-payment), worth $62 million or one quarter of total market value. The larger proportion (13.4 $MtCO_2e$) was contracted for payment upon future delivery, totaling $70 million in value that will (or in some cases may not) be paid to projects at a future date.

Figure 35: Contract Type Market Share and Average Price by Project Type



Source: Ecosystem Marketplace. Notes: Based on 892 observations.

Because of the opaque nature of the OTC market were the majority of these transactions took place, the average price for contractual arrangements is too varied to draw precise conclusions about the impact of terms on price. The most discernible (and predictable) trend is that the highest average prices were paid for spot transactions, where payment and delivery occur simultaneously. Across all project types, credits transacted on a spot basis did so at an above-average $11.5/$tCO_2e$ – in keeping with the higher prices paid market-wide for the lesser risk associated with issued credits. Credits contracted for future delivery – whether receiving pre-payment or payment on delivery – saw average prices of $8/$tCO_2e$ and $8.3/$tCO_2e$, respectively. This speaks to developers' desire to lock in prices for future deliveries now – even if that means taking a >$3/$tCO_2e$ hit on price – as well as the different risks associated with earlier stage projects.

Figure 35 shows that REDD credits contracted for future payment and delivery, and without a firm credit delivery specified, saw a higher average price, as well as contracts at the other end of the spectrum where buyers paid up front for a firm future delivery. This arrangement was preferred by A/R projects in need of up-front financing, and where future annual reductions can be estimated with relative ease and accuracy. Fixed delivery was also preferred by IFM project developers, but at a lower price point and postponed payment.

Beyond these categories, developers were given a broad array of contract types from which to choose, including swaps, put and call options, mezzanine contracts and an "other" category. These more sophisticated contract types were infrequently employed within

the broader voluntary marketplace, and were almost completely absent from any forest carbon market survey response.

Table 14: Contractual Credit Replacement Guarantees

	Avg. Price	Share, overall market
Replace w/ credits from marketplace	$10	9%
Repay funds	$7	5%
Replace w/ credits from future issuances	$13	2%
Other	NA	2%

Source: Ecosystem Marketplace. Notes: Based on 60 observations.

In the case of contracts that call for a firm credit delivery, parties also typically agree on terms for compensating for an under-delivery of credits from the contracted issuance – particularly when up-front payments are involved. In another question, we asked developers about delivery guarantees to determine the most common mechanisms for making up delivery shortfalls. Table 14 shows that 9% of all credit deliveries contracted in the primary forest carbon marketplace (2.4 $MtCO_2e$) are guaranteed with credits from the marketplace – whether from forestry projects or other technology types. Another 5% of all forest carbon credits were contracted with the promise to refund buyers for any shortfall.

Contracts seeing the highest prices but making up only 2% of all transacted volumes were those that guarantee to make up for shortfalls in the contracted vintage year with credits from future issuances of the same project. Other mechanisms that saw activity (but not enough to report by price and/or market share) include the conversion of payments into debt or equity; guarantee to compensate for shortfalls with another asset or commodity (most often seen with IFM projects); and the use of a third-party insurance mechanism.

These figures reflect guarantee mechanisms associated with primary market contracts – we did not ask this question of secondary market participants. Suppliers suggest, though, that the proportion of credits contracted with a delivery guarantee mechanism is likely to be much higher in the secondary market, where guidelines like the International Carbon Reduction and Offsets Alliance's (ICROA) Code of Best Practice stipulate that retailers must guarantee a replacement mechanism for credits that are sold in advance of verification, either through a contractual financial guarantee, "Appropriate Safeguards" buffer or a combination of these options.

6.3 Other Sources of Project Finance: If Not Here, then Where?

The previous section shows that less than half of all credits contracted in 2011 received payment in 2011. This begs the question, "What sources are funding are supporting the projects that contracted over half of all market volumes before they deliver credits and obtain payments in the future?" We put this question to developers, asking them to specify the proportion of both upfront capital expenditures and ongoing capital and operational expenses that is covered by sources of project funding and finance other than direct credit sales.

Before describing our results, the reader should bear in mind that "complementary" revenue streams and alternative investment sources do not imply a lack of project additionality. In the case of the most popular forms of project finance, investments were made with the expectation of credit delivery or a return on investment generated from credit sales revenues. In other cases, carbon finance may not be enough to cover the full cost of the project cycle, but it is enough to tip the balance in favor of sequestration activities.

> *"What's really needed is to identify and promote investments in the REDD project's underlying livelihoods assets... to support alternative livelihoods in a way that fully compensates for the opportunity costs of the deforestation drivers." – Eduard Merger, UNIQUE Forestry and Land Use*

Another theme within the REDD space, specifically, is encouraging forest stakeholder behavior change by creating alternative livelihoods that address the opportunity cost to abandon less sustainable activities. These alternative livelihoods are just that – revenue alternatives sometimes derived from or conducted within the project area – that displace lost income and help to avoid a reversion to forest destruction.

"The pathway of success for anyone who wants to achieve a REDD-type finance sustainable land use or avoided deforestation outcomes will be paved with the recognition that you've got to value more than just the carbon," says Christian del Valle of the €200 million Althelia Ecosystem Fund. "Whether it's economically viable activities like environmentally-certified agriculture layered with additional certifications or layering on other environmental benefits – you can choose from the drop down a menu that might include biodiversity or watershed services - but it can't just be a carbon play. And that really should in a way that makes a lot of sense because forests are much more than just carbon."

Eduard Merger of UNIQUE Forestry and Land Use agrees, and points out that providing for alternative livelihoods through complementary revenue streams that effectively address the drivers of deforestation and forest degradation is still a relatively new concept to many developers. "Traditionally, project developers anticipated that carbon benefit sharing would provide sufficient incentives for forest conservation," he explains. "However, while such payments may temporarily reduce deforestation pressures, the underlying causes of deforestation may not be addressed effectively, and when performance-based REDD+ payments decrease over time deforestation might be difficult to stop." He and other market actors emphasize that depending exclusively on carbon payments may not be sufficient to cover all implementation and transaction costs, and compensate for opportunity costs.

"What's really needed is to identify and promote investments in the REDD project's underlying livelihoods assets," he adds, "in order to support alternative livelihoods in a way that fully compensates for the opportunity costs of the deforestation drivers."

Table 15: Sources of Forest Carbon Project Finance

		REDD		AR		IFM	
	Total Count	Active only	All	Active only	All	Active only	All
Personal/private equity investment	**54**	6	25	18	28		7
Private loan	**23**	3	9	9	13		5
Multilateral public source	**23**	3	7	11	15		2
Bilateral public source	**23**	2	12	5	12	4	10
Carbon fund investments	**11**		6	4	5		
Direct NGO or foundation funding	**10**			6	7	2	2
Domestic government grants	**9**			4	7		
High net worth investments	**5**		4				2
Other commodity investments	**3**						3

Source: Ecosystem Marketplace. Notes: Based on 262 observations. "Active" defined as projects that transacted credits in 2011.

While progressive initiatives like the Roundtable and REDD Consortium[17] are thinking about the reciprocal relationship between commodities (in this case agriculture) and REDD activities, respondents to our survey reported relatively traditional project finance mechanisms, with a few exceptions. Table 15 shows that the largest number of projects represented in this question were financed with personal or private equity, either from investors seeking a share of credit revenues or the developers themselves fronting project costs with company or personal capital. In many cases this includes the sweat equity accrued from conducting project activities in-house rather than contracting activities like PDD development to consultants.

Behind this, several other projects secured project finance via commercial or private loans that require both collateral and financial repayment or credit delivery. This survey did not investigate what types of assets project developers or proponents pledged as collateral for obtaining loan-based project financing.

The same number of projects cooperated with bi-lateral or multilateral donors to support project-level activities. Because respondents could tick the box for as many funding avenues as are relevant to their projects, there was significant overlap between these two options. Some of these projects did not transact credits in 2011, explaining that they are still weighing their options with regard to pursuing a market- versus purely fund-based approach to supporting project activities. As seen in the Standards and Registries jurisdictional accounting section (Box 2), other projects have leveraged private sector investments in their early stages of "readying" for jurisdictional forest carbon programs, where bilateral and multilateral contributions are reported for projects with more advanced jurisdictional engagement. Thus it would appear that project-based, privately-funded activities and fund-enabled, jurisdiction-scale forest carbon activities are not mutually exclusive – but instead exhibit a reciprocal relationship on the road to REDD readiness. The question of how private sector investments can fill the funding gap between when projects are implemented and when donor-based funding reaches the ground is making its way up the policy and research agenda in recent months.

17 http://www.theredddesk.org/sites/default/files/resources/pdf/2012/slowing_climate_change_through_better_fa.pdf

Related to that, private forest carbon-facing investment funds supported another 11 projects. This number may increase in coming years if some significantly sized funds raised over the last 18 months are able to close and begin investing in their candidate projects. Funds launched in 2011 included the Althelia Fund (target size €200 million), the Terra Bella Fund (target size $150 million), and the $25 million equity for REDD projects launched by Macquarie Group, Fauna and Flora International, the International Finance Corporation and Global Forestry Partners, and managed under the header of new Biocarbon Group Pte Ltd.

Here, private sector investment motivations reportedly fall into three camps that mirror traditional carbon offset purchase motivations: investors managing risks with respect to emerging regulations; investors managing corporate or supply chain sustainability and integrity; and "value investors" anticipating that the future investment landscape will more transparently value natural assets with clear price and demand signals. In the mean time, del Valle says that for potential non-specialist investors, "the 'line of sight' to return on investment can appear byzantine, and heavily influenced by regulation that is still in its formative stages. To a very large extent it is up to policy makers in donor countries and forest countries to improve the visibility so that natural capital preservation can compete with unsustainable draw-down models which today are business-as-usual in most developing countries."

Supporting a smaller number of forest carbon offset projects were more traditional sources of project funding, such as contributions from NGOs, foundations and domestic governments. Interestingly, at least five projects were supported by high net worth individuals, who most often support projects philanthropically upon connecting with the project mission or location. The smallest category of projects – all IFM activities – obtained additional revenues from other commodities within the project area.

Regarding the significance of these investments, developers that responded to this question (70 active, 38 inactive) said that an average of 75% of their upfront capital costs and another 53% of ongoing project cost were supported by one of the mechanisms listed in Table 15. Suppliers were not asked to represent what costs (PDD development, measurement and monitoring, project audits and other "market-associated" costs were included in this calculation – or to report actual expenses. This proportion also varies by project type and most likely does not capture many unknown costs associated with future operating expenses – for example, the long-term expenditures required to offset the opportunity costs of avoiding deforestation drivers in REDD project areas.

Box 3: Bilateral and Multilateral Forest Finance: With Love from Ghana

Worldwide, REDD project numbers increased in 2011-2012. Some of these projects will pursue carbon credits and are tracked in this report, while others are taking a different route – opting to fully finance their program with direct contributions from NGO, bilateral and multilateral donors. As seen in the previous section, at least 23 projects are receiving both donor-based and private sector support.

Prominent among donors is the UN REDD Programme, a multi-donor trust fund established in 2008 to aid developing nations in drafting national REDD strategies. The UN REDD Programme has since approved a total US$76.4 million for sixteen countries.[1] Other sources include the World Bank's Forest Carbon Partnership Facility (FCPF), which has so far seen $240 million committed to its Readiness Fund; and another $90.5 million to the Forest Investment Program (FIP) and $219 million to the FCPF Carbon Fund – which stakeholders report will not support projects but programs at the scale of jurisdiction or sector. These contributions are recognized by country location beginning on page 50.

To date, multilateral programs have directed much of their finance to 'REDD+ readiness' projects focused on country capacity building and MRV. As countries move into later phases the "readiness", a growing number of financial pledges have also been made via bilateral agreements, and are beginning to reach the project level.

Information and Funding Gaps Still Present: A Quick Case Study

The mechanism through which REDD+ finance is committed directly impacts the rate at which funds are reaching REDD+ projects on the ground. However, the world generally lacks information on where the finance is going – and to which project activities. The UN REDD+ Partnership Voluntary REDD+ Database tracks REDD+ financial arrangements but reporting is voluntary and, the VRD admits, inconsistent at times.

Early research conducted by Ecosystem Marketplace's parent organization Forest Trends aims to track both public and private large donor commitments all the way to the REDD+ project on the ground. This research will address the need for more information on funding designated for REDD+, the timelines for commitments and actual disbursements, and the types of activities being funded.

1 UN REDD Programme: http://www.un-redd.org/

Initial data collected on REDD+ financing for Ghana (Figure 36 highlights increasing levels of donor commitments from multilateral and bilateral institutions between 2009 and 2011. The disbursal rate for these commitments has been slower with initial data suggesting that 27% of funds had reached recipient institutions in Ghana by the end of 2011

The lag time between commitments and disbursals for REDD+ projects in Ghana set out in Figure 36 indicates how Ghana is still waiting for finance for ongoing project implementation. Such lag times impact Ghana's movement toward phase 3 where countries are paid for national level emissions reductions, accompanied by a predicted growth in the market.

With increasing levels of REDD+ financing pledged at an international level including a US$50 million FIP commitment in 2012 to scale up REDD programs, it will be interesting to see how this impacts the market for REDD+ as more money reaches projects on the ground in countries like Ghana.

Figure 36: Commitments and Disbursal Rates for All Institutions in Ghana (Cumulative)

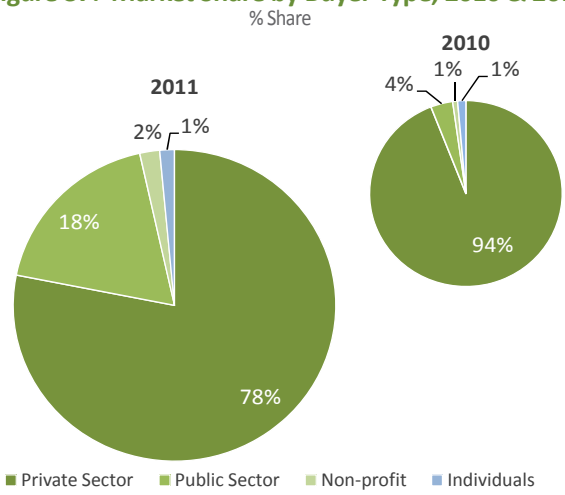
Source: Forest Trends.

7. Buyers

Major trends in forest carbon offset supply are influenced by investor and credit buyer preferences – and every new buyer brings to the market a unique motivation for offsetting and varying criteria that guide their purchases. No one is more attuned to these motives and preferences than the offset supplier responsible for meeting their demands.

Because credits may pass hands several times before retirement, even suppliers admit that they do not always know the final fate of an offset once it is sold. Therefore, this section – which describes the market's buy side according to offset suppliers – has traditionally profiled buyers at a very high level. At the same time appreciating the scarcity of buyer information available to the VCM, this year's report explores buyers' locations, sectors, and motivations – to provide a clearer context for market behavior in 2011.[18]

Figure 37: Market Share by Buyer Type, 2010 & 2011



Source: Ecosystem Marketplace. Notes: Based on 248 observations.

7.1 Buyer Types: Forest Carbon Projects Go Public

Much like infrastructure projects, forest carbon offset projects have a long time horizon – in some cases, upwards of 100 years. Against this backdrop, the face of buyers is ever changing, as seen with the dramatic re-entry of the public sector buyer in 2011. In 2011, government and quasi-government agencies contracted 3.2 $MtCO_2e$ – some of which reflects country-level CDM A/R demand. Other major government buyers include programs like British Columbia's carbon neutral government scheme, and will in the future also include projects supported under the Australian government's pledged AU$250 million to support "non-Kyoto" domestic credits (see Section Oceania: Forest Carbon at Home and Abroad).

Table 16: Notable Private Sector Forest Carbon Offset Buyers and Project Investors, 2011-2012

GM's Chevrolet Brand
Walt Disney Company
Unilever
BHP Billiton
Groupe Danone
BP Target Neutral for 2012 London Olympics
Norfolk Southern Railway
PPR Group
HSE - Entega
Allianz
Nedbank
JW Marriott
Max's Hamburgers

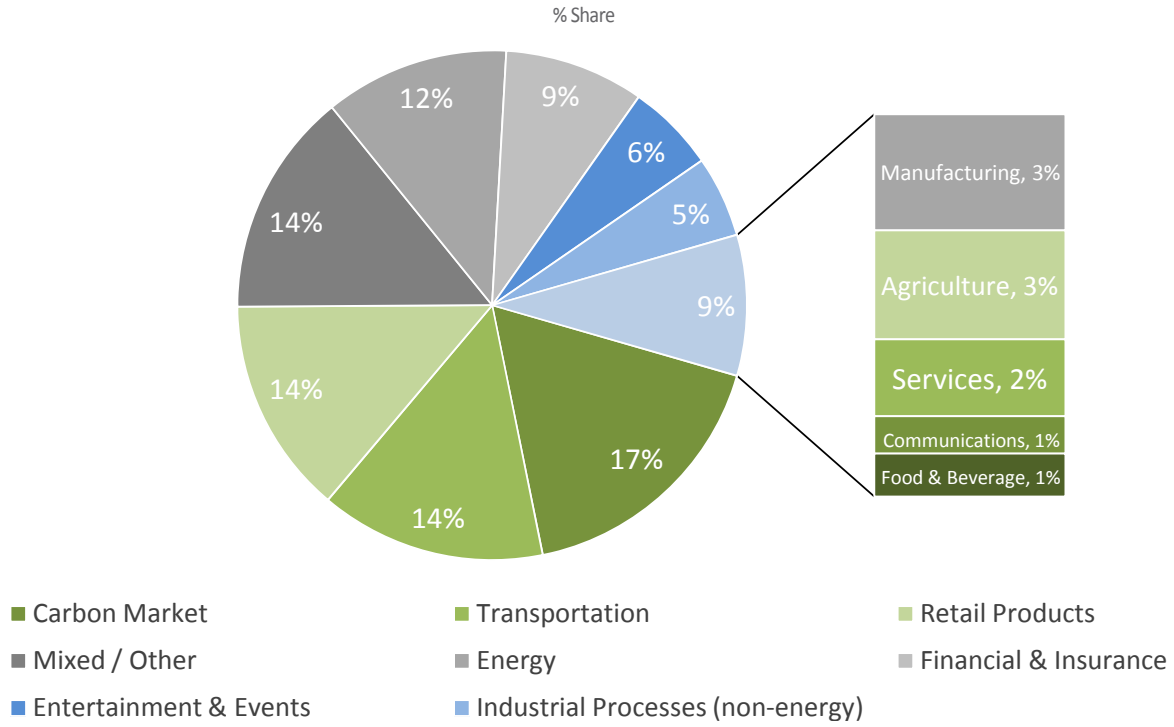
Source: Ecosystem Marketplace reader poll and scan of popular news items, dated 2011-2012.

