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Turning over a New Leaf

State of the Forest Carbon Markets 2014

Executive Summary

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Ecosystem Marketplace, an initiative 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.

Ecosystem Marketplace is financially supported by organizations such as the Skoll Foundation, the Swiss Agency for Development and Cooperation, the International Climate Initiative (Germany), the Gesellschaft für Internationale Zusammenarbeit/Federal Ministry of Economic Cooperation and Development (Germany), the Gordon and Betty Moore Foundation, PROFOR (the World Bank's Program on Forests), and the Climate and Land Use Alliance, as well as sponsors and supporters of our reports.

Forest Trends is a Washington, DC-based international non-profit organization whose mission is to maintain, restore, and enhance forests and connected natural ecosystems, which provide life-sustaining processes, by promoting incentives stemming from a broad range of ecosystem services and products. Specifically, Forest Trends seeks to catalyze the development of integrated carbon, water, and biodiversity incentives that deliver real conservation outcomes and benefits to local communities and other stewards of our natural resources.

Forest Trends analyzes strategic market and policy issues, catalyzes connections between producers, communities and investors, and develops new financial tools to help markets work for conservation and people.

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Executive Summary

A Report by Forest Trends' Ecosystem Marketplace

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Edited by: Molly Peters-Stanley

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Acknowledgments:

This report is a compilation of the insights of a wide range of individuals across several continents. It would not be possible without the hundreds of individuals who shared critical information about their organizations.

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Executive Summary

Protecting the world's forests has gained greater visibility as countries battle the often deadly consequences of a warming climate. While some experts believe it may already be too late to prevent global temperature increases beyond 2 degrees Celsius, the more optimistic believe catastrophic climate shifts are preventable – and halting deforestation is key to these efforts. In service of that goal, last year stakeholders around the world purchased 32.7 million tonnes ($MtCO_2e$) of carbon offsets generated by forestry and land-use interventions at a combined value just shy of $200 million.

This level of investment matches 2010's record market activity, resulting in the most-ever annual emissions reductions financed through market-based mechanisms that pay for avoiding deforestation (REDD), planting trees, or adjusting forest management or agricultural practices to enhance carbon sequestration. These activities are beginning to scale up to the state and country level as jurisdictions gradually move from REDD "readiness" to "payment-for-performance". Even at the project level, REDD comprised two-thirds of forest carbon offset transactions last year as private sector buyers injected millions towards halting tropical deforestation.

Summary of Key Report Findings, 2013

- The global markets for offsets from agriculture, forestry, and other land-use projects transacted 32.7 $MtCO_2e$ in 2013, a 17% increase from 2012 and tying with 2010 for the highest demand tracked in this report series.
- Cumulative market value topped $1 billion last year, though 2013's value of $192 million represented an 11% drop from 2012 as average offset prices fell to $5.2/$tCO_2e$, down from $7.8/$tCO_2e$.
- Forest carbon projects provided many "beyond carbon" benefits in 2013, including 9,000 jobs; 13 million hectares of habitat for endangered species; and $41 million in education, health care, and infrastructure.
- Voluntary offset buyers purchased the majority (89%) of forest carbon offsets in 2013, led by energy utilities and food and beverage companies seeking to meet corporate social responsibility commitments or demonstrate industry leadership on climate change. Compliance buyers in California and Australia sought forestry offsets to meet carbon regulations.
- Demand for REDD offsets nearly tripled to 24.7 $MtCO_2e$, with Latin America-based projects behind 70% of these sales. A/R was the most popular project type by count (60 projects), though demand for these offsets continued to decline alongside CDM demand. IFM projects transacted just 2.7 $MtCO_2e$ as North American developers waited to transition into California's compliance market.
- An early example of public sector "payment-for-performance" for REDD was evidenced in the state of Acre, Brazil, which secured a $40 million agreement with German development bank KfW, for 8 $MtCO_2e$ in emissions reductions. Dozens of other jurisdictional REDD programs are under development.
- Projects developed according to VCS methodologies transacted 14.6 $MtCO_2e$, or 46% of all market activity. Another 12.6 $MtCO_2e$ used an internal or proprietary standard.
- Thirty-seven projects – the most ever recorded in this report series – were developed on land under collective management. Communities owned at least 3.8 $MtCO_2e$ of the offsets transacted in 2013, earning more than $8 million in new contracts.

Voluntary buyers purchased the largest share of transacted offsets in 2013 – most often to meet corporate social responsibility (CSR) commitments or to demonstrate leadership on climate change within their industry. However, compliance-driven purchases are set to gain an expanded foothold in the market due to expected increases in demand from new carbon markets such as California's cap-and-trade program or emerging carbon pricing regulations in South Africa and China.