The private sector remained the largest pool of buyers of forest carbon credits, contracting 12.3 $MtCO_2e$ from developers in 2011. These buyers include not only firms acting on CSR targets or preparing for compliance programs, but also those seeking to offset entertainment and sports events and green their supply chains. This year we compiled a sample list of forest carbon offset buyers, as reported by our readership and in the media over 18 months (Table 16). While still comparably small, the proportion of NGO and individual buyers doubled in 2011.

Private sector buyers represented a broad array of industries and interests in 2011. Those that contracted credits directly from project developers are described in Figure 38. Companies purchasing credits for resale (typically offset retailers, wholesalers and other intermediaries) were the largest source of private sector demand for credits contracted from developers in the primary market, not surprising given the secondary market's larger share of forest carbon credit transactions in 2010-2011. Even so, Box 4 explores the increasingly complicated pricing relationship between project developers, retailers and intermediaries.

18 For more information on offset purchases, see our archive of forest carbon news briefs at http://www.ecosystemmarketplace.com/pages/dynamic/newsletter.landing_page.php

Figure 38: Market Share by Private Sector Buyer Industry, All Markets 2011



Source: Ecosystem Marketplace. Notes: Based on 449 observations.

Representing 2 $MtCO_2e$, buyers from the transportation industries – including railways and airlines – were the second most common buyer type, followed by the retail product market. Buyers here and in the manufacturing category bought offsets to address corporate emissions, but in some cases also sought to embed offsets into retail products, compensating directly for their manufacturing or productive emissions. Developers reported that manufacturers with wood products embedded in their supply chains – like furniture makers and large retail outlets – were interested in forestry offsets that have a direct relationship with environmental impacts.

Energy buyers, mostly European, comprised 12% of private sector buyers. Considering the EU ban on the use of forest carbon credits, this represents voluntary demand by utilities like Eneco and HSE-Entega. Both European utilities are parties to the Code REDD Campaign platform launched in Durban to facilitate private sector financial commitments to REDD projects.

7.2 Buyer Motivations: Targeting Corporate Emissions

Reflecting the fact that the majority of forest carbon offset transactions occurred in the voluntary markets, the most prominent motivation for transactions is buying offsets in pursuit of CSR targets. Further down the list, one also finds corporates motivated by public relations/branding needs. These two often overlapping motivations are primarily differentiated according to who in the organization is making purchase decisions (sustainability versus marketing teams) and where in the budget the offset expense appears.

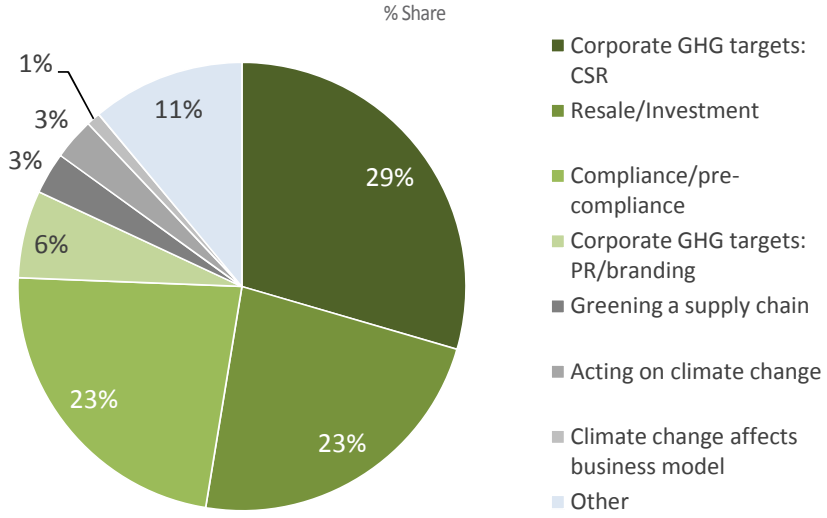
Buyers motivated by resale and/or investment contracted a quarter of all volumes associated with this question. Actors seeking credits for resale make up the secondary market, while investment buyers contributed financial resources to projects with the expectation of carbon credit revenues or delivery of credits themselves – which they may then re-sell. Investment motivations are also discussed in the section "Other Sources of Project Finance: If Not Here, then Where?"

Representing another kind of speculation, buyers with an eye on potential compliance markets worldwide – from California to Chile – contracted credits with the expectation of future regulations, while compliance buyers in the public and private sectors alike sought CDM A/R credits to surrender at the end of Kyoto Protocol's first commitment phase (close of 2012). Buyers in Japan, in particular, sought CDM A/R credits to surrender against targets set by the national government to achieve Kyoto targets.[19]

19 http://www.japex.co.jp/english/newsrelease/pdf/20120820_Biocarbon-e.pdf

Other motivations fit squarely in the category of voluntary commitments. This includes "greening" a supply chain – echoing an emerging movement to address not only direct corporate environmental impacts (including CO_2 emissions) but also the footprints of multinational companies' tier two and tier three suppliers. Climate impacts on companies' business models also motivated another small percentage of buyers to support forestry projects, as did the simple desire to act on climate change .

Figure 39: Market Share by Buyer Motivation, All Markets 2011



Source: Ecosystem Marketplace. Notes: Based on 195 observations.

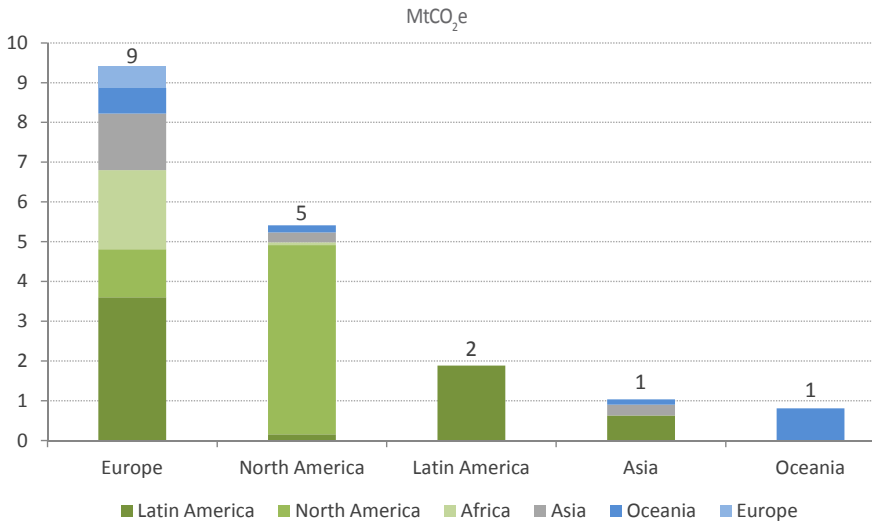
7.3 Buyer Locations: EU Buyers Keeping It Real

EU-based buyers are the largest source of demand for carbon credits in the global carbon markets, as well as specifically for forest carbon credits. As seen in Figure 40 – and throughout this report's regional profile section (starting p. 51) – European buyers indeed contracted 51% of all credits that reported a buyer. This includes 68% of all credits sourced from developing countries, as well as the 20% of North America forestry credits not contracted by domestic buyers.

Buyers in North America once again demonstrated a steadfast appetite for domestic credits. This owes partly to the restriction to domestic forest credits in both the California cap and trade program and BC's carbon neutral government directive – North America's two largest sources of regulated offset demand. Voluntary buyers also tended toward credits from domestic forests. However, one of the US' most prominent buyers – the Walt Disney Company – sought credits from a variety of country locations, including US national forests .

North American buyers were not alone in their preference for buying locally – buyers in Latin America, Oceania and Asia also invested in their own respective backyards. In Latin America, 30% of all credits from domestic projects were contracted by domestic buyers. The same is true of Oceania, which saw buyers preparing for (Australia) or complying with (New Zealand) national compliance schemes. In Asia, this year's project developers reported significantly smaller volumes contracted by domestic buyers, but saw Asian buyers pick up credits from other developing country projects, primarily CDM A/R tCERs. Beyond that, an insignificant volume of credits were reported as contracted to buyers based in Africa, where the focus remains on supply.

Figure 40: Project Locations Sought by Buyers in Each Region



Source: Ecosystem Marketplace. Notes: Based on 828 observations.

Box 4: Primary Markets Skipping the Middleman?

As a category, the secondary market of carbon offset retailers and intermediaries represents developers' largest single source of private sector offset demand. That the volume of credits contracted into the secondary market fell in 2011 highlights a trend in price dynamics worthy of further examination.

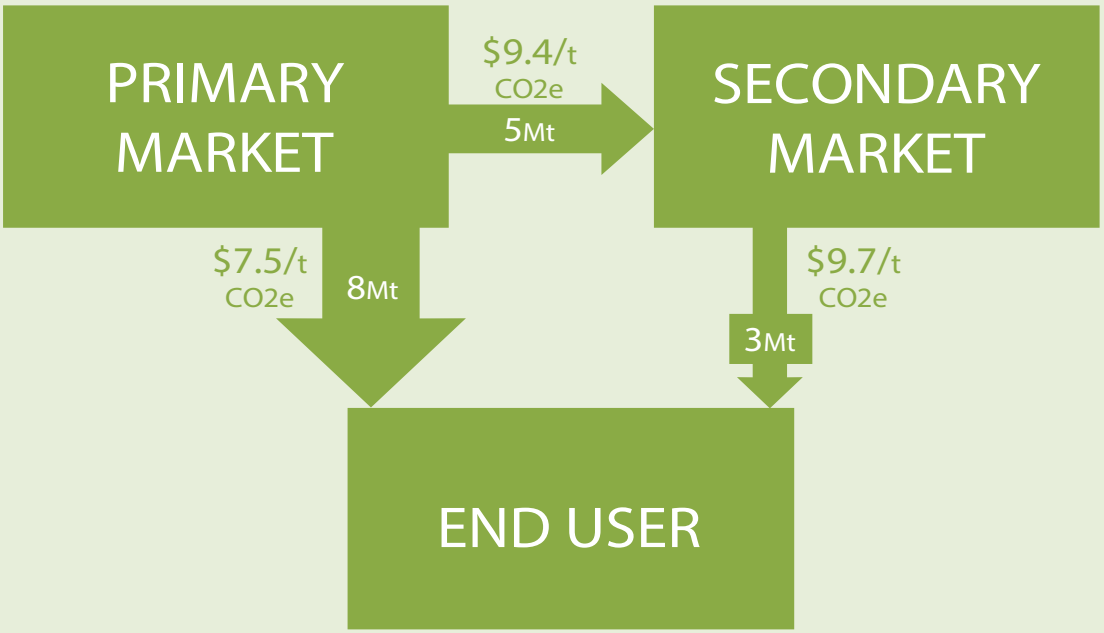
In a typical marketplace, market roles are distributed according to each player's strengths. Primary market suppliers focus on just that – supply – without engaging in secondary market activities. Secondary markets can develop several intermediary layers even "third or fourth markets" between broker-dealers and corporates, to deliver products to end users. Here is where the larger proportion of trading volume, liquidity and value creation occurs.

As seen in this report's introductory table (Table 2), all forest carbon markets combined saw a $4/t$CO_2$e spread between primary and secondary market transactions. When reviewing the voluntary OTC market in its own right – and according to the types of buyers that suppliers are pursuing – it exhibits what market players point to as a less healthy pricing relationship. Here, of the 16 MtCO_2e tracked in this chart, half of reported credits were contracted directly from the project developer to final buyer. Another 5 MtCO_2e went to secondary market suppliers for a full $2/t$CO_2$e higher than the primary market offered to end users – thus, intermediaries found themselves generally unable to match developers' low prices. Presumably, intermediaries were left with another 2 MtCO2e still on the shelves at the end of 2011.

This illustrates the ongoing trend of project developers "doubling up" on their market roles by also engaging in retail activities. An example of this is Canadian forestry project developer ERA Ecosystem Restoration Associates' acquisition of retailers Offsetters and Carbon Credit Capital in fall 2012.

Project developers, of course, have their reasons for going to straight to the final buyer – if a sophisticated buyer prefers to be in on the projects' "ground floor"; if secondary market participants are unwilling/unable to pick up sizable forest projects' large credit volumes; and also in light of an increasingly long market. The CarbonNeutral Company's Zubair Zakir says that while this approach might be understandable given the current market environment, "the primary market continues to rely on the secondary market to deliver revenue, liquidity and expertise in dealing with end clients. For future growth," he remarks, "it is essential that this relationship functions effectively and productively – enabling the secondary market to build the depth and scale of demand that the forest carbon sector desperately needs to thrive."

Indeed, intermediaries reportedly find themselves in direct competition with the project developers who sold *them* credits at a higher price – now pursuing the same buyers with the same credits, discounted. Some intermediaries say they are re-thinking future offtake agreements or options in light of existing inventory and competitive pressures – suggesting that the market may continue to remain far afield of the liquidity creation necessary to sustain and expand investor interest in the forest carbon marketplace.



8. Regional Deep Dive

In most markets, forest carbon offsets are not a standardized commodity, but are instead a product market where preferences, prices, and projects vary greatly by region. While analyzing project location is one of many ways to "cut the cake," *where* a supplier and/or their credits call home is a starting point to understand the markets' varying contributions to volume and value. This section explores regional trends through the lens of findings that have been presented in previous sections – examining regions **by both the volumes of credits** supplied **from that region and the buyers who transacted them**. A global summary of offsets supplied by country and regional location can be found in the section "Project Location: Global Glimpses of Green," while buyer information by region is summarized in the previous section.

The following sections detail regional forestry trends not only as reported by project developers themselves, but also within the broader context of multilateral and bilateral funding and initiatives that promote national capacity and concerted strategies around REDD and other forest actions. To date, most of this funding has been targeted toward national "REDD readiness" but also includes funding for project-level activities and pilot projects that is currently being raised and, in some cases, activated and disbursed. Here one finds a great deal of overlap between these "top down" programs and the "bottom up" work of forest carbon project developers and market infrastructure providers as tracked throughout this report.

Box 5: About REDD+ Bilateral and Multilateral Finance Organizations

Countries in developing regions have almost all engaged in the international REDD+ conversation to some degree, through a variety of funding organizations. In this section we identify country-level relationships between recipient countries and those bilateral or multilateral agencies that feature prominently in international REDD+ development. These programs, detailed in Tables 19, 24, and 27 include:

Funder Name	Trustee	Fund Designation (in million $US)	Website
Forest Carbon Partnership Facility (FCPF)	World Bank	$240 committed or pledged for Readiness Fund; $219 committed or pledged for Carbon Fund	*www.forestcarbonpartnership.org/fcp/*
Forest Investment Program (FIP)	International Bank of Reconstruction and Development	$639 pledged for both readiness and pilot activities	*www.climateinvestmentfunds.org*
BioCarbon Fund (BioCF)	World Bank	$90.4 combined for Tranche one (started 2004) and Tranche 2 (2007)	*www.biocarbonfund.org/*
UN REDD Programme (UN-REDD)	Multi-Partner Trust Fund of UNDP	$119 committed; $99 transferred to partner organizations to support development and implementation of National REDD Strategies	*http://www.un-redd.org*

And various bilateral country-to-country funds ("Other bi-lateral"), led by countries like Norway, Denmark, Japan and others

8.1 Latin America: Volumes Fall, but Value Holds for Late-Stage Projects

As REDD+ and other forest carbon schemes move forward at the national and sub-national level, actors in Latin American countries demonstrated again in 2011 their willingness and potential to lead the world in forest carbon reductions. Last year, Latin American project developers reported more projects in more country locations generating a larger volume of reductions than any other region.

That the volume of contracted credits from Latin American countries nonetheless fell by half speaks to each country's state of regulatory flux – regarding land tenure, emerging regulations and REDD+ funding alternatives to credit sales – in addition to slack demand, globally.

Despite decreased volumes, projects in the region managed to maintain above average pricing, leading to an only 1% decrease in marketplace value. Those projects that contracted credits in 2011 impacted a land area equivalent to 1% of the region's total forested area – small, considering the enormity of the problem but promising when weighed against a lack of clear demand signals from regulators and barriers to market entry described by developers looking back at 2011.

The Latin American forest carbon market remains highly experimental as countries attempt to divine best practice in their domestic contexts. Countries like Mexico have focused on building their national forestry sector strategy rather than creating numerous pilot projects, while still recognizing emerging sub-national initiatives. Meanwhile, other countries (e.g., Brazil), have seen the private sector pursue both fast returns from project-level activities and formalized sub-national actions in states like Acre and Amazonas where independent market mechanisms are making an early mark.

In many cases, government involvement is playing a key role in the development of domestic to international markets. Mexico opened the door to the possibility of an active Mexican emissions trading scheme by passing its General Climate Change Law in June. Brazil also saw new text pass through government hands as revisions have been made to the country's Forest Code throughout the year. Meanwhile, the passage of Peru's Forestry and Wildlife law gives the country an opportunity to address one of its main deforestation drivers, agriculture, by prohibiting forested and protected lands from being used for agricultural purposes.

Table 17: Latin America by the Numbers, All Markets, 2011

LAND AND PROJECT AREA		
Total forest area[1] (ha)	956 M	
Carbon project area	9.3 M	
Annual land use emissions[2] ($MtCO_2e$)	2,450 Mt	
# Projects represented	70	
MARKET SNAPSHOT		
	$million or $MtCO_2e$	**% change from 2010**
Volume supplied	7.7 Mt	**-54%**
Average Price	$10.3/t	**+100%>**
Value	$73m	**-1%**
Volume Purchased Domestically	1.9 Mt	**-54%**

Sources: [1]FAO 2010; [2]WRI CAIT database. All other: Ecosystem Marketplace

Project developers in **Brazil** have embraced the project-level approach to REDD+ and similar forest carbon schemes, hosting 21 forest carbon projects in states such as Acre, Amapá and Para and ranking highest of all countries in Latin America in terms of the volume of forest carbon credits transacted. Most projects tracked in this survey are being financed by the private sector with a few receiving support from the public sector (including REDD+ funds from a variety of sources – see Table 19), and developed by both NGOs and private entities. This year saw Cikel and 33 Forest Capital issue the first VCS REDD credits from the CIKEL Brazilian Amazon REDD APD Project, in the Amazon Rainforest. Brazil also saw the American Carbon Registry claim a first by adding the Boa Vista afforestation/reforestation project to their registry, ACR's first forest carbon project in Latin America.

Rio de Janeiro's domestic exchange (BV Rio), launched in 2011, allows owners of rural areas to exchange Legal Reserve Credits representing one hectare of protected forest to satisfy the forest cover minimum required by the country's Forest Code. This mechanism made headway because of its regulatory precedence; however, project developers in the purely carbon space still face certain risks in the Brazilian forest sector, regarding the lack of regulation and clarity around land and carbon ownership; no indication yet as to the shape of a national REDD+ strategy; or how to reconcile sub-national efforts with each other, with established projects and existing regional commitments to no net deforestation by 2020.

Within Brazil, the State of Acre is attempting to answer at least some of these questions, beginning with its MOU with Markit Environmental Registry to develop statewide registry services for Acre's Carbon ISA Program, and with the VCS to utilize its JNR in the development of their subnational REDD+ program (Box 2). Amazonas, another leader in Brazil, enacted its State Policy on Climate Change law in 2007, followed by the State's Deforestation Prevention and Control Plan (PPCDAM), which grouped state secretariats to collaborate in efforts to reduce deforestation.

Both Acre and Amazonas are also members of the Governor's Climate and Forests Task Force (GCF) which is presently pursuing recognition of international forest carbon removals in California's cap-and-trade program. The Brazilian states of Acre, Amapa, Amazonas, Mato Grosso and Para are also members of the GCF, where GCF Senior Advisor William Boyd says that states like Acre are focused on jurisdiction-scale approaches to eventually provide supply to other sub-national schemes as in California – which has indicated a preference for statewide rather than project-level crediting. It remains to be seen if and how project-level activities will be recognized and remunerated within Acre's jurisdictional scheme and relationship with California regulators and emitters.

Table 18: Latin America: Transacted Forest Carbon Credit Types and Buyers, All Markets 2011

TOP TRANSACTED FOREST CARBON CREDIT TYPES, 2011					
Project Type		**Project Stage**		**Standard Use**	
REDD	54%	Issued	54%	CDM	36%
A/R	46%	Project Design Doc	15%	VCS	18%
IFM	<1%	Project Idea Note	13%	Brasil Mata Viva	18%
TOP FOREST CARBON CREDIT BUYER TYPES, 2011					
Buyer Locations		**Buyer Sectors**		**Buyer Motivations**	
Europe	57%	Retail Product Market	22%	Resale/Investment	38%
Latin America	30%	Carbon Market	20%	Compliance/ Pre-compliance	28%
Asia	10%	Government	18%	CSR	22%

Source: Ecosystem Marketplace. Percent values are based on the volumes associated with individual questions, not including an "other" response.

Meanwhile, **Mexico** passed one of few regulations enacted by a developing country for the specific purpose of addressing climate change, carrying with it the potential to more firmly plant Mexican projects in the market for forest carbon. The country's General Climate Change Law (GCCL) aims to reduce national emissions through the creation, continuation and collaboration of policies and programs that support a transition to a low-carbon economy, including market-based incentives and REDD activities.

Through the passage of the GCCL, implementation of their PES program and recognized efforts in REDD+, Mexico has shown its continued support for market-based mechanisms. However, with only 6 projects commercializing credits in the voluntary OTC market, their approach to REDD+ and the forest carbon market varies from other large players like Brazil. According to a National Forestry Commission (CONAFOR) official, their current focus is on aligning rural development policies in Mexico's national REDD+ strategy by late 2012. However, they also want to build a domestic market for forest carbon projects that will complement domestic ETS efforts. To that end, the compatibility of REDD credits with voluntary markets is being discussed in the strategy. The creation of a domestic forest carbon standard, *Norma Mexicana*, is being discussed separately to guarantee projects meet certain criteria in order to attract private sector investment, which has so far been low.

In addition, the Climate Action Reserve recently began revising their draft Mexico Forest Protocol which includes a jurisdictional approach, aiming to have a completed version by the end of 2012.

Two factors that have facilitated Mexico's progress are the country's demographics and clarity around land tenure. Legally-recognized communities, holding both private and communal land parcels, own 70-80% of the country's forests and have clear communal land rights. A reoccurring theme among interviewees working in Latin America is the call for clear land tenure. In Brazil, for example, the government stated in early 2012 that it would only recognize projects that had the approval of its national indigenous organization, FUNAI. Project developers and researchers from Peru, Ecuador and Belize have also cited the challenge tenure issues can signify for a project. For this reason, most credits contracted in 2011 were issued (Table 18), though a large volume of issued credits reported were generated under a domestic standard, Brasil Mata Viva, and issued from its internal registry.

Table 19: Forest Project Funding Sources by Country, Latin America, 2011-2012

Location	Project level	FCPF	FIP	BioCF[1]	UN-REDD	Other Bilateral
Argentina	✓	✓			✓	
Belize	✓	✓				
Bolivia	✓	✓			✓*	
Brazil	✓		✓	✓		✓
Chile	✓	✓		✓	✓	
Colombia	✓	✓		✓	✓*	
Costa Rica	✓	✓		✓	✓*	✓
Dominican Republic						
Ecuador	✓				✓	✓
El Salvador		✓				
Guatemala	✓	✓			✓*	✓
Guyana					✓*	✓
Honduras	✓	✓			✓*	✓
Mexico	✓	✓	✓		✓*	✓
Nicaragua	✓	✓		✓	✓	
Panama	✓	✓			✓	✓
Paraguay	✓	✓			✓*	
Peru	✓	✓	✓		✓*	✓
Suriname		✓			✓	
Uruguay						
Venezuela						

✓ Member ✓ Candidate ✓* Member but not funded

Source: Ecosystem Marketplace, Voluntary REDD+ Database and Fast Start Finance websites.

In other countries, voluntary OTC market project developers and their relationships with domestic implementing agencies for REDD+ funds are one force behind project activities and finance – so are emerging domestic programs incentivizing private sector ahead of regulatory action in countries like **Colombia**, **Chile** and **Costa Rica**. Both Chile and, most recently, Colombia have partnered with VCS to foster national voluntary markets – seeing the VCS locate its Latin American regional office in Chile. All of these developments have been met with expanded new project activities in each country.

8.2 North America: Regional Actions on the Rise

Behind Latin America, project developers in North America contracted another 7 $MtCO_2e$ of forestry credits. Within the broader voluntary markets, North American offset purchase motivations were dominated by CSR activities. In the forest carbon sector specifically, 36% of credits were contracted by or in anticipation of government actions.

Absent of any federal carbon regulations, several North American states and provinces have assumed responsibility for GHG emitters within their jurisdictions. With regard to active compliance obligations that drive the purchase of forest carbon offsets, **British Columbia**'s Carbon Neutral Government pledge was behind the highest value and volume of any North American compliance program.

British Columbia passed the Greenhouse Gas Reduction Targets Act of 2007 to set legislated GHG targets, and established the Emission Offsets Regulation to lay out the requirements for emission reductions to satisfy BC's carbon neutral government commitments. Under the Carbon Neutral Government policy, BC's entire public sector including schools, hospitals, post-secondary institutions and Crown corporations must achieve net zero carbon emissions. They can achieve this through internal savings and efficiency, as well as the acquisition of carbon offsets – including forest credits – from Crown corporation Pacific Carbon Trust at a set price of CAD$25/$tCO_2e$. To date, Pacific Carbon Trust has retired over 1.5 $MtCO_2e$ on behalf of BC's 128 public sector organizations.

Table 20: North America by the Numbers, All Markets, 2011

LAND AND PROJECT AREA		
Total forest area[1] (ha)		614 M
Carbon project area		2.4 M
# projects represented		68
MARKET SNAPSHOT		
	$million or $MtCO_2e$	**% change from 2010**
Volume supplied	6.9 Mt	**+40%**
Average Price	$10.4/t	**+71%**
Value	$70m	**+>100%**
Volume Purchased Domestically	4.6 Mt	**+21%**

Sources: [1]FAO 2010. All other: Ecosystem Marketplace.

Pacific Carbon Trust developed the Pacific Carbon Standard according to provincial offset regulations to guide the development of domestic projects (supply is restricted to provincial borders). Entities contracted over .5 $MtCO_2e$ of IFM credits from the T*imberWest Strathcona Ecosystem Conservation Program Project* in 2011 – the first sequestration project to issue credits on Markit Registry under the new standard. Pacific Carbon Trust contracted a similarly large volume from the Darkwoods Forest Carbon Project – the first Canadian VCS project to achieve verification (in mid-2011) and the largest private land purchase for conservation in Canadian history. Though generated under a VCS methodology, the Darkwoods project complied with BC offset regulations and provided offset supply before the Pacific Carbon Standard was publicly available.

Looking ahead, Scott MacDonald, CEO of Pacific Carbon Trust, says that now that BC has grown the carbon infrastructure, expertise and awareness, it will seek to further diversify its portfolio across other project types and economic sectors. In turn, Pacific Carbon Trust is working with the VCS to have the BC Forest Carbon Offset Protocol validated and recognized under the VCS program in order to provide other international market options for BC forest offsets.

Turning to the marketplace that incentivized the largest volume of contracted domestic credits and number of new North American projects, the pre-launched **California** cap-and-trade offset marketplace saw increased buyer interest from 2011 to the present as developers prepared for the market's first compliance period (CP1), starting January 1, 2013. The California cap-and-trade program as written features a declining cap on emissions and phase in of a variety of covered entities over time – limiting emissions to approximately 427 $MtCO_2e$ by 2020. Analysts expect cumulative offset supply to reach 200 $MtCO_2e$ over the same period.[20] This is based on the regulation's provision for capped entities to surrender up to 8% of their obligations in offsets. After 2015, they may surrender between 2-4% of their obligated reductions from "sectoral" offsets from REDD projects in developing country jurisdictions like Acre and Chiapas – with which California has signed cooperative MOUs facilitated by the GCF. The ARB has indicated that implementation of the program's existing provisions will take first priority, however – thus no definite timeline has yet been released by the ARB with regard to details of its sectoral approach.

20 http://americancarbonregistry.org/acr-compliance-offset-supply-forecast-for-the-ca-cap-and-trade-program

Table 21: North America: Transacted Forest Carbon Credit Types and Buyers, All Markets 2011

TOP TRANSACTED FOREST CARBON CREDIT TYPES, 2011					
Project Type		**Project Stage**		**Standard Use**	
IFM	52%	Issued	70%	ACR	29%
A/R	32%	Undergoing Validation	25%	ISO-14064	20%
Other	16%	Verified	3%	VCS	18%
TOP FOREST CARBON CREDIT BUYER TYPES, 2011					
Buyer Locations		**Buyer Sectors**		**Buyer Motivations**	
North America	80%	Energy	34%	CSR	39%
Europe	20%	Transportation (air, rail, etc.)	27%	Compliance/ Pre-compliance	24%
		Government	18%	Investment	12%

Source: Ecosystem Marketplace. Notes: Percent values are based on the volumes associated with individual questions, not including an "other" response.

The ARB has recognized four existing CAR protocols to be recognized for early action – including the US Forest Project Protocol and Urban Forest Project Protocol, but also ozone depleting substance and livestock methane capture and destruction projects. If projects were started before 2011 and generated credits from vintages 2005-2014, they are potentially eligible to convert to California Compliance Offsets (CCOs) on a one-to-one basis through independent Offset Project Registries.

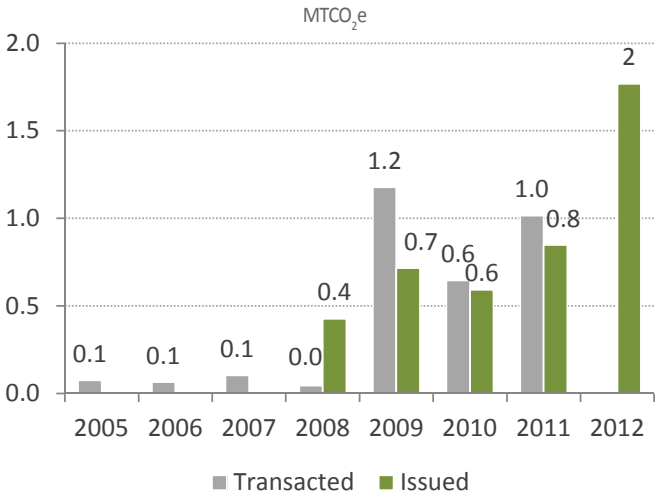
One major caveat is that that projects verified through an earlier version of the Forestry Protocol (v2.1) will need to conduct a risk assessment and contribute to the buffer pool (the buffer pool was not implemented in these earlier versions of the Protocol). In addition, when these projects transition to the compliance protocol in 2015, they will be required to recalculate their baseline. Details regarding this conversion process were not yet available from 2011-present.

In light of the potential risks associated with the conversion process, many project developers are going another route offered by the ARB – to hold off on verifying and issuing credits until they are able to do so under the regulation's Compliance Offset Protocols. The use of these protocols – adapted by the ARB from the same four early action protocols – allows projects to directly generate CCOs without undergoing the conversion process. The compliance forest project protocol did retain what developers and suppliers view as a more onerous aspect of the original CAR Forest Project Protocol, however – a 100-year commitment to maintain project activities that they say makes it particularly challenging to sign up new landowners. Going down the ARB route will also mean that developers have to navigate new processes, new staff and use a protocol which has yet to be road tested (although much of it is based on the CAR Forestry Protocol).

Despite this challenge – as well as a delay in releasing guidance on the conversion process and which verifiers and registries are eligible to carry it out – CAR has seen unprecedented project registrations and issuance of AFOLU credits. We tracked contracted credits from IFM and Avoided Conversion (AC) projects, from both the CAR and California compliance offset protocols captured in the 1.8 $MtCO_2e$ of California forestry reported in this survey – at an average price of \$7.1/tCO_2e in 2011.

One of the biggest determinants of price in the California offset market in 2011 was whether the seller was willing to contractually wear the risk that offsets might be invalidated by the ARB, which has otherwise required the buyer to assume this risk (a.k.a. "buyer liability"). Invalidation could occur as a result of credit overestimation, non-compliance with local to national laws or if the same credits are issued by more than one offset program. In the case of regulatory provisions for forestry, however, project owners rather than buyers are liable for invalidated

Figure 41: Historical Issued and Transacted Climate Action Reserve Credits



Source: Ecosystem Marketplace. Notes: Based on 46 observations.

credits by default – which complicates landowner buy-in, but has also made some forestry credits from CAR's Forest Project Protocol v3.0 the most valuable in the market as the buyer liability risk is largely removed.

As seen in a previous section (Figure 19), almost half of developers' 5-year California market pipeline consists of forest carbon credits (representing 16.9 $MtCO_2e$). Also looking ahead, California and **Quebec** have indicated plans to link their cap and trade programs in CP1. However, Quebec's chosen domestic offset project types do not include forest carbon activities.

Other North American programs – including the Regional Greenhouse Gas Initiative (**RGGI**) in the US northeast and **Alberta**'s offset-based carbon intensity reduction program – accommodate land use projects but saw too little offset activity reported in this survey to analyze in detail. In the case of RGGI, an over-allocated market has failed to incentivize offset project development despite the availability of an afforestation protocol. Alberta, too, features a protocol to account for changes in forest harvest practice. The Canadian Standards Association's Alberta Emissions Project Registry reports only one project with issued credits under this protocol – alongside 67 projects for reduced- or no-till practices. In an attempt to stem the flow of offsets entering the program, in 2011 the Alberta government adjusted baseline assumptions for no-till projects to reflect wide adoption of the technique, upped its required level of assurance for project audits and cut off registration of historical emissions reductions.

Beyond these schemes, voluntary action remained a dominant force behind forest carbon credit transactions in North America, seeing prominent corporations, local small to medium sized companies and individuals pick up another half of all contracted volumes. This is reflected in the fact that projects adhering to the ACR standard contracted the largest volume of forest carbon credits from any North American program – all sold to purely voluntary buyers. Overall, 29% of all credits contracted by voluntary buyers in the US were from international projects – primarily Asia, which supplied 13% of credits contracted by US buyers.

North America's only formal voluntary forest carbon program – the **Oklahoma** Carbon Program for agricultural and forestry offsets – reported its first contracted volumes in 2011 and continues program development with the support of partners including the Western Farmers Electric Cooperative and the USDA's Natural Resources Conservation Service.