Methodology

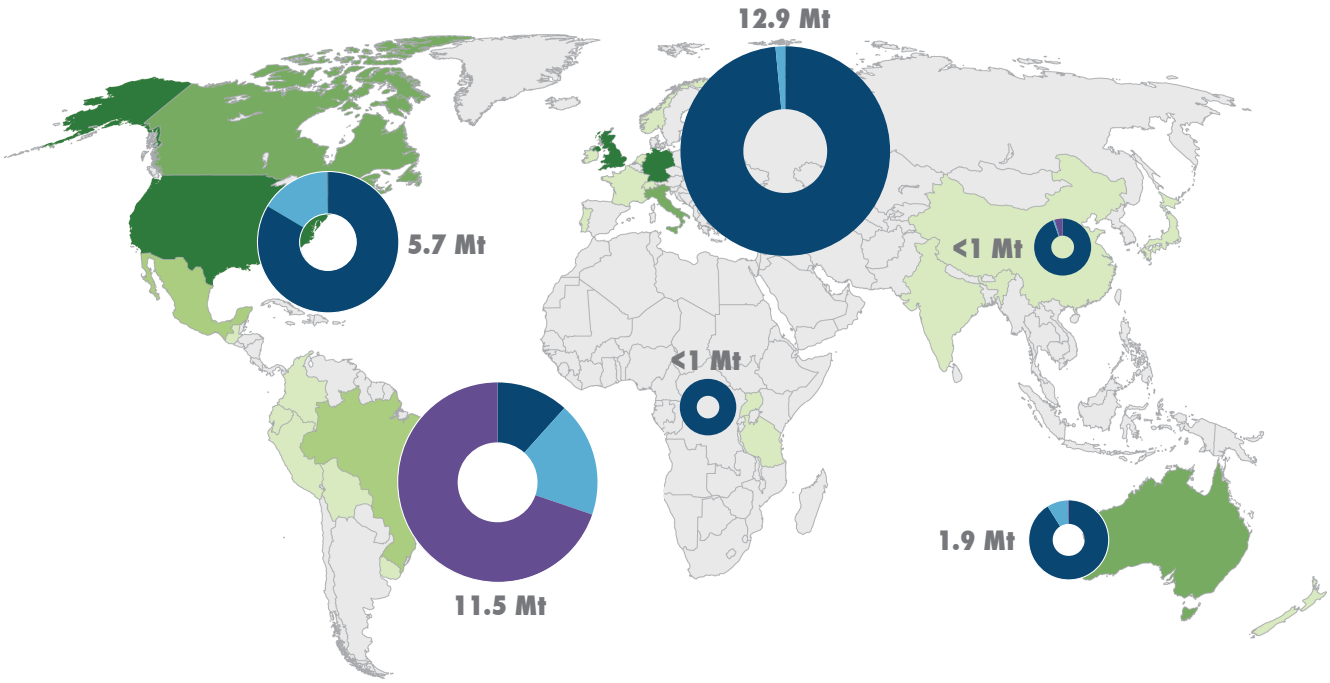
The forest carbon market is comprised of thousands of discrete interactions among buyers and sellers that collectively spend millions of dollars on reducing emissions from deforestation and sequestering carbon through changes in land-use activities. This report series aims to shed light on the nature and impact of these transactions by collecting quantitative data on offset volumes and prices.

Our global annual survey goes out to hundreds of forest carbon project developers and offset retailers active in the market. A total of 159 agriculture, forest, or land-use (AFOLU) projects reported detailed data on 2013 project activities. Historical analysis is also informed by another 258 projects that provided data in previous years.

Suppliers from 39 countries transacted offsets in 2013. Project developers and retailers were headquartered on six continents: 36 in North America, 34 in Europe, 33 in Latin America, 16 in Oceania, 12 in Asia, and 5 in Africa. Figure 1 illustrates regional response rate by country and profit status.

This report tracks both compliance carbon markets that include forest carbon offsets and voluntary demand for forest carbon offsets. We consider "transactions" to occur at the point of contract when suppliers and buyers agree to the terms of offset delivery and payment, which may occur immediately on the spot market, or in future years.

Figure 1: Response Rate by Country, Transacted Volume by Developers' Headquarters Region, and Market Share by Developers' Profit Status



Map key: Response Rate by Country: 1+ 5+ 10+ 20+

Chart key: Market Share by Developers' Profit Status: For-Profit / Private Sector; Not-for-Profit / NGO; Public Sector / Government

Notes: Based on 32.7 $MtCO_2e$ in transactions reported by 136 forest carbon offset project developers and retailers.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Market 2014.*

Table 1: Comparison of 2012 and 2013 Forest Carbon Markets' Transactions Volumes, Values, and Average Prices, All Markets

MARKET*	Volume		Value		Average Price	
	2012	2013	2012	2013	2012	2013
Voluntary	22.3 M	29.0 M	$147 M	$140 M	$7.6	$4.8
California**	1.5 M	1.7 M	$12 M	$16 M	$8.2	$9.4
Australia CFI**	2.9 M	1.5 M	$38 M	$32 M	$13.3	$20.8
CDM/JI	0.5 M	0.0 M	$0.6 M	$0.2 M	$1.1	$6.0
NZ ETS	0.2 M	0.0 M	$1.9 M	-	$7.9	-
Other	0.6 M	0.4 M	$15.6 M	$3.9 M	$25.3	$9.8
Voluntary Total	27 M	29 M	$198 M	$140 M	$7.7	$4.8
Compliance Total	1 M	4 M	$18.1 M	$52.4 M	$10.5	$9.7
Grand Total	28 M	32.7 M	$215.8 M	$192.1 M	$7.8	$5.2
Primary Market	22 M	30 M	$137 M	$153 M	$7.5	$5.0
Secondary Market	6.3 M	2.2 M	$57 M	$16 M	$9.8	$6.9