8.3 Africa: Projects in the "Drivers" Seat

The African continent is home to the planet's second largest forested land mass and tropical rainforest – which house some of society's greatest challenges regarding land tenure, political legitimacy, poverty and food security. Enter the forest carbon markets, where developers demonstrated their ability to sufficiently address some of these issues to attract private sector investments – to select pockets of the region and with prevailing challenges to exclusively carbon-based project finance.

In 2011, Africa saw more than 100% growth in contracted forest credit volumes, a record for the region that was supported by $24 million in project investments and offset purchases. At the same time, the price paid per tonne fell 17% to $6/$tCO_2e$. This price is perhaps more reflective of the actual price of forest carbon offset in the international marketplace – as opposed to the higher prices obtained by developers in the Americas which are influenced by above-average pricing for domestic programs.

A full 88% of this value was attributed to projects in Uganda and Kenya, where approximately half of Africa-based projects reside and where new project development and investments continue to expand. Beyond these countries, projects in Senegal and the Democratic Republic of the Congo (DRC) also generated substantial volumes but too few transactions to describe at the country level. Other countries reporting project level activities are shown in Table 24, which also shows that Africa is the only region where projects can be found in developing countries that are not already supported by at least one bilateral or multilateral REDD+ funding initiative.

Risks that developers and investors encounter in Africa align with those seen in other developing regions – and then some. Among the most common risks developers report are unclear or overlapping land tenure, civil unrest, shifting sub-

Table 22: Africa by the Numbers, All Markets, 2011

LAND AND PROJECT AREA		
Total forest area[1] (ha)	674 M	
Carbon project area	2.4 M	
Annual land use emissions[2] ($MtCO_2e$)	600 Mt	
# projects represented	54	
MARKET SNAPSHOT		
	$million or $MtCO_2e$	**% change from 2010**
Volume supplied	4.7 Mt	**+100%>**
Average Price	$6.1/t	**-17%**
Value	$24m	**+100%>**
Volume Purchased Domestically	NA	NA

Sources: [1]FAO 2010; [2]WRI CAIT database. All other: Ecosystem Marketplace.

Table 23: Africa: Transacted Forest Carbon Credit Types and Buyers, All Markets 2011

TOP TRANSACTED FOREST CARBON CREDIT TYPES, 2011					
Project Type		**Project Stage**		**Standard Use**	
A/R	69%	Issued	46%	VCS	52%
REDD	31%	Validated	42%	CDM	32%
Ag + agro-forestry	<1%	Verified	8%	Plan Vivo	16%
TOP FOREST CARBON CREDIT BUYER TYPES, 2011					
Buyer Locations		**Buyer Sectors**		**Buyer Motivations**	
Europe	97%	Large, Diversified Corporates	54%	PR/Branding	22%
North America	3%	Retail Product Market	24%	Resale	14%
		Transportation	11%	CSR	12%

Source: Ecosystem Marketplace. Notes: Percent values are based on the volumes associated with individual questions, not including an "other" response.

sistence agriculture, population and economic growth pressures, legal and illegal extraction of forest resources, wood consumption for energy (which in many countries supplies 70-80% of energy resources), charcoal production and consumption, lack of enforcement agency coordination and resources, absence of land management plans and a host of other issues that vary by country.

Against these odds, the international climate community continues to channel money and intellectual resources into some African countries to help them prepare for nationally appropriate REDD+ regimes. To date – and often to the frustration of project-level actors – much of this value has been designated to national REDD+ "readiness" efforts rather than to piloting projects. Africa-based Nedbank's Duncan Abel says that while projects may have an immediate need for funding, the importance of readiness shouldn't be discounted, either. "It's important that there is sufficient capacity for REDD at the national level," he says, "and you also need demonstration projects to show that REDD can work. These things need to happen at the same time – you can't have one without the other."

Among regions where forest carbon projects have taken the lead, **Uganda** was a surprise contender, climbing up in the ranks of country locations to become the world's 4th largest offset supply country in 2011. As outlined in Uganda's Readiness Preparation Proposal (R-PP) to the Forest Carbon Partnership Facility – one of the program's most recent submissions – the country defined its most prevalent drivers of deforestation as agricultural encroachment, charcoal production and firewood and timber harvest. Survey respondents reported both REDD and standalone A/R projects that address all of these issues – as well as sustainable forest management, which the R-PP identifies as a national priority.

Table 24: Forest Project Funding Sources by Country, Africa 2011-2012

Location	Project level	FCPF	FIP	BioCF	UN-REDD	Bilateral
Benin					✓	
Burkina Faso	✓		✓			
Burundi		✓				✓
Cameroon	✓	✓			✓	✓
Central African Republic		✓			✓	✓
Chad						✓
DRC	✓	✓	✓	✓	✓*	✓
Republic of the Congo	✓	✓			✓*	✓
Cote d'Ivoire		✓				
Equatorial Guinea						✓
Ethiopia	✓	✓		✓	✓	
Gabon		✓			✓	✓
Gambia						
Ghana		✓	✓		✓	✓
Kenya	✓	✓		✓	✓	
Liberia		✓				
Madagascar	✓	✓		✓		
Malawi	✓					
Mozambique	✓	✓				✓
Niger				✓		
Nigeria		✓			✓*	
Rwanda						✓
Sao Tome and Principe						✓
Senegal	✓					
Sierra Leone	✓					
South Africa	✓					
South Sudan					✓	
Sudan		✓			✓	
Tanzania	✓	✓			✓*	✓
Togo	✓	✓				
Uganda	✓	✓		✓	✓	
Zambia	✓				✓*	
Zimbabwe	✓					

✓ Member ✓ Candidate ✓* Member but not funded

Source: Ecosystem Marketplace, Voluntary REDD+ Database and Fast Start Finance websites.

Elsewhere, country representatives describe the low capacity and budget resources to enforce forest law and mandated forest protection – the kind of challenge also described and addressed by Conservation International in the context of other developing regions with under-resourced public lands (Sectiion "Land Tenure: Communities Take the Stage"). In Uganda, project developers Face the Future made headlines in 2011 for its collaboration with Nedbank Capital and the Ugandan Wildlife Authority to rehabilitate over 100,000 hectares of tropical forest in the Kibale National Park. Out of this collaboration, Face the Future and Nedbank Capital signed an MOU to cooperate on the development of a broader regional project portfolio.

Nedbank was also a catalytic force behind project developer Wildlife Works' development of the **Kenya**-based Kasigau Corridor REDD project, which in 2011 issued the first ever VCS REDD credits, and for a mega-scale project (estimated >1 MtCO2e reduced/avoided annually). This was not the only "first" in Kenya over the last 18 months. The country also hosted the first VCS credits ("VCUs") issued to an A/R project and for a project utilizing its project grouping guidance, as well as the first project to achieve verification of CCB-certified activities (all for the International Small Group and Tree Planting Program – TIST – Kenya project). Kenya is also home to the pilot VCS SALM project developed by Vi Afroforestry with the support of the World Bank's BioCarbon Fund. As can be expected, Kenyan projects attained the highest value in the region - $12.5 million in 2011.

Despite these successes, Kenya is not without its own share of challenges including those identified by developers as poor governance structures and a lack of clarity around carbon ownership. In its R-PP, the country does, however, acknowledge the need to create a path to market for sub-national and project-level actions in order to incentivize early private sector investment.

Of the countries tracked in this report, one of the more complicated regions is the **Democratic Republic of the Congo**, where deforestation rates are historically low (<1%) but massive in the context of the size of the country's forested area. Here, developers encounter significant challenges arising from overlapping concessions due to lacking agency coordination, largely absent rule of law, and resources extraction laws that are described as "incoherent" at best – in addition to the typical challenges that are encountered in Africa's forest context.

Yet, the country also exhibits significant progress on its REDD+ readiness agenda and national strategy development with regard to the recognition of project-level activities – even budgeting for the carbon neutrality of its strategy-building process. In 2011, national representatives presented a beta-version of its national REDD registry (full version release slated for COP18) that identifies project-level as well as FIP-funded activities, including three of the nine DRC-based projects tracked in this report survey. Market players point out, though, that this level of project recognition remains secondary to the need for political and civil stability, clear land use designations and agency coordination, and decreased corruption levels in order to attract real and needed capital to the region's pioneer projects.

8.4 Asia: East Meets West on REDD Efforts

Despite the predominance of renewable energy as an offset project type in Asia, the region made progress over the past year in exploring opportunities around forest carbon, particularly REDD. Forest carbon markets made inroads in capacity building for implementing both voluntary and compliance market-facing efforts. Alternative vehicles like Indonesia's ecosystem restoration concessions for REDD or India's "tree credits" looked to broaden options around project development. The world's first political risk insurance contract for a REDD project emerged to cover Terra Global Capital's investment in Cambodia's Oddar Meanchey project, while forest carbon credits also found new accommodations through emerging standards and domestic offset mechanisms – in China under the Panda Standard and the Three Rivers Standard, and in Japan under the prospective Bilateral Carbon Offset Mechanism.

On the CDM A/R side, almost half of all new project registrations over the last 18 months have been for Asia-based projects – including 7 projects in China, 3 in India, and 3 in the Philippines. Collectively, these projects constitute 497,020 tCO_2e in estimated annual reductions, or 50.2% of the 989,419 tCO_2 in total estimated AFOLU reductions registered under the CDM.

Even so, Asian forest carbon credits across all programs posted an 39% decrease in transacted volumes in 2011, as well as declines across every other project metric summarized in Table 25. Project development continues to face challenges, particularly as carbon rights, land tenure, and benefits distribution still lack clarity in the predominantly communist region.

A full two thirds of Asia-based credits were contracted from projects in **India**, reflecting the region's increased focus on "charismatic" CDM A/R projects carbon – presently more attractive than primary market CDM energy projects from a price perspective. While the region's focus has been CDM forestry, project developer Community Forestry International worked toward piloting a few potential REDD+ projects – the country's first – in 2011 in northeast India. The Maharashtra government will also consider a proposal submitted in mid-2012 to offer "tree credits" for tree planting. Based on the carbon credit concept, the government would offer incentives to grow or protect trees on owned or possessed plots.

As the European Union limits post-2012 eligibility of CERs into the EU ETS to least-developed countries, China is taking low-carbon matters into its own hands outside of the CDM. China confirmed its intentions in 2011 to establish national carbon markets, starting with carbon emissions trading pilots in five cities (Beijing, Tianjin, Shanghai, Chongqing, Shenzhen) and two provinces (Hubei and Guangdong).

In June 2012, the National Development and Reform Commission (NDRC) published VER measures, providing a bridge for China-based CDM projects (whose CERs would no longer be fungible into the EU post-2012) as China Certified Emission Reductions (CCERs) eligible under China's new pilots.[21] Under the new pilots, piloting governments intend to accept offset projects developed within their administrative borders. While Guangdong and Chonqqing will accept forestry credits, it remains unclear whether other provinces and cities will follow suit.

Last year, suppliers reported over .3 $MtCO_2e$ in forest carbon offsets transacted by Chinese suppliers – just 2% of all volumes supplied from China, the rest of which came from a variety of energy-based offsets. China's forest carbon markets are still early stage. While China's 12th Five-Year Plan (2011-2015) states a focus on "modern" forestry, the technology is not quite yet there. In 2011, China's State Forestry Administration (SFA) set up an afforestation monitoring center to help measure carbon in China's forests.

The country has planted about 40 million ha of new forests over the past two decades; however, developers and consultants interviewed about the region say these tend to have relatively low carbon stocks and poor management. Both they and domestic Chinese decision-makers point out that improved forest management poses great potential to enhance carbon stocks and increase the productivity of these forests.

Table 25: Asia by the Numbers, All Markets, 2011

LAND AND PROJECT AREA	
Total forest area[1] (ha)	547 M
Carbon project area	3.1 M
Annual land use emissions[2] ($MtCO_2e$)	1,808 Mt
# projects represented	31

MARKET SNAPSHOT		
	$million or $MtCO_2e$	**% change from 2010**
Volume supplied	2.2 Mt	**-39%**
Average Price	$6.7/t	**-3%**
Value	$6m	**-15%**
Volume Purchased Domestically	.3 Mt	**-77%**

Sources: [1]FAO 2010; [2]WRI CAIT database. All other: Ecosystem Marketplace.

"There are a number of pilot activities going on, but it is still unclear how to monetize forest carbon within the evolving GHG emissions trading schemes," says UNIQUE Forestry and Land Use GmbH's Eduard Merger. "Carbon stock enhancement has substantial potential for the forestry sector since many forests are young and not optimally managed." Alongside China's State Forestry Administration, the German International Climate Initiative and GIZ, UNIQUE is involved in a pilot project to demonstrate mitigation practices, carbon accounting procedures and analyze related economic, social and environmental implications. Representatives of Beijing's Forestry Carbon Administration report that the province is "aware of forest management's importance and opportunity" and that a few IFM pilot projects are currently underway in the region.

Table 26: Asia: Transacted Forest Carbon Credit Types and Buyers, All Markets 2011

TOP TRANSACTED FOREST CARBON CREDIT TYPES, 2011					
Project Type		**Project Stage**		**Standard Use**	
A/R	90%	Undergoing Validation	46%	VCS	70%
IFM	9%	Validated	19%	CDM	23%
REDD	<1%	Project Design Doc	17%	J-VER	6%
TOP FOREST CARBON CREDIT BUYER TYPES, 2011					
Buyer Locations		**Buyer Sectors**		**Buyer Motivations**	
Europe	73%	Large, Diversified Corporates	68%	Compliance/ Pre-compliance	12%
Asia	14%	Government	10%	PR/Branding	11%
North America	13%	Manufacturing	7%	CSR	8%

Source: Ecosystem Marketplace. Notes: Percent values are based on the volumes associated with individual questions, not including an "other" response.

21 Wang, Wen. "Overview of Climate Change Policies and Prospects for Carbon Markets in China." Les Cahiers de la Chaire Economie du Climat No. 18, July 2012, p. 22.

The forest-facing Panda Standard – China's first standard for domestic carbon projects, founded by the China Beijing Environmental Exchange and BlueNext, co-founded by Winrock and the China Forestry Exchange – oversaw the 2012 launch of a bamboo afforestation methodology, developed by the Nature Conservancy. A second methodology developed by Winrock and released in July 2012, supports revegetation of degraded land. An initial project is piloting the methodology on degraded grassland in Sichuan province.

The China Green Carbon Foundation also pushed forward on a number of projects encouraging individual offsetting, including afforestation projects in Beijing (Yanqing), Jiangxi (Jinggangshan), Inner Mongolia (Duolun County), Yan'an, and Yunnan (Tengchong).[22] Both the Panda Standard and the China Green Carbon Foundation announced their first transactions in 2011, with credits from these initial transactions contributing to the 14% of Asian credits that were sold to domestic buyers – primarily motivated by CSR.

The Three Rivers Standard, an initiative of the Qinghai Environment and Energy Exchange (QHEX) and partners, could also provide guidance on crediting for AFOLU projects with a more explicit focus on western China. Standard documents were released in 2012 following a public consultation process. CDM and VCS AFOLU project methodologies may be automatically approved by Three Rivers, but may also be subject to a review and revision process to account for China-specific conditions.

Table 27: Forest Project Funding Sources by Country, Asia 2011-2012 (Excluding West Asia)

Location	Project level	FCPF	FIP	BioCF[1]	UN-REDD	Bilateral
Bangladesh					✓*	
Bhutan		✓			✓*	
Cambodia	✓	✓			✓	✓
China	✓			✓		✓
India	✓					
Indonesia		✓			✓	✓
Japan	✓					
Kazakhstan						
Laos	✓	✓	✓			✓
Malaysia	✓				✓*	
Mongolia					✓*	
Myanmar					✓*	
Nepal	✓	✓			✓*	✓
North Korea						✓
Pakistan		✓			✓*	
Papua New Guinea	✓	✓			✓	✓
Philippines		✓			✓	✓
South Korea	✓					
Sri Lanka	✓	✓			✓	
Thailand	✓	✓				✓
Turkmenistan						✓
Vietnam	✓	✓			✓	✓

✓ Member ✓ Candidate ✓* Member but not funded

Source: Ecosystem Marketplace, Voluntary REDD+ Database and Fast Start Finance websites.

Domestically, **Japan** continues work on its Bilateral Offset Credit Mechanism (BOCM) to finance emissions reduction and removal projects abroad, slated for formal launch in 2013. Forest carbon took a backseat under Japan's BOCM feasibility studies scheduled for FY2012 – none of the 36 projects selected in 15 countries were forest carbon, compared to the handful of REDD+ projects supported in FY 2010-2011 in Indonesia, Laos, Brazil, and Peru. Separately, the Japanese International Cooperation Agency (JICA) is piloting REDD+ feasibility studies in Laos and Indonesia, without indication yet if these projects will be "credited."

As of the end of June 2012, Japan's Verified Emissions Reduction Program (J-VER) had approved 2 prefectures to issue and sell carbon credits. The J-VER scheme was intended to issue credits from 2008 to 2012 and conclude in March 2013 – when the MOEJ is scheduled to assess whether and how to continue the program, including possible consolidation of J-VER and Japan's voluntary domestic CDM mechanism into one domestic crediting mechanism.[23] Those close to the program expect that J-VER will be extended, but believe that lowering the cost of J-VER credits will be key to boosting its popularity in Japan.

Elsewhere, projects in the Lower Mekong Basin region – namely Laos, Cambodia, and Vietnam – reported a few projects in the pipeline but did not see a significant volume of forest carbon credits contracted in 2011. The region still suffers in the shadow of the 2008 financial crisis, which sparked an exodus of private sector resources, and saw the project development vacuum filled by development agencies and NGOs. Suppliers say the dearth of supporting policies and national REDD+ institutions in the region has hindered the ability of the regional market players to recreate the investment environment formerly in place.