Notes: Based on 32.7 $MtCO_2e$ in transactions reported by 136 forest carbon offsets project developers and retailers.
*See acronyms list for explanation of market abbreviations. Totals in this chart may not add up perfectly due to rounding.
**The California and Australia markets were pre-compliance in 2012 but transitioned to compliance in 2013.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

Market Overview: 17% Increase in Demand, but Offset Prices Decline

The global markets for AFOLU offsets transacted 32.7 $MtCO_2e$ in 2013, representing a 17% increase in demand for forest-based emissions reductions over 2012 and tying with 2010 for the highest transaction volumes tracked in this report series. More than 80% of offsets transacted from projects that reduce emissions from deforestation (REDD), and the majority of those were sourced from Latin America, which tripled from 2012 activity and held almost half of overall market share last year.

Cumulative market value topped $1 billion, comprised of both payments for existing offsets and early-stage project investments over time. However, despite notable growth in the demand for forest carbon offsets, global market value totaled $192 million last year, the lowest value tracked since 2010, as average global prices fell by more than two dollars per tonne, to $5.2/$tCO_2e$ in 2013 from $7.8/$tCO_2e$ in 2012.

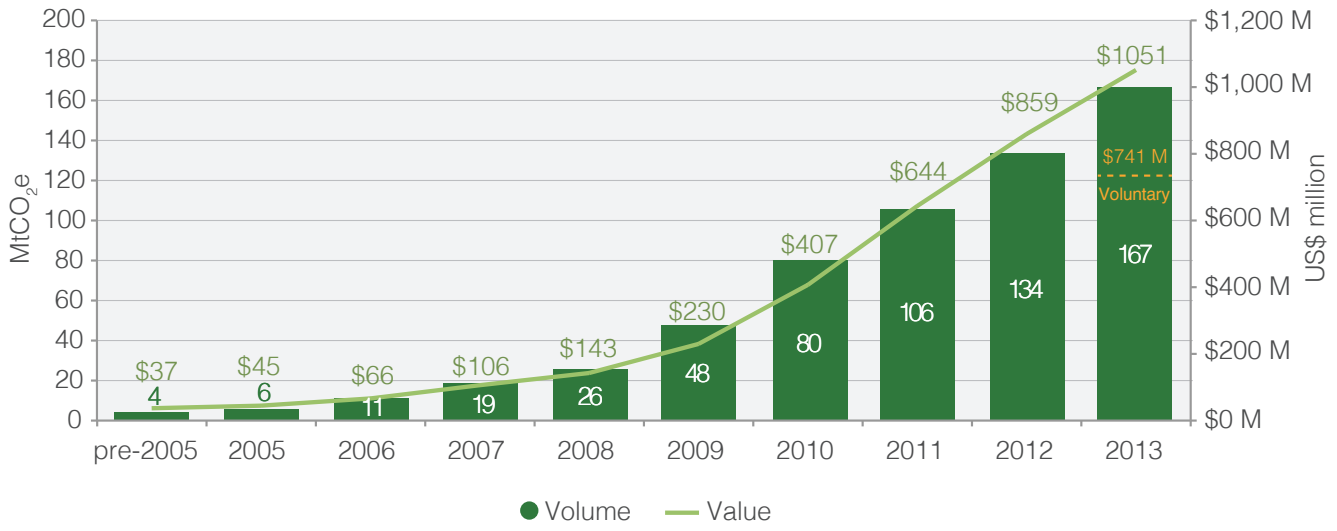
Prices for forest carbon offsets ranged from less than $1/$tCO_2e$ for "legacy" offsets sold on the Chicago

Figure 2: Relationship Between Volume and Price in Forest Carbon Markets, 2010-2013

Notes: Based on responses associated with 119.2 $MtCO_2e$ from the State of the Forest Carbon Markets reports 2011-2014.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

Figure 3: Cumulative Forestry Offset Transaction Volume and Value, All Markets



Notes: Based on data reported by 418 forest carbon and land-use project developers and countless suppliers over nine years.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

Climate Exchange (CCX) to over $100/tCO$_2$e for improved forest management (IFM) offsets sold to Japanese buyers purchasing domestic offsets as part of the country's proprietary J-Credit Scheme.

Forest carbon offsets transacted for compliance garner higher prices compared to voluntary offsets largely because offsets are used as a cost-containment mechanism on compliance markets. While voluntary buyers paid an average of $4.8/tCO$_2$e for forest-based emissions reductions, compliance buyers paid an average of $9.7/tCO$_2$e.

As Figure 2 illustrates, volume and price in the forest carbon market have been inversely related over the past four years, reflecting classic supply-and-demand dynamics in a market that has a stable but currently limited buyer base.

Project Types: REDD Volumes Triple While A/R, IFM Bide Their Time

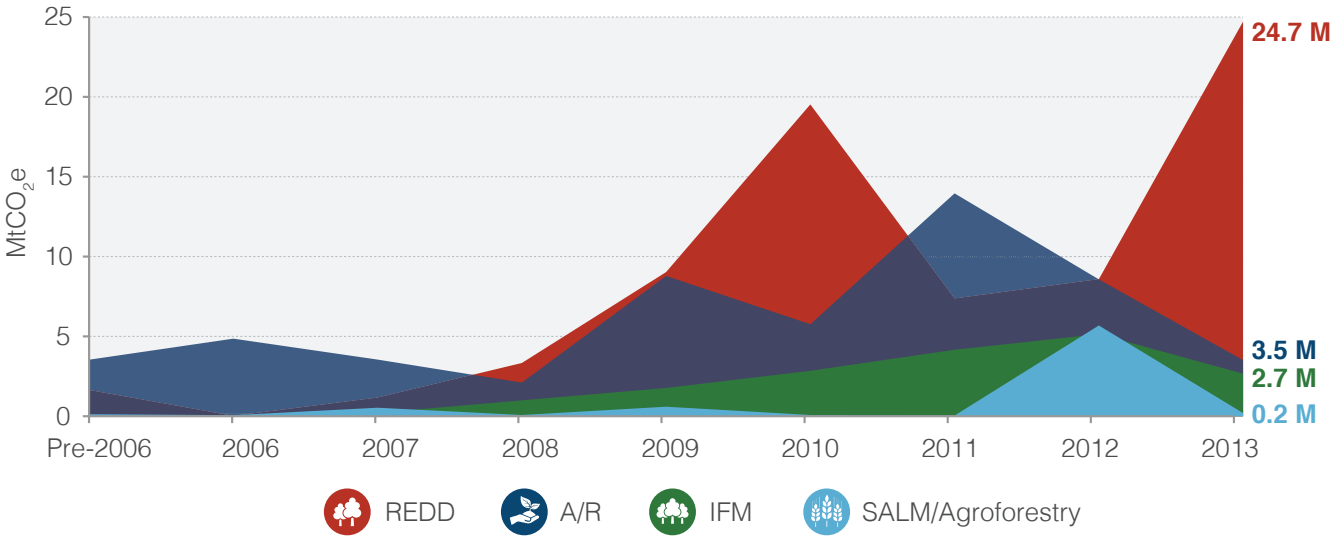
REDD project developers and retailers transacted a record 24.7 MtCO$_2$e REDD offsets last year, accounting for more than half of total market value and tripling volumes from 2012. Avoided deforestation projects now cover almost 20 million hectares, about the size of the forest area of Malaysia.

The higher transactions volume, however, occurred at lower prices, with the average REDD offset selling for $4.9/tCO$_2$e in 2013 versus $7.8/tCO$_2$e the previous year. Only one in 10 REDD offsets transacted at a price point above $7/tCO$_2$e last year, while roughly one in four tonnes sold at less than $3/tCO$_2$e. No REDD project sold offsets at under a dollar in 2013. REDD prices were lower this year partly because many of the world's largest REDD projects verified sizeable volumes of offsets in 2013, leading to ample supply.

Afforestation/Reforestation was the most popular project type according to the number of transactions reported, with 60 active A/R projects tracked that planted trees across 1.6 million hectares on six continents. However, transaction ***volumes*** from tree-planting projects were a far-off second from REDD at 3.5 MtCO$_2$e and continued to decline from A/R's peak transaction volume of 14 MtCO$_2$e in 2011. This is partly due to a drop-off in compliance demand from Kyoto Protocol signatories that used A/R CDM offsets to meet emissions reductions goals ahead of the end of 2012 deadline.

A/R offsets transacted at the highest prices of any project type, selling at an average of $9.5/tCO$_2$e. As a result, these projects contributed disproportionately (20%) to market value as buyers spent $31.3 million on tree-planting efforts last year.

Figure 4: Transacted Offset Volumes by Project Type, All Markets, Historical



Notes: Based on data reported by 159 projects and 50 additional offset suppliers in 2014, as well as more than 500 projects reported historically.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

After years of steady growth, IFM projects saw their first dip in transaction volumes last year amid lengthy approval processes for these projects in the California cap-and-trade market. Across all regions, buyers contracted 2.7 $MtCO_2e$ of IFM offsets at a total value of $19.9 million, a decrease from the 5.1 $MtCO_2e$ transacted in 2012.

Market experts attributed the lower transaction volume to the fact that many North America-based IFM projects were holding onto tonnes as they transitioned to sell into the California cap-and-trade market. Early-action IFM projects began listing on California Air Resources Board's (ARB) registry in March 2013, and regulators issued the first compliance IFM tonnes more than a year later. The average IFM offset sold for $7.6/$tCO_2e$ in 2013, boosted by California's higher compliance prices.