The region continued to show a preference for dual VCS/CCB validation, particularly given the nebulousness around carbon rights and corresponding demand for safeguards. Against the backdrop of communist regimes in Laos, Cambodia, and Vietnam, suppliers showed a tendency to move from the voluntary to a hybrid of voluntary and compliance markets in order to tap into government support.

22 http://www.thjj.org/project.html
23 http://www.meti.go.jp/english/press/2012/0409_01.html

Vietnam's national REDD+ action programme, approved by the government in June 2012, overlays an existing environment where the UN-REDD Programme has focused on protected areas, which are predominantly overseen by government entities as opposed to smallholders. On REDD+ capacity-building, the Netherlands Development Organization (SNV), Fauna and Flora International (FFI), World Wildlife Fund (WWF), and the Japanese International Cooperation Agency (JICA) have been implementing efforts across several provinces.

"While organizations like SNV and WWF had their projects on the ground, their emphasis on safeguards and demonstration work revolved more around contributing to the national REDD+ framework," observes Phuc Xuan To, Forest Trends' Program Analyst for Forest Trade and Finance in Southeast Asia. "In a compliance-based market, it would be relatively easier to tap into governments' support."

In **Laos**, developers did not report offset transactions, but did see some new project activity. With guidance from the German-Laotian Climate Protection through Avoided Deforestation Project (CliPAD) programme and the USAID-funded LEAF project, the Lao government has been looking into a provincial to national level jurisdictional REDD+ approach, with implementation at the district level. A JNRI concept approach is under development in 1-2 provinces.

"The fact that JNR is more of a government-driven process for mitigation activities rather than a project here and a project there by non-government actors is helping bridge the government's understanding of what those projects have to do with their own national REDD readiness process and the various roles and levels of implementation that are possible," says Gabriel Eickhoff, Director at PT Forest Carbon. The 2011-2015 Agricultural Master Plan grants agricultural land use rights to rural households, issuing its first community forest land titles in 2011 – intended to improve the climate for REDD project development.

Cambodia's first REDD project, the Oddar Meanchey REDD Project – developed by Pact, Cambodia's Forestry Administration, and Terra Global Capital – achieved dual VCS/CCB validation in December 2011. Terra Global Capital structured and underwrote the world's first REDD political risk insurance contract to protect its investment on the project.

Meanwhile, the Wildlife Conservation Society (WCS) has been working with Cambodia's Forestry Administration to develop VCS/CCB sub-national REDD projects in the Seima Protection Forest and the Northern Plains. Wildlife Alliance's Southern Cardamom REDD+ Project has been the sole Asian project to join the Code REDD campaign to draw private sector investment to REDD projects worldwide.

Despite a two-year moratorium on logging put in place in May 2011, **Indonesia** – Asia's third-largest source of forest carbon offset supply – continues to struggle with pressures from the palm oil industry and weak protections of communal land rights. Ecosystem restoration concessions (ERCs) – a tool that emerged in 2007 in Indonesia with the Harpan Rainforest initiative developed by BirdLife – have been slow to scale. As a renewable 60-year-maximum license to conserve an area, the ERCs serve as an innovative legal vehicle for REDD project development. Major setbacks, however, have been the lag time to government sign-off, high upfront cost of the licenses and lack of administrative clarity around annual royalties/maintenance fees for retaining the concession. Four projects have so far made use of the provision.

Thailand is capacity building for a domestic voluntary carbon market ("T-VER") slated for roll-out by October 2013. Accepted T-VER project types may include A/R, IFM, agroforestry, and urban forestry. While **South Korea**'s own voluntary Verified Emissions Reduction Program ("K-VER") focuses on renewable energy and energy efficiency as offset project types, South Korea has expressed interest in establishing a bilateral offset mechanism akin to Japan's to bring international forest carbon credits into its domestic ETS, which is scheduled to launch in 2015.

Wetlands International reported **Malaysia**'s deforestation rate as over three times the rate of all of Asia combined as of 2011. Face the Future's rainforest rehabilitation project in Infapro, Borneo (IFM) finally received VCS registration in 2011, after two decades of operation. Malaysia has begun engaging in REDD+ readiness activities after joining the UN-REDD Programme in June 2012.

8.5 Oceania: Forest Carbon at Home and Abroad

For several years, voluntary demand for offsets in Australia and New Zealand has become increasingly subdued due to a short supply of domestic credits – with the lone exception of Australia's Greenhouse Friendly program, which was phased out when Australia assumed a Kyoto Protocol commitment and began considering a domestic regulatory framework for achieving it. This began to turn around in 2011, as the region saw greater clarity about the treatment of domestic offsets under Australia's recently approved carbon price, while New Zealand foresters fed forest carbon credits into both compliance and voluntary OTC markets.

While responsible for only 1.3% of global GHG emissions, **Australia** has some of the highest per capita emissions of any nation in the world. Since 2001, Australia has hosted a variety of GHG programs at state and national levels, and forest offset projects have been in the mix since the very beginning. Australia's Carbon Farming Initiative (CFI), which came into force at the end of 2011, provided a fresh compliance outlet for domestic AFOLU offsets beyond the country's traditional focus on A/R projects. Australia was reported as supplying 21% of Oceania's contracted forestry offset volumes in 2011.

Australian developers reported resilience in the price for domestic forest credits in 2011, despite a 25%-decrease in the region's overall price – which they partly blame on the perception of inbound supply. Vehicles for domestic AFOLU project development continue to evolve as Australia shifts its state-wide New South Wales Greenhouse Gas Reduction Scheme (GGAS) into the new federal Carbon Pricing Mechanism (CPM) and anticipates ETS linkages with schemes abroad. Australia's new Carbon Farming Initiative (CFI) came onboard in late 2011 to encourage both compliance-based emissions reductions under the federal scheme and voluntary emissions reductions in the AFOLU sectors.

Table 28: Oceania by the Numbers, All Markets, 2011

LAND AND PROJECT AREA		
Total forest area[1] (ha)		191 M
Carbon project area		.6 M
# projects represented		17
MARKET SNAPSHOT		
	$million or $MtCO_2e$	**% change from 2010**
Volume supplied	1.8 Mt	**+32%**
Average Price	$12.4/t	**-25%**
Value	$15m	**+>100%**
Volume Purchased Domestically	.8 Mt	**-34%**

Sources: [1]FAO 2010.
All other: Ecosystem Marketplace.

Last year saw little transaction volume under the GGAS during its ninth and last year of operation, with prices tanking from the program's initial $8.5/tCO$_2$e to sub-dollar rates by the time it closed down when the federal carbon tax went live in July 2012. Forest-facing NSW Greenhouse Abatement Certificates (NGACs) credits – from AR projects planted in New South Wales on or after January 1, 1990 – did not make it past the additionality test to be converted into Australian Carbon Credit Units (ACCUs) under the CFI. Neither did the federal government compensate holders for the 16 million unused NGACs, each reportedly worth about $1.

Consequently NGAC project developers like Forests NSW, ironically the first forest organization to trade forest carbon credits within a registered trading scheme back in 2005, took major hits after having embarked on extensive tree planting efforts. The story of shuttered doors in some ways echoes project developers' short-lived experience with the former Greenhouse Friendly program, which left several projects with nowhere to turn when the pilot program was discontinued.

At the same time, some developers looked to Australia's Clean Energy Legislation, which passed in November 2011 and allows domestic offsets to be used for up to 5% of emitters' liabilities during the fixed price period of Australia's CPM up to 2015 and without restriction afterward, with a 50%-cap on importing international offsets. The viability of domestic forest carbon project development going forward will revolve largely around the rate of recovery for the price of EU allowances – which ACCUs are expected to follow as a result of the scheme's recent link with the EU ETS – and the uptake of project methodologies under the CFI. July 2012 saw the first transaction of CFI credits, when Australian airline Qantas entered into an agreement to buy over 1 MtCO$_2$e in carbon credits from RM Williams Agricultural Holdings on a re-vegetation project in Henbury Station to help fulfill Qantas's carbon tax liability.

The government's uptake of compliance offset project types and approval of corresponding methodologies is playing a decisive role in determining which projects can tap into the compliance market and which will operate on the sidelines in the voluntary market. For voluntary CFI units not included in the country's Kyoto account (i.e., "Non-Kyoto" CFIs), the Australian government has instituted a government purchasing program poised to purchase $250 million in offsets through the CFI non-Kyoto Carbon Fund and distribute funds for six years starting in 2013.

The CFI has approved compliance methodologies for environmental plantings and several methane project types, with 15 other methodologies under consideration. To date, all four CFI-approved methodologies have been developed in-house by the government through the DCCEE and the Department of Agriculture, Fisheries and Forestry (DAFF) in collaboration with industry and private project developers. In some cases, methodologies build off of existing approaches incubated in other markets. The CFI-approved methodology for environmental plantings, for instance, was based on a CDM methodology, adapted to accommodate native Australian species. Many project developers have also submitted their own internal or adapted methodologies for consideration. One example is the native forest protection methodology still under CFI consideration, which project developer Redd Forests adapted to Australian best practices using the VCS IFM methodology. Developers that go this route have all described a long-time lag to approval.

In August 2012, the Australian government announced plans to link the CPM with the EU Emissions Trading Scheme (EU ETS) starting July 1, 2015. The partial link will allow energy-intensive Australian businesses to purchase carbon credits traded under the EU ETS, with plans to eventually structure a two-way link between the Australian and EU schemes starting July 1, 2018 – laying the foundation for the first full inter-continental linkage of emissions trading schemes. In conjunction, the Australian government will scrap its planned A$15/tCO$_2$e carbon price floor.

Through the inter-continental linkage, the performance of carbon prices abroad will in turn influence the price of ACCUs – because Australia's domestic offset price will no longer track against the scrapped A$15/tCO$_2$e price floor on allowances. In light of this, the revisions point to more short-term price uncertainty for Australian farmers and landholders looking to generate CFI ACCUs. In the long run, however, the linkage may allow for export of some CFI credits beyond 2018 – depending on Europeans' acceptance of CFI credits as robust and fungible. Currently the EU ETS has a blanket ban on the use of land use offsets.

"Local credits should be able to compete well with EU ETS permits in the medium to long term – which is when forest projects come into their own," observes Sara Gipton, CEO of forest sink developer Greenfleet. "The $15 floor price set us a concrete hurdle to jump, so not having a fixed price is for us a little more challenging in the short term. But," she counters, "against this we have greater long-term confidence."

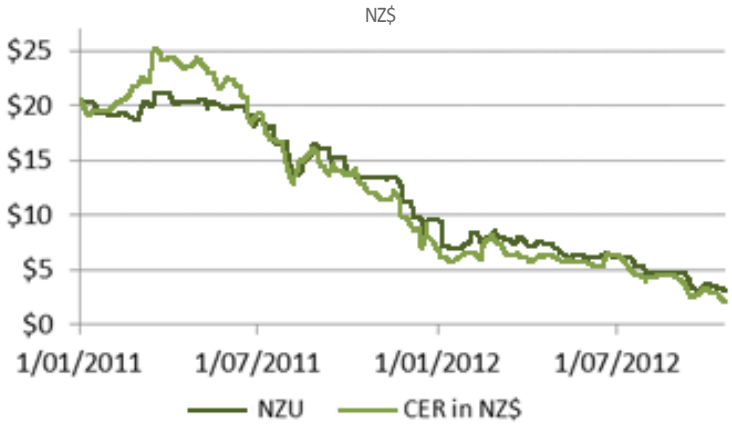
Australia's new bridge with the EU's more seasoned system makes it difficult to unwind Australia's carbon scheme in the event that political parties shift. Since the Australian government's announcement, Opposition Leader Tony Abbott has repeated his vow to repeal Australia's carbon tax if he is elected in November 2013 – though interestingly, he indicated that he is not opposed to the CFI itself.

Elsewhere, the Australian government is looking into cross-border linkages with South Korea and China, and has confirmed plans to link with New Zealand's ETS. If executed, these new linkages could further open up the market for CFIs and other carbon offsets.

New Zealand remains the first and only country to date to partially regulate its forest sector under a national emissions trading scheme. Forestry was the only sector to be included from the policy's 2008 debut until mid-2010 when the industrial, transport, and energy sectors entered as well. In 2011, voluntary offset suppliers transacted a small volume of credits from international projects, but most offsets that were reported being transacted came from New Zealand's two available avenues for generating forest carbon credits – 74% from the NZ Permanent Forest Sink Initiative (PFSI) and 26% from the country's emissions trading scheme (NZ ETS).

Under different rules, both programs credit forestry activities with compliance instruments, either New Zealand Units (NZUs) through the ETS or Kyoto units (AAUs) under the PFSI. Suppliers say that the latter finds favor among other developed-country buyers that want to invest in forestry and find reassurance in the PFSI's government backed offsets – which enter into a minimum 50-year covenant with the Crown. While suppliers reported a small volume of PFSI and NZUs being sold to offshore voluntary buyers, domestic buyer activity was predominantly compliance based. On the domestic voluntary front, suppliers explain that demand is complicated by a set of national guidelines for offsetting and carbon neutrality claims that were laid out by the New Zealand Commerce Commission several years ago under the country's Fair Trading Act of 1996. Intended to stymie unsavory activities by "carbon cowboys," suppliers say the legally enforceable guidelines present prescriptive rules that tend to deter both buyers and developers from voluntary actions.

Figure 42: Comparison of New Zealand ETS Unit (NZU) and CER Prices, 2011



Source: OM Financial Limited.

On the compliance front, the 2011 NZ ETS surrender period saw 16.3M units surrendered, a 49% increase over volumes in the scheme's first year. The bulk of the increase in units surrendered was due to an influx in international credits (CERs, ERUs, and RMUs). In contrast, the New Zealand government reported that transfers of NZUs in the forestry sector were substantially lower than estimates, where forestry NZUs experienced a 60% decrease to 2.1M NZUs in 2011. Last year, the New Zealand government announced its intention to continue allowing carbon emitters to offset just 50% of their emissions until at least 2015, allow unrestricted use of international credits in the NZ ETS, and cap the price of units at NZ$25/tCO$_2$e ($20.09).

In turn, the continued influx of cheap international credits led to a collapse in the price of NZUs. Due to the absence of a major survey respondent in New Zealand, we are unable to report average price and volume data for credits transacted domestically. The price of spot NZUs ranged from NZ$18-$21/tCO_2e between January and May of 2011 and NZ$6-$11/tCO_2e between January and May of 2012.

The price of NZUs continues to fall, as of late September 2012 striking new lows around NZ$3/$tCO_2e$. Under the prevailing 1:2 rule, emitters needed only surrender 1 NZU for every 2 tCO_2e emitted, further muting buyers' and project developers' appetite for domestic forestry offsets. While some tree planting continued through 2012, it primarily reflected commitments made in prior years when the price of credits was higher, rather than fresh commitments.

A proposed amendment bill introduced in August seeks to improve the ETS through a number of controversial measures. The bill aims to maintain the 1:2 rule, defer the entry of agriculture into the ETS, and introduce flexibility for pre-1990 forests to convert to other land use and reforest elsewhere.

Concerned about EU credits crowding out NZ domestic forestry, in September 2012 the Parliamentary Commissioner for the Environment (PCE) submitted comments on a pending amendment bill for the NZ ETS, to be presented to Parliament's Finance and Expenditure Committee. Among its recommendations, the PCE pushed for an expiration of the price cap and 1:2 provision at the end of 2012 in favor of a 1:1 setup that would essentially double the value of forest credits and demand in the market.

"The likelihood of the government undoing the 1:2 rule is slim," notes Peter Weir, Environmental Manager at Ernslaw One. "The simplest way to incentivize NZ forestry would be to cap the use of international credits in the ETS."

The NZ Forest Owners Association (FOA) and project developers like Permanent Forests International pressed for the NZ ETS to include such a cap, alongside other measures to support the domestic carbon price. Part of the difficulty has been New Zealand's emphasis on free trade, believing that a cap on imports could compromise trade relations with other countries and violate the principle of least-cost reductions.

For carbon forestry to make economic sense relative to alternative land uses (e.g. conversion to dairy pastures), FOA CEO David Rhodes says a minimum carbon price of $15-$20/tCO_2e is needed.[24] Without it, he says, "The forest industry will not fade away and most existing forests will be replanted at harvest, but new planting for carbon will be virtually nonexistent and there will be deforestation."

The PCE's recommendations also pushed for the introduction of the agricultural sector into the NZ ETS by 2015. Engaging the agricultural sector – which currently accounts for about half of New Zealand's GHG emissions – would drastically change the complexion of domestic carbon markets. In October 2012, the amendment bill passed its second reading despite minority opposition, with the Finance and Expenditure Committee reporting that the bill would defer the entry of agriculture into the ETS indefinitely unless future legislation is passed. The bill would continue allowing unrestricted purchases of international credits, as well as offsetting for pre-1990 forest landowners. How the bill will fare before the House committee may dramatically alter the future face of New Zealand forest carbon.

8.6 Europe: Double the Market, Double the Challenge[25]

Over time and again in 2011, European buyers purchased the largest volume of voluntary carbon credits from non-domestic projects of any region in the world. However, the volume of credits transacted *from* voluntary forestry projects based in Europe was again a slight 2% of global market share.

This imbalance relates to European countries' *obligation* (in the case of A/R, deforestation and now, as of 2013, managed forest emissions) or *voluntary commitment* (for grassland, cropland and re-vegetation) to report some AFOLU sector emissions within their national Kyoto Protocol accounts. Because national emissions performance is measured, credited and regulated at a country level, most domestic project-level reductions help the country to meet its target.

---

24 http://www.nzfoa.org.nz/news/foa-media-releases-2012/1046-120912foanews

25 Excerpts from Ecosystem Marketplace's *Bringing it Home: Taking Stock of Government Engagement with the Voluntary Carbon Markets* (2012: http://www.ecosystemmarketplace.com/pages/dynamic/resources.library.page.php?page_id=8921&section=library) and *New World Approaches to Old World Carbon* (2011: http://www.ecosystemmarketplace.com/pages/dynamic/resources.library.page.php?page_id=8743&section=home)

Such projects are not eligible to generate offsets under independent carbon standards, except in country cases like Canada where in July 2009, the VCS ruled in favor of project eligibility considering that the national government was highly unlikely to make good on its Kyoto commitments.

In France, the General Director of Energy and Climate Pierre-Franck Chevet issued a written certificate in May 2010 stating that voluntary forestry actions would be considered additional to national actions as the country could only receive compliance units (in this case Removal Units under JI) for 3.2 $MtCO_2e$ of its over 70 $MtCO_2e$ in annual sequestration from managed forests. This would have potentially enabled crediting under VCS rules, but the statement expires at the end of 2012 and is also affected by newer European forest accounting rules. Crediting would also be possible in regions where the government explicitly commits to recognize voluntary action by cancelling compliance units in equal measure to voluntary action – a provision that has not seen any government uptake to date.

EU-based programs and developers are thus seeking "work-arounds" to incentivize the purchase of credits representing units of local woodland creation. At the project level, some European developers plant trees and couple each tonne associated with domestic forestry with an international unit. This approach is accommodated under the CarbonFix standard, and will come under review as CarbonFix and the Gold Standard are integrated. In this report, credits contracted in this manner are accounted for under the international project's independent standard.

Table 29: Europe by the Numbers, All Markets, 2011

LAND AND PROJECT AREA		
Total forest area[1] (ha)		196 M
Carbon project area		<.1 M
# projects represented		12
MARKET SNAPSHOT		
	$million or $MtCO_2e$	**% change from 2010**
Volume supplied	.6 Mt	**+100%**
Average Price	$14.2/t	**+51%**
Value	$2m	**+100%**
Volume Purchased Domestically	.5 Mt	**+100%**

Sources: [1]FAO 2010 – excludes Russian Federation. All other: Ecosystem Marketplace.

At the program level, the Woodland Carbon Code and Italy's CARBOMARK program were two domestic forestry programs under which suppliers reported activity in 2011 – and which sprang from EU corporates' desire to turn their investments to domestic projects given the region's current economic state. They also mirror domestic buyers worldwide in their preference for projects with which they and their employees can actively engage.

However, in order for companies to pursue actual carbon neutrality through the use of offsets, no other party should claim or monetize the same reduction twice, including national governments. Proponents of international projects (and critics of double counting) say that the project location – be it Italy or India – comes second to ensuring genuine CO_2 impacts. And given the diffuse (i.e., global) nature of atmospheric CO_2, "where" a reduction occurs technically doesn't matter.

In the case of the Woodland Carbon Code and the Dutch National Fund for Rural Areas' Bosklimaatfonds program, some argue that "where" is everything and that while the reduction essentially contributes to national emissions reduction obligations, the national commitment and accounting does not incentivize woodland creation – thus additional voluntary measures are needed to incentivize private payments for woodland creation. Double counting rules prohibit either program and their buyers from referring to the credits as "offsets", and both programs have so far observed this. Even so, both they and retail suppliers in their respective countries have seen increased demand for the woodland creation credits, regardless of potential regulatory overlaps.

Indeed, no one in the voluntary carbon market can deny the spell that domestic projects have cast on over EU-based buyers. "Our customers… believe that they are making a contribution to the environment that wouldn't have happened without them," said Forest Carbon's Steve Prior in an interview with Environmental Leader.[26] Forest Carbon develops and sells credits under the Woodland Carbon Code. "If they are not allowed to call it an offset, they will still do it anyway."

If European domestic demand is more than a passing phase, the challenge to the voluntary carbon market will be to make domestic projects work within the market's existing rulebook – or perhaps spin off a new chapter that accounts for project benefits beyond carbon (like woodland creation) in capped countries.

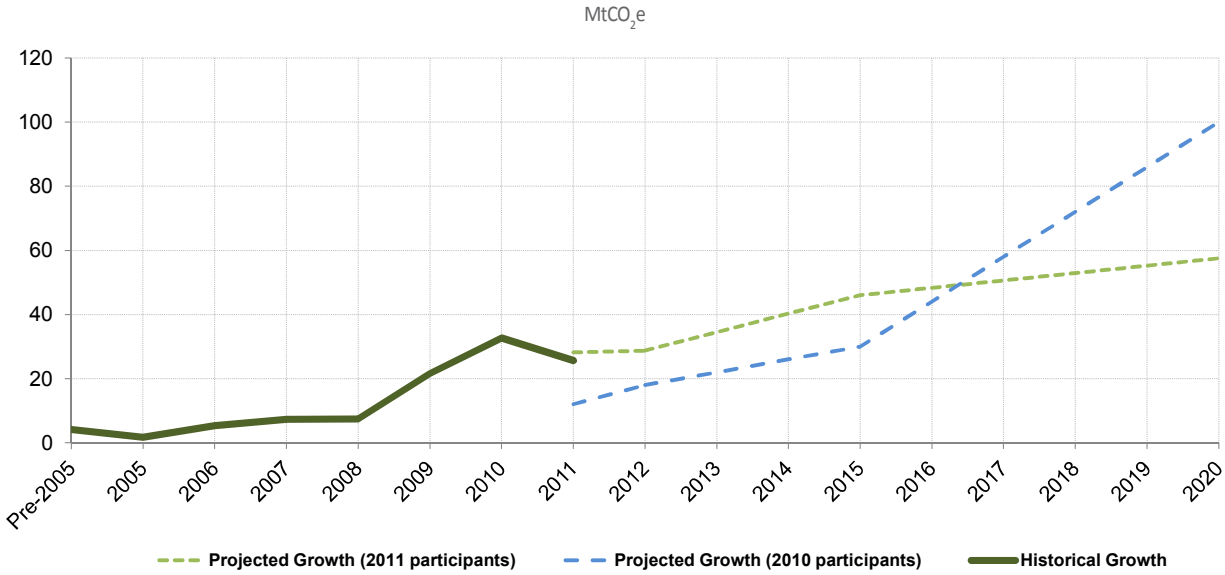
26 More information about the Woodland Carbon Code launch: http://www.environmental-finance.com/news/view/1887

7. Projections

Forest carbon suppliers were asked again this year to read their tea leaves and predict the future of the forest carbon market and the volumes they expect from their own projects. While these predictions are subjective, they provide useful insight into the current temperament of the market and indications of where it might be headed.

We asked suppliers to estimate the volume of reductions they expected were contracted in the survey year (2011) as well as the current year (2012) and also in 2015, 2020 and 2025. Using these estimates, we smoothed their predictions between years to generate Figure 43. This figure shows that, with an eye on 2010's record volumes (33 $MtCO_2e$ across all markets) developers predicted that volumes in 2011 (28 $MtCO_2e$) would be slightly less, on average, than what was transacted in 2010 – but also slightly more than was actually contracted in 2011 (26 $MtCO_2e$). This estimate is also 16 $MtCO_2e$ higher than what 2010 respondents predicted for 2011, as the market adjusted its expectations upwards.

Figure 43: Project Developer Predictions, All Markets 2010-2011



Source: Ecosystem Marketplace. Notes: Based on 603 observations in 2011; 731 total historical observations.

Looking ahead, developers predicted that volumes in 2012 would be much the same as in 2011 (29 $MtCO_2e$). This estimate is perhaps the most accurate, as this survey was conducted in the first quarter of 2012 and many ways captures developers' immediate outlook on prospective transactions. Beyond 2012, and in contrast to 2010 developers' projections, respondents in 2011 were more conservative about their long-term outlook, anticipating a leveling off of growth after 2015 but no major disruptive events. Their estimates for transaction volumes in 2020 were reduced by more than half from projections made by 2011 respondents looking at the 2010 market. In follow-up interviews regarding this finding, a few suppliers pointed out that now, with a few years of relatively steady market activity – and market tracking – under their belt, market participants might have more realistic expectations of market growth.

Also in the survey, we asked developers to report the volume of credits that remained in their portfolios unsold as of the end of 2011 (Table 30). Their response – a total of 32 $MtCO_2e$ – represents the volume of reductions that suppliers intended to contract in 2011 but instead carried over into 2012. Had developers contracted all volumes in their portfolios, the total 2011 volume would have been closer to 58 $MtCO_2e$.

Table 30: Summary of Transacted and Expected Volumes, All Markets ($MtCO_2e$)

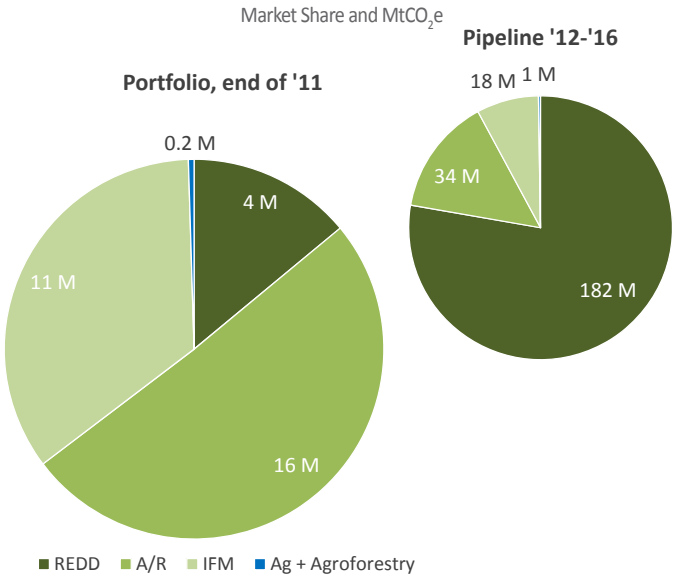
Transacted historically	Transacted 2011	Remaining in portfolios (unsold), end of 2011	Credit portfolio from new activities, 2012-2016	Total reductions estimated from start of crediting period to end of 2011	Total reductions possible from existing projects through 2050
106 Mt	26 Mt	32 Mt	234 Mt	55 – 123 Mt	504 – 1,073 Mt

Source: Ecosystem Marketplace. Notes: Based on 953 observations in 2011; 731 total historical observations.

This number provides an interesting contrast to another question in the survey, where suppliers reported that they need to sell a market-wide total of 208 – 463 $MtCO_2e$ to support the implementation and maintenance of project activities over time (Table 13). This suggests that what seems at first glance like an impossibly high volume range may be attainable if the annual requirement lies somewhere between 2011 transacted volumes and the total 2011 need of approximately 58 $MtCO_2e$.

It is also interesting to compare these volumes to the total estimated volume of reductions that have occurred from all projects with start dates before 2011 through the end of last year. Here, one can see that the high end of this range, 123 $MtCO_2e$, is slightly lower than the total volume of credits that have been contracted historically (106 $MtCO_2e$) and what remained unsold in portfolios at 2011's end (138 $MtCO_2e$ total).

Figure 44: Developer Estimated Portfolio and Pipeline, All Markets



Source: Ecosystem Marketplace. Notes: Based on 350 observations.

This does not take into anticipated volumes from new project activities, which are estimated to total 243 $MtCO_2e$ in new volume from 2012-2016. The makeup of this volume varies greatly from existing portfolios, as seen in Figure 44. Here, developers report that they expect to double the volume of A/R credits that remained in their portfolios at the end of 2011 – as well to increase their current supply of REDD credits 41 times over (to 182 $MtCO_2e$ through 2016). Over half of this volume, 101 $MtCO_2e$, is being developed with a compliance market in mind, while the remaining 81 $MtCO_2e$ is aimed at voluntary buyers. For the IFM pipeline, which developers expect to grow 1 ½ times over their current portfolio in the next five years, 96% of the expected 18 $MtCO_2e$ is also intended for compliance use. A/R project activities, on the other hand, are situated squarely in the purely voluntary buyers' camp for both portfolio and pipeline volumes.

7.1 Looking Ahead: 2012 and Beyond…

Because this report reflects on data from 2011 but is published in the last quarter of 2012, much of its narrative speaks to the ways that the forest carbon markets have continued to evolve in the current year.

For example, efforts to "nest" project activities within jurisdictional frameworks – or to trial Free, Prior and Informed Consent procedures – that were mere blips on the radar in 2011, have recently come into clear view. So, too, have innovative approaches to blue carbon, milestones in credit issuance and the start of new compliance markets that all acknowledge forestry's integral role in the fight against climate change.

Developers report that the new year has also carried over some existing challenges identified in our 2011 data, as the struggle continues for developers to identify fresh sources of offset demand in the international voluntary OTC markets – where new buyers seem slow to step up to the plate. In response, 2012 has seen some effort to reignite international non-compliance-based demand for offsets through programs like the Code REDD campaign, launched to raise corporate awareness around the critical need for REDD. Entry into this market, however, is limited to REDD projects pursuing a select combination of standards.

Some of the most promising project incentives are entering the market at the domestic level – like the Australian government's $250 million fund to kick start purely voluntary domestic activities. As seen with government offset purchase programs in other sectors, this type of action could serve as a successful bridge to compliance market "readiness," innovation and scaled up project activities – primarily benefitting projects that are literally in the right place at the right time. Given the increasingly localized nature of offset supply and demand, developers on the outside find it difficult to tap into domestic-only market opportunities.

But if recent events are any indication, "purely domestic" markets for forest carbon maybe expanding their own field of vision – seeing the majority of active and pending regional to national marketplaces now weighing linkages with other regions at various depths and scale. This may in turn push forestry to the front of the agenda as each program weighs the relative merits of its domestic approach against the use of more fungible independent standards and registries.

At the project level, both our data and discussions with market players reveal a genesis of new structures for developing and financing international forestry projects – as developers demonstrate increasingly sophisticated relationships between forest carbon assets and other agricultural commodity markets; formalize the community role in REDD; and deepen their relationships with the agencies responsible for piloting donor-funded forestry initiatives in hopes of gaining access to that value as it slowly makes it way to projects on the ground.

With one eye on these nascent opportunities and the other on immediate project needs, developers, standards bodies and their stakeholders carry on in their quest to take the forest carbon market to the next level in 2012 – forging new tools for market tracking, and collaborating between standards and with buyers and governments themselves to ensure that forest carbon consciousness is at the heart of the year's key corporate and policy decisions.

Annex A: Standard Profiles

In early 2012, we surveyed standards and registries to explore the volume and types of credits – including forest carbon credits – that have been tracked through their systems, as well as how each standard's structure and scope impacts uptake. Tracked information varied slightly by each infrastructure provider, but what we were able to obtain is reported in the following section – along with six years' worth of historical survey data.

At the top of each standard's profile – created for any standard with more than one year's worth of transaction data and that guides forest carbon project development – we present a summary of the standard and basic price and volume information for transacted forest carbon credits. The bottom half of each profile is dedicated to basic information about the standards' geographic and technical scope; use of third-party verification for various project activities; the number of projects validated by project category through the end of 2011; and the market share for different types of credirst that were transacted under each standard in 2011 only.

In between these quantitative and qualitative sections, a series of ratios explore the relationships between available, transacted, and retired offset volumes.

Issued to Transacted Ratio: This ratio compares the volume of credits issued by a registry according to the featured standard, against volume of credits that suppliers have reported transacting, for all years and in 2011. In some cases, transaction volumes are higher than issuance volumes – this is captures both market turnover and forward sales.

Issued to Retired Ratio: This ratio compares the volume of credits issued by a registry according to the featured standard, against the volume of credits that registries have reported retiring from that standard, for all years and in 2011.

Buffer volumes: This column captures the total volume of credits contributed to each standard's buffer pool mechanism. Volumes are calculated from the start date of the buffer policy until mid-2012. Thus, volumes will vary by standard – not only according to buffer start date but also based on how standards manage intentional versus unintentional reversals, whether or not they accept additional "donations" to the buffer, and what reversals are compensated for by the buffer pool versus the project owners themselves.

A Note on Our Methods: Most standards do not have a clear picture of the volume of credits verified to their standard until a verification report is submitted to a registry. We have therefore omitted verification figures, focusing instead on tracking issued, transacted, retired, and buffer pool volumes. In this section, we rely exclusively on registries' retirement data and not the retired volumes we track in our survey, as registries' retired volumes are slightly more comprehensive. Issued and retired volumes tracked from Plan Vivo (2008-2011) and the CarbonFix Standard reflect publicly available data. The proportion of market supply that unreported, private activities represents remains unknown. Finally, we include a **universal legend for the "Validated and Transacted Projects by Type"** charts below each chart.

A.1 Forest Carbon Accounting Standards

American Carbon Registry (ACR)

ACR, founded in 1996, is a non-profit enterprise of Winrock International. ACR currently has three published standards, including its nested REDD+ Standard published Oct. 2012. In 2011, ACR introduced its first international REDD methodology alongside its existing requirements for AR and IFM projects. Retirements are negligible based on newness of available methodologies.