After a bumper year in 2012, SALM projects – which included agroforestry and grasslands management – transacted just 0.4 $MtCO_2e$ last year from developed-country projects located in Europe, North America, and Oceania. The decline is directly attributed to the delayed winding down of offset transactions from agricultural and land-based projects originally developed for sale on the now-legacy CCX. But more projects in developing countries may be on the horizon as emerging project types are expanding the definition of "forests" to include mosaics of crops and trees, coastal and savannah ecosystems, and other landscapes.

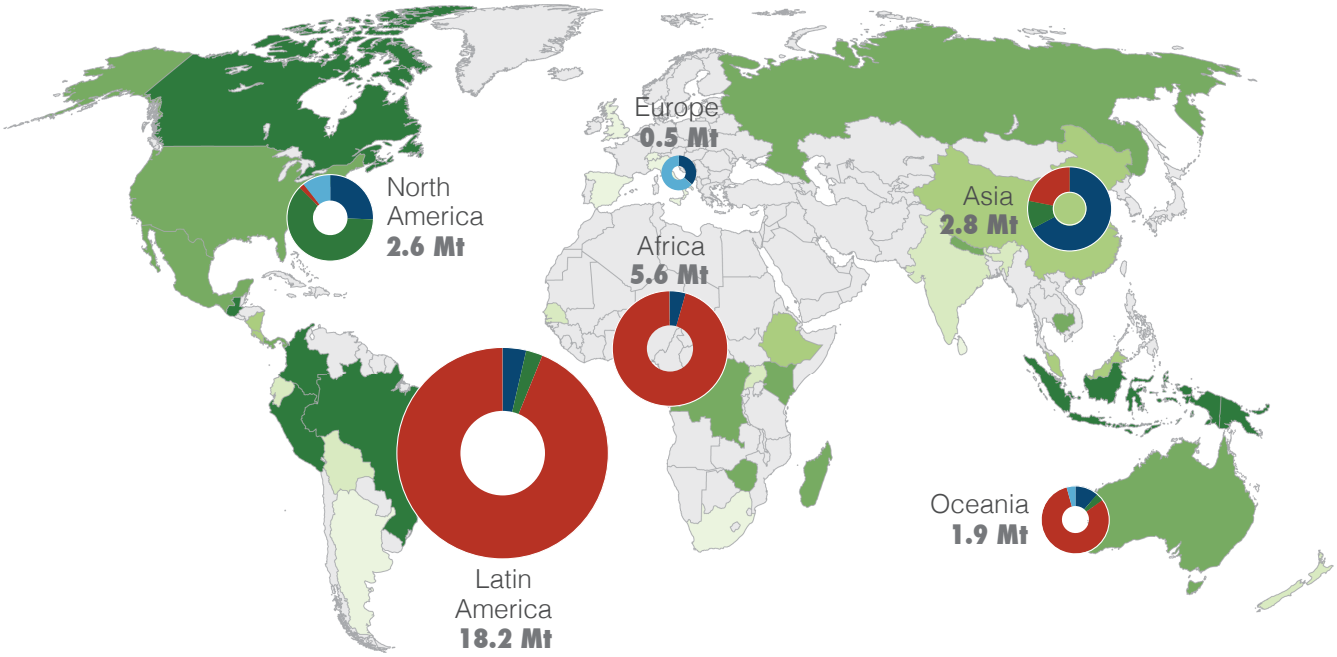
Project Locations: Latin America, Africa Set New Records

Project developers revealed that 30 million hectares were under forest carbon management in 2013, a 13% expansion from the 26.5 million hectares tracked in 2012. REDD, IFM, and A/R projects covered nearly the land area of Vietnam. Of that area, 11.9 million hectares (about 40% of the total) were associated with projects that completed transactions last year.

Projects based in Latin America transacted three times the forest carbon offsets of any other region as projects that reduce Amazonian deforestation captured buyers' attention. Brazil supplied the most offsets of any country, transacting 11.8 $MtCO_2e$ from 13 projects. At 5.1 $MtCO_2e$, Peru supplied the second-largest volume worldwide, with 14 projects transacting tonnes last year. Projects in Mexico, Guatemala, Argentina, Colombia, Bolivia, and other countries also contributed to Latin America's breakout volume in 2013.

At 5.6 $MtCO_2e$, Africa also set a new record for forest carbon transactions as countries such as Zimbabwe, the Democratic Republic of Congo (DRC), Kenya, and

Figure 5: Hectares Impacted by Country Location, Total Regional Transaction Volume and Share by Project Type (Total Hectares by Country and % Share)



Map key: Hectares Impacted: 100+ 10,000+ 50,000+ 100,000+ 1,000,000+

Chart key: Transaction Volume and Share by Project Type: A/R IFM REDD SALM/Agroforestry

Notes: Based on responses associated with 30.1 million hectares of carbon project area and 29.4 $MtCO_2e$ transacted.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014*.

Uganda committed to major initiatives to conserve their tropical forests.

A growing focus on addressing deforestation in Asian countries has not yet translated into increased transactions, which fell by nearly 40% in the region last year. However, Indonesia and other Asian countries accelerated their REDD+ readiness efforts in an attempt to access the millions of dollars earmarked by Norway and multilateral funds to stop deforestation.

While the United States hosted the most forest carbon projects of any country (24), North American projects transacted 2.6 $MtCO_2e$ in 2013, a more than 60% decline from the previous year. However, compliance buyers in California bought 1.7 $MtCO_2e$ – a slight increase from pre-compliance demand in 2012 – so the smaller transaction volume from North American projects is entirely due to a decline in voluntary demand for offsets sourced in the region.

Transaction volumes from Oceania-based projects dropped back to the level of 2011 volumes, before the (brief) implementation of Australia's carbon tax drove up 2012 demand.

Project Co-Benefits: Jobs, Jaguars, and More

Ecosystem Marketplace explicitly tracked forest carbon projects' co-benefits – those benefits that go beyond the mitigation of GHG emissions – including jobs, women's empowerment, climate change adaptation, and more. Project developers are increasingly measuring and monitoring these benefits as buyers demand to know the "story" behind the offset.

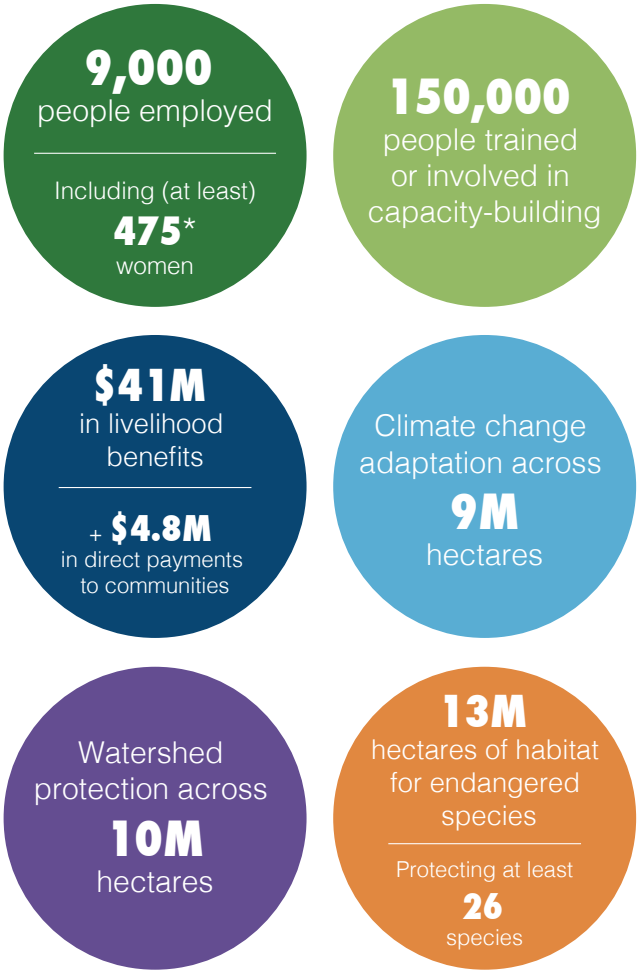
Direct employment and training and capacity-building were the most commonly-reported co-benefits of forest carbon projects. Nearly half of all projects tracked last year employed local community members, providing jobs to more than 9,000 people. Another 150,000 people were trained in new skills or participated in capacity building activities, often around REDD readiness.

Projects that reforest degraded areas or keep tropical forests standing also provide benefits to biodiversity.

Developers reported their project areas protected habitat for dozens of endangered species, including charismatic mega-fauna such as orangutans, koalas, African elephants, cheetahs, jaguars, giant armadillos, and bonobos. Project developers also reported on a myriad of watershed protection benefits such as decreased erosion and flood protection.

Thirty-six projects provided direct payments to communities totaling at least $4.8 million last year; another 35 projects offered in-kind livelihood benefits such as education, infrastructure, and health care services worth at least $41 million.

Figure 6: Project Co-benefits: Key Impacts, 2013



Notes: Based on responses representing at least 75 projects. *The number of women employed is out of 2,000 jobs that specified gender, not the 9,000 total jobs.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

Land Tenure and Communities: Getting It Right

Debate surrounding land tenure – the legal structure that determines how lands can be used by individuals and communities – has continued to heat up as the development of UN-REDD creates the potential for large-scale financing to flow to tropical forest countries, many of which have undefined or unclear land tenure spanning millions of hectares.

Last year, Ecosystem Marketplace tracked 37 projects situated on land under collective or customary ownership by communities – the most-ever recorded in this report series. The majority of these projects are located in Latin America (16 projects) and Africa (10 projects). Ten projects were implemented on government-owned land or concessions as well as community-owned hectares. Amid uncertainties among private sector project developers and a growing emphasis on public finance and bilateral agreements, only 18 forest carbon projects reported private land ownership in 2013.