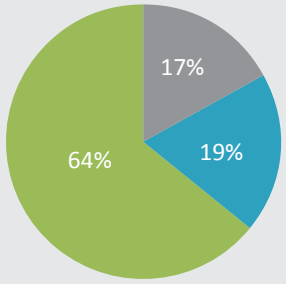
Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$7.3	3	8	3	Cumulative: 1.3
2011:	$7.3	2	8	3	

Ratios:	Issued : Transacted	Issued : Retired
All Years:	1 to >10	N/A
2011:	1 to >10	N/A

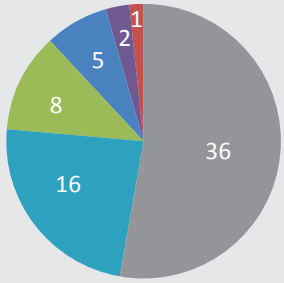
STANDARD SCOPE	
Standard Type:	Carbon accounting only + tagged co-benefits
Asset generated:	Carbon credit
Eligible countries:	All

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	✓
Co-benefits	Tagged
MAX time between verifications (years):	5

Transacted Project Types, '11
(by % share)



Validated Projects by Type
(by count, through 2011)



CarbonFix Standard (CarbonFix)

The CarbonFix Standard applies to afforestation, reforestation, natural regeneration, and agro-forestry projects that demonstrate a commitment to socio-economic and ecological responsibility. In September 2012, the Gold Standard acquired CarbonFix in order to support its expansion into land use and forestry.

Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$13.6	.4	5	.04	Cumulative: .5
2011:	$17.5	.03	3	.03	

Ratios:	Issued : Transacted	Issued : Retired
s All Years:	1 to 1	3 to 1
2011:	1 to 1	10 to 1

STANDARD SCOPE	
Standard Type:	Carbon accounting + embedded co-benefits
Asset generated:	Carbon credit
Eligible countries:	All

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	✓
Co-benefits	Tagged
MAX time between verifications (years):	5

Transacted Project Types, '11
(by % share)

Validated Projects by Type
(by count, through 2011)

Chicago Climate Exchange (CCX)

After retiring its voluntary cap-and-trade scheme in 2010, in 2011 CCX launched the Chicago Climate Exchange Offsets Registry Program to register verified emission reductions based on a comprehensive set of established protocols.

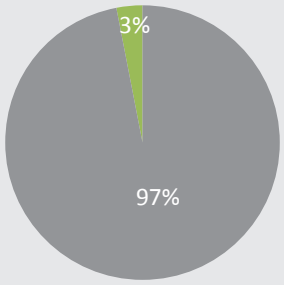
Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$1.5	.8	36	14.9	Cumulative: 4.6
2011:	N/A	.1	0	6.6	

Ratios:	Issued : Transacted	Issued : Retired
All Years:	>10 to 1	3 to 1
2011:	>10 to 1	4 to 5

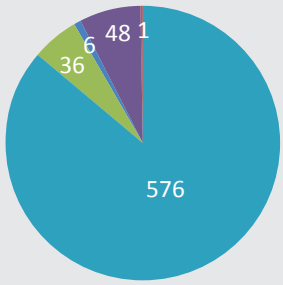
STANDARD SCOPE	
Standard Type:	Carbon accounting only
Asset generated:	Carbon credit
Eligible countries:	All

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	✓
Co-benefits	
MAX time between verifications (years):	5

Transacted Project Types, '11
(by % share)



Validated Projects by Type
(by count, through 2011)



AFOLU Energy Methane Gases Fuel Switch Other

Climate Action Reserve (CAR)

CAR is a non-profit carbon offset registry and standards-setting body. CAR has so far developed several carbon offset protocols for use in the US and in some cases Mexico. In 2011, the California Air Resources Board approved four CAR protocols for early-action compliance credits and adapted the same protocols for compliance purposes.

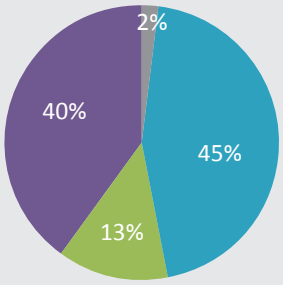
Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$7.3	2.8	6	.8	Cumulative: .4
2011:	$7	1	2	.4	

Ratios:	Issued : Transacted	Issued : Retired
All Years:	1 to 1	3.3 to 1
2011:	1 to 1.2	2.3 to 1

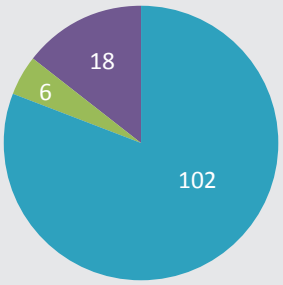
STANDARD SCOPE	
Standard Type:	Carbon accounting only
Asset generated:	Carbon credit
Eligible countries:	U.S. & Mexico

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	✓
Co-benefits	
MAX time between verifications (years):	6

Transacted Project Types, '11
(by % share)



Validated Projects by Type
(by count, through 2011)



AFOLU Energy Methane Gases Fuel Switch Other

Plan Vivo Standard (Plan Vivo)

Plan Vivo certifies forestry offset programs, ensuring that livelihood needs are considered and built into project design, and local income sources are diversified to reduce poverty and tackle the root causes of deforestation and land degradation.

Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$7.7	1.1	7	1.2	Cumulative: .4
2011:	$7	.5	3	.2	

Ratios:	Issued : Transacted	Issued : Retired
All Years:	1 to 1	1.2 to 1
2011:	1 to 2	1.9 to 1

STANDARD SCOPE	
Standard Type:	Carbon accounting + embedded co-benefits
Asset generated:	Carbon credit
Eligible countries:	Developing countries

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	✓
Co-benefits	✓
MAX time between verifications (years):	5

Transacted Project Types, '11
(by % share)

Validated Projects by Type
(by count, through 2011)

AFOLU Energy Methane Gases Fuel Switch Other

Verified Carbon Standard (VCS)

The VCS was launched as the Voluntary Carbon Standard in 2007 by The Climate Group, the International Emissions Trading Association, World Economic Forum and the WBCSD. In 2011, VCS saw its first verified REDD credit; in early 2012, released new guidance on standardized methods for additionality and crediting, and technical guidance for nesting REDD projects. In October 2012, VCS released the world's first jurisdictional REDD+ requirements, as well as wetland restoration requirements.

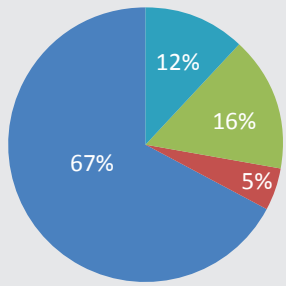
Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$5.1	27.5	25	1.1	Cumulative: 1.9
2011:	$10	6.5	23	1	

Ratios:	Issued : Transacted	Issued : Retired
All Years:	1 to 6	4.4 to 1
2011:	1 to 1.4	4.5 to 1

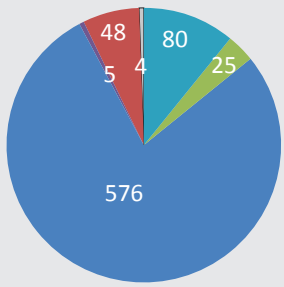
STANDARD SCOPE	
Standard Type:	Carbon accounting + tagged co-benefits
Asset generated:	Carbon credit
Eligible countries:	All

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	✓
Co-benefits	Tagged
MAX time between verifications (years):	None

Transacted Project Types, '11
(by % share)



Validated Projects by Type
(by count, through 2011)



AFOLU Energy Methane Gases Fuel Switch Other

A.2 Project Co-Benefits Programs

Climate, Community & Biodiversity Standards* (CCB Standards)

The CCB Standards are project-design criteria for evaluating land-based carbon mitigation projects' community and biodiversity co-benefits. As a co-benefits only standard, GHG reductions must be verified against another underlying carbon standard. Transaction volumes below are from carbon projects tagged with CCB certification.

Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$5.4	25	44	.5	See independent standard buffers
2011:	$7.6*	6.4*	13	.5	

STANDARD SCOPE	
Standard Type:	Co-benefits only
Asset generated:	Certificate
Eligible countries:	All

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	
Co-benefits	✓
MAX time between verifications (years):	5

Transacted Project Types, '11
(by % share)

Validated Projects by Type
(by count, through 2011)

AFOLU Energy Methane Gases Fuel Switch Other

*Average price and total volume of all possible combinations of CCB plus independent standards

A.3 Domestic (Country- or Region-Specific) Programs

Brasil Mata Viva* (Plano de Deselvolvimento Sustentável Brasil Mata Viva)

Brasil Mata Viva is a payment for environmental services standard with a forest carbon accounting component. Through its application, the BMV Methodology aims to generate resources for the introduction of new sustainable technologies for land use and the establishment of production units, to add value to areas' rural production, re-composition and recovery.

Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$12	5	14	4	UNKNOWN
2011:	$25	1.4	14	0	

STANDARD SCOPE	
Standard Type:	Carbon accounting + embedded co-benefits
Asset generated:	Sustainability Credits
Eligible countries:	Multiple

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	✓
Co-benefits	✓
MAX time between verifications (years):	5

Transacted Project Types, '11
(by % share)

Validated Projects by Type
(by count, through 2011)

AFOLU Energy Methane Gases Fuel Switch Other

Japan's Offset Credit Scheme (J-VER)

Japan's Ministry of the Environment (MOEJ) launched the J-VER voluntary offsetting scheme as an effort "by and for Japan," with Japan-only internal methodologies (based on ISO-14064), internal registry and complementary activities. J-VER issued credits 2008-2012 and concludes March 2013, when the MOEJ will assess whether and how to continue the program.

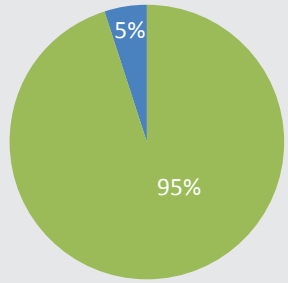
Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$120	.1	96	.2	Cumulative: .008
2011:	$120	.1	50	.1	

Ratios:	Issued : Transacted	Issued : Retired
All Years:	1 to 1	7 to 1
2011:	1 to 1	10 to 1

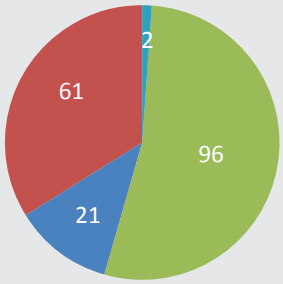
STANDARD SCOPE	
Standard Type:	Carbon accounting only
Asset generated:	Carbon credit
Eligible countries:	Japan

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	✓
Co-benefits	
MAX time between verifications (years):	N/A

Transacted Project Types, '11
(by % share)



Validated Projects by Type
(by count, through 2011)



AFOLU Energy Methane Gases Fuel Switch Other

NZ Permanent Forest Sink Initiative* (PFSI)

New Zealand's PFSI offers landowners of permanent forests established after 1 January 1990 the opportunity to earn Kyoto Protocol Assigned Amount Units (AAUs) for the carbon sequestered by their forests since 1 January 2008. Landowners have until the end of 2012 to register the forest and attempt to claim AAUs.

Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$17	1	43	.05	UNKNOWN*
2011:	N/A	.8	20	.05	

Ratios:	Issued : Transacted	Issued : Retired
All Years:	1 to 4	5 to 1

STANDARD SCOPE	
Standard Type:	Carbon accounting only
Asset generated:	Allowances (AAU's)**
Eligible countries:	New Zealand

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	✓
Co-benefits	
MAX time between verifications (years):	5

Transacted Project Types, '11
(by % share)

Validated Projects by Type
(by count, through 2011)

AFOLU Energy Methane Gases Fuel Switch Other

*While there is no regulated buffer pool, individual participants may choose to hold a portion of the units they receive as a buffer.

**While AAUs are issued for NZ's first commitment period (2008-2012), another unit type yet to be determined may be issued for its second commitment period (2013-2017).

Pacific Carbon Standard* (PCS)

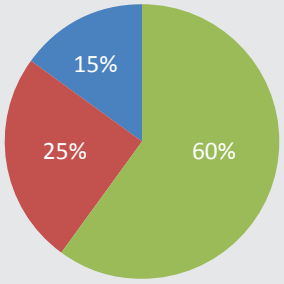
The Pacific Carbon Standard defines the requirements for developing offsets to be recognized as Pacific Carbon Units (PCU). All units generated under the PCS are currently exclusively owned and transacted through the Pacific Carbon Trust, a British Columbia crown corporation tasked with sourcing offsets for the government's carbon neutrality commitment.

Utilization:	Avg. Price	Transacted (Mt)	# Projects Validated	Vol. Retired (tCO2e)	Vol. Buffer Pool (Mt)
All Years:	$25 CDN	.6	2	.4	Cumulative: .1

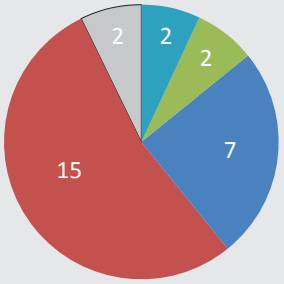
STANDARD SCOPE	
Standard Type:	Carbon accounting only
Asset generated:	Carbon offset
Eligible countries:	British Columbia

VERIFICATION REQUIRED FOR:	
Projects	✓
Methodologies	✓
Emission Reductions	✓
Co-benefits	
MAX time between verifications (years):	N/A

Transacted Project Types, '11
(by % share)



Validated Projects by Type
(by count, through 2011)



AFOLU Energy Methane Gases Fuel Switch Other

A.4 Standards to Watch

California Air Resources Board Protocols – ARB Protocols (2011)[1]

The California Air Resources Board (ARB) within California's Environmental Protection Agency has developed a cap-and-trade program under California's Assembly Bill 32 ("AB32") that draws from existing voluntary carbon market infrastructure. Approved in 2011, the ARB Protocols were adapted from existing protocols developed by California's Climate Action Reserve (CAR). So far, they consist of four protocols based on a standardized approach covering livestock manure, ozone-depleting substances, and urban and other forest management – including improved forest management and avoided conversion. Against projected offset undersupply, as of October 2012, the ARB is still in discussions regarding how and when to allow international REDD offset credits into the scheme. The REDD Offset Working Group (ROW), established in 2011, is examining what legal and institutional mechanisms are required and what policy and technical elements a sectoral REDD program should achieve in order to enable California to recognize REDD offsets for compliance purposes.

Carbon Farming Initiative – CFI (2011)[2]

Enabled by the Carbon Credits (CFI) Act 2011 and launched in December 2011 as a key part of the Australian Government's Clean Energy Future Plan, the CFI supports Australia's carbon market as the first national scheme to regulate the creation and trade of carbon credits from farming, landfill and forestry. The CFI uses positive and negative lists to determine project additionality. Approved methodologies cover capture and combustion of landfill gas, destruction of methane generated from manure in piggeries, environmental plantings, and savanna burning. Other methodologies are under development. An independent expert committee, the Domestic Offsets Integrity Committee, has been established to assess offset methodologies and advise the Minister for Climate Change and Energy Efficiency on their approval. The recently established Clean Energy Regulator is responsible for operating the CFI. Depending on whether the Australian government signs Article 3.4 of the Kyoto Protocol, other project types like forest management and cropland management could become eligible for use on the positive list.

1 http://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm; http://stateredd.org
2 http://www.climatechange.gov.au/en/government/initiatives/carbon-farming-initiative

Global Conservation Standard – GCS (Version 1.2, 2011)[3]

Launched in March 2011, the GCS is a not-for-profit registered in Offenburg, Germany, designed to make conservation pay for landowners and local populations worldwide based on the stock volume of measurable ecosystem service benefits through issuance and sales of Conservation Credit Units (CCUs). Its first methodology quantifies CCUs based on carbon stocks in vegetation. On additionality, the GCS does not issue or generate offsets that compensate emissions. Thus, additionality as defined under ISO 14064-2, the Kyoto Protocol and other emerging standards is not applicable to the GCS. Conservation Areas are monetized based on accounting for the existing ecosystem services and reinvested in sustainable socioeconomic activities and capacity-building programs within the Commercial Buffer Zone. The GCS encourages the use of additional certification schemes like VCS, FSC, or organic farming in project areas. The standard's MG Registry will record CCU issuance, ownership, retirement and project details. As of August 2012, the first GCS project is setting up shop in Peru's Allpahuayo Mishana National Forest Reserve.

Gold Standard – Forestry and Land Use Programme (2013)

The Gold Standard, historically focused on renewable energy and energy efficiency, acquired the CarbonFix standard and signed a Memorandum of Understanding with the Forest Stewardship Council (FSC) in September 2012 in order to support its expansion into land use and forestry. There will be a technical alignment of CarbonFix with Gold Standard procedures, governance structures and infrastructure. Existing CarbonFix projects will be hosted by the Gold Standard and will transition into Gold Standard projects if they meet the rules under Gold Standard version 3.0. In parallel with the integration of CarbonFix, the Gold Standard will also begin developing a governance framework and suitable methodologies for other areas of land use, including sustainable agriculture and improved forest management. Future collaboration will see the Gold Standard incorporate and build upon elements of FSC's safeguarding and resource management requirements and would enable FSC to rely on The Gold Standard's approach to carbon accounting and benefit sharing when FSC certified forest operations seek carbon finance.

The Natural Forest Standard (Version 1.0, June 2012)[4]

The Natural Forest Standard, developed by Ecosystem Certification Organization (ECO) and Ecometrica, is intended for use by developers of medium and large scale projects (projects must exceed 20,000 ha to be eligible) who wish to conserve and restore natural forests at risk from deforestation and degradation in areas that are not under community or smallholder control or management. The NFS is specific to natural forest projects which exclude commercial resource extraction. The NFS uses a buffer reserve to cover against the risk of potential future losses. On additionality, NFS projects must demonstrate additionality relative to existing policies. Any restoration activities that are legal requirements shall not be eligible for crediting.