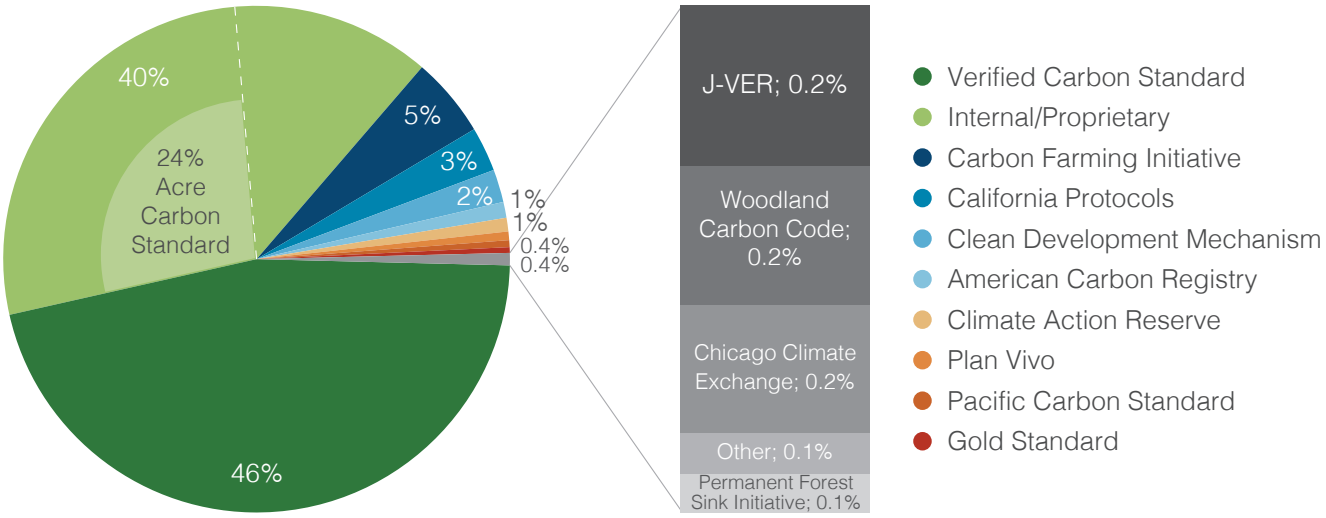
Overall, this report survey reveals that communities owned at least 3.8 $MtCO_2e$ of the offsets transacted last year and earned more than $8 million from new contracts. The majority of these tonnes transacted from projects in Africa, where communities sold 3.1 $MtCO_2e$ for almost $5 million, or 25% of market share in the region.

Standards: Old Favorites, with a New Independent Streak

Over the years, leading independent third-party standards in the voluntary market have jostled for market share – in the process refining their guidelines to facilitate methodologies that enable new AFOLU project types. Governments around the world continue to look to and even borrow best practices from these voluntary standards in devising their compliance offset markets.

Verified Carbon Standard (VCS) was again the most popular standard for AFOLU projects last year. Ecosystem Marketplace tracked 93 projects developed under, about two-thirds of which transacted offsets in 2013 – a total of 14.6 $MtCO_2e$. VCS's 46% market share represents about a 10% decline from 2012 as internal and proprietary standards made a surprising comeback after years of consolidation. These "internal" standards are each used in only one or two projects

Figure 7: Market Share by Standard/Certification Type, All Markets 2013



Notes: Based on the 32.2 $MtCO_2e$ transacted under a standard in 2013.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

or by a single project developer. The largest internal standard is the Acre Carbon Standard, used by the Brazilian state to track performance against emissions reductions targets as Acre continues its pilot under VCS JNR.

Australia's quasi-compliance-driven Carbon Farming Initiative (CFI) was again the third-most used standard in 2013, though market share dropped from 10% to 5% following the repeal of Australia's carbon tax. Conversely, the volume of forestry offsets developed according to California's Compliance Protocol nearly doubled in transaction volumes from 2012 as the state's cap-and-trade program officially launched in 2013.

Use of co-benefits and land area certifications was prevalent in 2013 as buyers sought out forest projects that provided livelihood and ecosystem benefits alongside carbon sequestration. Of the 16.3 $MtCO_2e$ transacted under an independent standard, 81% also verified the delivery of co-benefits under CCB (11.8 $MtCO_2e$) or certified sustainable land area attributes under FSC (3.2 $MtCO_2e$) or Rainforest Alliance (0.5 $MtCO_2e$) within the same area that houses forest carbon projects.