Panda Standard (Version 1, 2009)[5]

Partners China Beijing Environment Exchange and BlueNext, with the support of Winrock International, founded the Panda Standard as the first voluntary carbon standard designed specifically for China, in order to support the nascent Chinese carbon market and encourage investment into the domestic rural economy. Governed by the Panda Standard Association, the Panda Standard focuses on promoting Agriculture, Forestry and Other Land Use offset projects with poverty alleviation benefits. The standard determines additionality using both standardized and project-based methods. Launched at COP 15 in Copenhagen in 2009, Panda Standard Version 1.0 describes the core procedures of its project certification scheme. At COP16 in Cancun in 2010, BlueNext, the Agence Française de Développement, and CBEEX signed a Memorandum of Understanding to support a 15000-ha bamboo plantation as the first pilot project for the Panda Standard. The methodology for the project, developed by the Nature Conservancy, was finalized and approved by the Technical Committee early 2012 and should lead to the registration of the first PS project later this year. A second methodology developed by Winrock and released in July 2012, supports revegetation of degraded land. An initial project is piloting the methodology on degraded grassland in Sichuan province.

3 http://www.globalconservationstandard.org; http://mgregistry.com
4 http://www.naturalforeststandard.com/
5 http://www.pandastandard.org

The Rainforest Standard (Version 2.0, June 2012)[6]

The Rainforest Standard, launched at Rio+20 in June 2012, aims to integrate requirements and protocols for carbon accounting, socio-cultural/socio-economic impacts, and biodiversity outcomes. It is the product of a four-year collaboration among five leading environmental trust funds based in five Amazon Basin countries (Bolivia, Brazil, Colombia, Ecuador, and Peru) and Columbia University's Center for Environment, Economy, and Society. The standard is intended to accommodate the ecological conditions and social realities of the Amazon region. On additionality, the standard uses a legal additionality test, economic incentives test and existing incentives test.

SOCIALCARBON Standard (Version 4.2, 2011)

The SOCIALCARBON Standard, developed by the Ecologica Institute (Brazil) in 1998, is a certification program based on the sustainable livelihoods approach that requires project developers to apply Standard indicators that correlate with six aspects of the project: social, human, financial, natural, biodiversity, and carbon. SOCIALCARBON is another "stacking" standard to be paired with a carbon accounting standard. Indicators have been developed under the standard covering afforestation/reforestation projects alongside non-forest carbon project types. Because the standard is usually used in conjunction with an offset-verifying program, it does not set its own additionality criteria.

Three Rivers Standard – Three Rivers (Version 0.1, 2011)[7]

The Three Rivers Standard is the first voluntary standard based in western China, located in an area that includes the headwaters of the Yellow, Yangtze, and Mekong Rivers. Initiated by the Qinghai Environment and Energy Exchange (QHEX) in collaboration with other Chinese and international partners, the standard applies to mitigation activities conducted in China and will cover a range of sectors. Standard documents were released in 2012 following a public consultation process based on the ISEAL Code of Good Practice for standard setting and in compliance with relevant ISO standards. Three Rivers allows for both project-based, performance-based and/or technology standard additionality tests. Specifications for agriculture, forestry, grassland, and livestock projects are under development, with registration of the first project planned by the end of 2012. AFOLU project methodologies that have been approved by the CDM and VCS may be automatically approved by Three Rivers, but may also be subject to a review and revision process to account for China-specific conditions. Requirements for social and environmental impacts of projects are based on national laws and supplemented by guidance from other domestic and international initiatives.

Woodland Carbon Code – WCC (2011)[8]

Observing that the UK's lack of domestic voluntary mechanisms disincentivized local action on forestry, the Forestry Commission developed the WCC to credit domestic forestry projects using certificates. Launched in July 2011, the WCC requires projects to meet the UK Forestry Standard's environmental and social criteria. While WCC projects cannot generate offsets due to the double-monetization issue, the WCC shares features with international standards like a buffer pool, project grouping mechanism and independent certification. The Forestry Commission has led the development of methodologies, either undertaking work itself or commissioning specialists. The WCC is currently considering working with an established carbon registry to host its credits (Woodland Carbon Units), and as of 2011 operated an internal registry for carbon sequestered from program projects. It is also looking at the potential of trading platforms to bring buyers and sellers of Woodland Carbon Units together more effectively.

A.5 Other Programs

Costa Rica C-Neutral Standard – C-Neutral (2012)

Targeting purely domestic users through 2021, Costa Rica's new C-Neutral Standard is the first measure launched in a long line of mitigation actions necessary to meet the country's 2021 deadline for achieving carbon neutrality. The Standard recognizes VCS, Gold Standard, and CDM credits for offsetting, as well as program-specific methodologies that will generate Costa Rican Carbon Units (UCCs), available by Q3 2012. The standard uses project-based additionality testing and covers a variety of project types including forestry

6 http://cees.columbia.edu/files_cees/imce_shared/RFS_Executive_Summary_Final_2_0__tm_.pdf
7 http://www.threeriversstandard.com/uploads/soft/111115/ThreeRiversStandard.pdf
8 http://www.forestry.gov.uk/forestry/INFD-863FFL

and land use, energy, methane, fuel switching, N2O, and transportation. The program will use an internal, program-administered registry or external registry depending on the type of credit transacted. The Standard originated with the 2007 National Climate Change Strategy, which established the 2021 carbon neutral goal, a Climate Change Directorate – and the resulting C-Neutral Standard. The program is administered by the Climate Change Directorate under the Ministry of Environment.

ISO-14064-2 (2006)[9]

The International Organization for Standardization launched ISO 14064 in 2006 as a three-part set of policy-neutral, voluntary GHG accounting standards. ISO 14064-2 is an offset standard protocol that provides definitions and procedures to account for GHG reductions, intended for use in conjunction with an established offset program. ISO 14064-2 is not prescriptive about elements that apply to the policies of a particular GHG program such as additionality criteria, project eligibility dates, or co-benefits. ISO 14064 is program-neutral and the requirements of the program under which ISO is used take precedence to ISO rules. For example, ISO 14064-2 contains no formal requirements for additionality determination but offers general guidelines. The guidelines for additionality tools generally assume a project-specific approach. However, since the requirements of a GHG program take precedence over specific ISO 14064-2 requirements, ISO 14064-2 allows performance standards to be used, where this is prescribed by a GHG program. VCS is ISO 14064-compatible, the Canadian GHG Offset Protocols will draw from ISO 14064-2, and the Climate Action Reserve is adapting their quantification protocols to ISO 14064 standards.

9 http://www.co2offsetresearch.org/policy/ISO14064.html; http://www.scribd.com/doc/55419582/Making-Sense-of-The

Annex B: Forest Carbon Offset Supplier List

Note: This table features those respondents that shared volume data for our 2011 survey and elected to be listed.

Organization Name	Web Address
33 Asset Management	www.33assetmngt.com
3GreenTree Ecosystem Services Ltd.	www.3greentree.com
AgraGate Climate Credits	www.agragate.com
AIDER	www.aider.com.pe
Amazonas Sustainable Foundation	www.fas-amazonas.org
Appalachian Carbon Partnership	www.maced.org
Armajaro	www.armajaro.com
Atlântica Simbios C. S. A. Ltd.	www.atlanticasimbios.com
Bio Assets	www.bioassets.com.br
Biofílica	www.biofilica.com.br
Blue Source, LLC	www.bluesource.com
Bosque Sustentable, A.C.	www.sierragorda.net
BP (Target Neutral)	www.bptargetneutral.com
Brighter Planet	www.brighterplanet.com
Btaab Transações de Ativos Ambientais do Brasil	www.brasilmataviva.com.br
C&D Consultores Ltda.	www.cydconsultores.cl
Camco International Group, Inc	www.camcoglobal.com
Canopy	www.canopy.org.au
Carbon Market Solutions	www.carbonmarketsolutions.com
Carbon Neutral	www.carbonneutral.com.au
Carbon Tanzania	www.carbontanzania.com
CarbonBrake Limited	www.carbonbrake.com
Carbonfund.org Foundation, Inc.	www.Carbonfund.org
China Green Carbon Foundation	www.thjj.org/en/
Clean Air Action Corp	www.cleanairaction.com
ClearSky Climate Solutions	www.clearskyclimatesolutions.com
CLEVEL	www.clevel.co.uk
Climate Friendly	www.climatefriendly.com
ClimateCare	www.climatecare.org
co2balance UK Ltd	www.co2balance.com
Cooperativa AMBIO	www.ambio.org.mx
Conservation Carbon Company(Pvt)Ltd	www.carbonconsultco.com
Conservation International	www.conservation.org
CPS Carbon Project Solutions Inc.	www.carbonprojectsolutions.com
Dinámica de Procesos S.A.	www.tarraubella.com
Eccaplan Environmental Consulting	www.eccaplan.com.br
ECO2LIBRIUM LLC	www.eco2librium.net

Organization Name	Web Address
ecoagree inc	www.ecoagree.com
Ecological Restoration Capital	www.nollengroup.com
Ecosystem Services LLC	www.ecosystemservicesllc.com
EKO Asset Management Partners	www.ekoamp.com
Emergent Ventures International	www.emergent-ventures.com
Eneco Energy Trade	www.eneco.nl
Entergy	www.entergy.com
Envirotrade Carbon Ltd	www.envirotrade.co.uk
Equator, LLC	www.equatorllc.com
ERA Carbon Offsets	www.eraecosystems.com
Face the Future	www.face-thefuture.com
Finite Carbon	www.finitecarbon.com
First Climate	www.firstclimate.com
Forest Carbon Ltd	www.forestcarbon.co.uk
Forest Carbon Offsets LLC	www.forestcarbonoffsets.net
Forest Trends	www.forest-trends.org
ForestFinance Group / CO2OL	www.forestfinance.de
Fundación Chile	www.fundacionchile.cl
GET-Carbon	www.get-carbon.com
GFA ENVEST GmbH	www.gfa-envest.com
Green Resources	www.greenresources.no
Greenfleet	www.greenfleet.com.au
Greenhouse Balanced	www.cassinia.com
Greening Australia Ltd	www.greeningaustralia.org.au
Greenoxx NGO	www.greenoxx.com
Grupo Occidente	www.occidente.com.gt
GSS Sustentabilidade	www.gssconsult.com
ICONTEC INTERNACIONAL	www.icontec.org
Indonesian Rainforest Foundation	www.indonesianrainforest.org
Instituto Ação Verde	www.acaoverde.org.br
Jadora LLC	www.jadorallc.com
Livelihoods Venture	www.livelihoods.eu
MGM Innova Capital	www.mgminnovacap.com
Mikro-Tek	www.mikro-tek.com
MILLER TABAK + CO.	www.millertabak.com/
Mpingo Conservation & Development Initiative	www.mpingoconservation.org
National Forest Foundation	www.nationalforests.org
NatureOffice GmbH	www.natureoffice.com
Nedbank Capital	www.nedbankcapital.co.za
Northwest Natural Resource Group	www.nnrg.org
Oklahoma Conservation Commission Oklahoma Carbon Program	www.ok.gov/conservation/
Overseas Environmental Cooperation Center, Japan	www.j-ver.go.jp
Pacific Carbon Trust	www.pacificcarbontrust.com

Organization Name	Web Address
Pax Natura Foundation	www.paxnatura.org
Permanent Forests International	www.permanentforests.com
Pica de Hule Natural	www.occidente.com.gt
Plan Vivo Foundation	www.planvivofoundation.org
PrimaKlima -weltweit- e.V.	www.prima-klima-weltweit.de
Pure Interactions UK	www.pureinteractions.com
Rainforest Project Management	
Forests Alive	www.forestsalive.com
SERVICIOS AMBIENTALES DE OAXACA	www.sao.org.mx
Sicirec Bolivia ltda	www.arbolivia.org
Socio-eCO2NOmix-Global	www.socioeconomix.org
South Pole Carbon	www.southpolecarbon.com
SunOne Solutions	www.sunonesolutions.com
Taking Root	www.takingroot.org
The Carbon Farmer Inc.	www.thecarbonfarmer.ca
The CarbonNeutral Company	www.carbonneutral.com
The Nature Conservancy	www.tnc.org
The Nature Conservancy Brazil	www.tnc.org
The Trust for Public Land	www.tpl.org
Tricorona Climate Partner	www.tricorona.com
U YOOL CHE AC	
VEDA Climate Change Solutions Ltd	www.vccslindia.org
WayCarbon	www.waycarbon.com
Wildlands Conservation Trust	www.wildlands.co.za
Wildlife Works LLC	www.wildlifeworks.com
Woodland Trust	www.woodlandtrust.org.uk
Woodlands Carbon LLC.	www.woodlandscarbon.com
World Land Trust	www.worldlandtrust.org
World Wide Carbon LLC	www.worldwidecarbonllc.com
WWF Greater Mekong Programme	www.wwf.panda.org/what_we_do/where_we_work/greatermekong/
Yorkshire Dales Millennium Trust	www.ydmt.org
Zoological Society of London	www.zsl.org/

Premium Sponsors

Code REDD (*www.coderedd.org*) is a call-to-action non-profit that uses market-based solutions to save the endangered forests of the world. We offer an innovative approach to solving global deforestation by aligning bottom line corporate goals with high-quality forest conservation projects. Code REDD believes corporate leadership is key to scaling the demand for REDD projects, and that companies can be powerful agents of change if social responsibility and business interests are successfully aligned. We identify Code REDD projects that integrate with the branding and communications strategy of companies, then develop marketing strategies that resonate with customers and stakeholders - resulting in increased engagement, loyalty and advocacy. All Code REDD projects protect wildlife and plant biodiversity, foster community development, and create sustainable jobs. All Code REDD developers have committed to an industry leading set of best practices (VCS, CCB, FPIC, Code of Conduct). Pledging to Code REDD can also provide a low-cost, high-volume supply of emissions reductions as a hedge against future compliance obligations.

The World Bank BioCarbon Fund (*www.wbcarbonfinance.org*) has mobilized a fund to demonstrate projects that sequester or conserve carbon in forest and agro-ecosystems. The Fund, a public/private initiative administered by the World Bank, aims to deliver cost-effective emission reductions, while promoting biodiversity conservation and poverty alleviation. The Fund is composed of two Tranches: Tranche One started operations in May 2004, has a total capital of $53.8 million; Tranche Two was operationalized in March 2007 and has a total capital of $36.6 million. Both Tranches are closed to new fund participation.

The BioCarbon Fund considers purchasing carbon from a variety of land use and forestry projects; the portfolio includes Afforestation and Reforestation under the Clean Development Mechanism (CDM), and Reducing Emissions from Deforestation and Degradation (REDD) and sustainable land management/ agricultural soil carbon in the voluntary market.

Sponsors

Baker & McKenzie (*www.bakermckenzie.com*) was the first law firm to recognize the importance of global efforts to address climate change and the importance of such legal developments to our clients. Our dedicated team has worked on numerous pioneering deals, including writing the first carbon contracts, setting up the first carbon funds and advising on the first structured carbon derivative transactions.

Our team has worked extensively in the voluntary carbon market over the past fifteen years, beginning with early forestry transactions between Australia and Japan in the late 1990s. Our team is involved in the development of market standards and infrastructure and has represented clients on many early voluntary market transactions and deals under the Voluntary Carbon Standard, including a number of REDD transactions. We have worked closely with market-makers such as Markit and the Voluntary Carbon Standard. We have represented many clients on VER and VCU transactions, represent market players and currently represent voluntary carbon registries and associations.

Face the Future (*www.face-thefuture.com*) is a pioneering forest carbon project developer based in the Netherlands with over 20 years of international forestry experience in the context of carbon markets. Face the Future designs and implements forestry projects worldwide that aim to mitigate and adapt to climate change and provide measurable social and biodiversity benefits to local communities. In addition to project development, Face the Future also offers a range of consultancy services including project feasibility assessments, PDD writing, project implementation, project marketing and the design of national and sub-national REDD+ readiness strategies.

To date, Face the Future has established over 50,000 hectares of new forests and sustainably manages over 100,000 hectares of existing natural forests across 4 continents. As a result of these initiatives, over 2.3 million tons of CO_2 have been sequestered, verified and transacted in the voluntary carbon market.

Kinship Conservation Fellows (w*ww.kinshipfellows.org*), founded in 2001, is a ground-breaking environmental leadership program with a mission to develop a community of leaders dedicated to collaborative approaches to environmental issues with an emphasis on market-based approaches. The Kinship Fellows network spans ten cohorts and includes 174 Fellows in 46 countries. Each year, Kinship selects eighteen entrepreneurial, mid-career practitioners to join this dynamic community and attend its month-long, paid, in-residence program in Bellingham, Washington. Using a case study methodology, Kinship equips Fellows with leadership skills, an in-depth understanding of market-based strategies for solving environmental problems, and tools for collaborative conservation planning. After attending the program, Kinship Fellows remain on the forefront of market-based conservation. They contribute thought leadership to the community by organizing webinars, regional chapters, and affinity groups, and writing for the Kinship blog (www.thekinshiplens.com).

The Woodland Carbon Code (*www.forestry.gov.uk/carboncode*) is a new voluntary standard for woodland creation projects in the UK which will make claims about the carbon dioxide they sequester. The development of the Code has been led by the Forestry Commission with support from expert stakeholders in the carbon, business and land-use sectors. Compliance with the code means that woodland carbon projects are responsibly and sustainably managed to international standards and that a robust approach has been taken to estimating the amount of carbon that will be sequestered or locked up as a result of the tree planting. All projects seeking certification under the Code must be publicly registered and independently verified, and must meet transparent criteria and standards to ensure that real and additional carbon benefits are delivered. The Code is intended to underpin market confidence in woodland carbon projects and thereby attract additional investment in creating new woodlands in the UK.

The Family of Forest Trends Initiatives

Using innovative financing to promote the conservation of coastal and marine ecosystem services

Ecosystem Marketplace

A global platform for transparent information on ecosystem service payments and markets

Forest Trade & Finance

Bringing sustainability to trade and financial investments in the global market for forest products

the katoomba group

Building capacity for local communities and governments to engage in emerging environmental markets

BBOP

Business and Biodiversity Offsets Program, developing, testing and supporting best practice in biodiversity offsets

the katoomba Incubator

Linking local producers and communities to ecosystem service markets

Learn more about our programs at
www.forest-trends.org