Buyers: Private Sector Feels the Heat

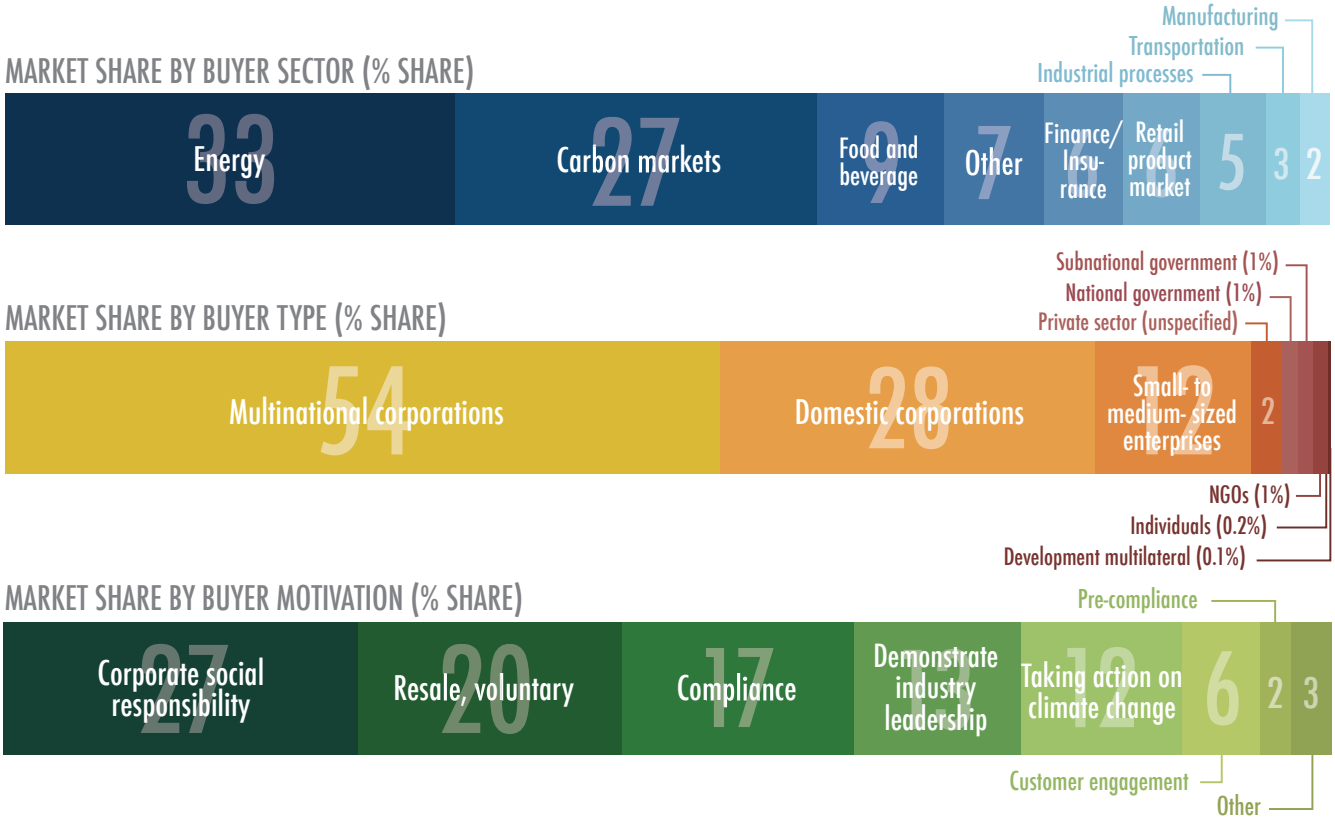
The majority of forestry tonnes – a total of 29 $MtCO_2e$ – were transacted to voluntary buyers using offsets to meet corporate social responsibility (CSR) commitments or to demonstrate leadership on climate change within their industry. Compliance buyers also purchased forest carbon offsets in 2013 to meet mandated caps on their industries' emissions or as a less expensive mitigation option in jurisdictions with a carbon tax. Reflecting a market still geared towards voluntary buyers, CSR was the most common buyer motivation last year, behind 27% of transactions. Another 25% of buyers invested in forest carbon projects to "demonstrate industry leadership" (13%) or "take action on climate change" (12%).

For the first time in this report series, offset retailers were ***not*** the largest source of forest carbon offset demand as the secondary market conceded market share to project developers selling directly to end-users. Energy companies stepped up as the top buyer sector, purchasing more than 5 $MtCO_2e$, or one third of the offsets associated with a buyer last year. Food and beverage companies were also a prominent buyer sector last year, purchasing at least 1.3 $MtCO_2e$.

European buyers were again the largest source of demand for forestry emissions reductions in 2013, purchasing two-thirds of tonnes associated with a buyer and comprising the largest source of demand for projects based in Latin America, Asia, and Africa. Europeans buyers also purchased half a million tonnes of forestry offsets within insular domestic markets including the UK's Woodland Carbon Code (WCC) and Italy's "zero emissions" provinces.

Compliance-motivated purchasing rose in North America after California officially launched its cap-and-

Figure 8: Market Share by Buyer Sector, Type, and Motivation



Notes: Based on 212 buyer types as described by survey respondents.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014*.

trade program in January 2013. Overall, North American projects transacted approximately 60% fewer offsets than the previous year, owing to a decline in voluntary demand for offsets as CSR budgets in the region tightened or transitioned toward other environmental initiatives such as energy efficiency projects.

As proponents of Australia's CFI feared, 2012's $40-million influx of carbon payments was not repeated in 2013 because of the anticipated repeal of the country's carbon tax. Oceania was nevertheless the fifth-largest source of demand for forest carbon offsets in 2013, transacting 1.5 $MtCO_2e$ – roughly half of previous volumes. New Zealand, home of the world's second-oldest Emissions Trading System (ETS), chose not to participate in the second phase of the Kyoto Protocol, and forestry project transactions nearly ground to a halt due to competition from less expensive international offsets.

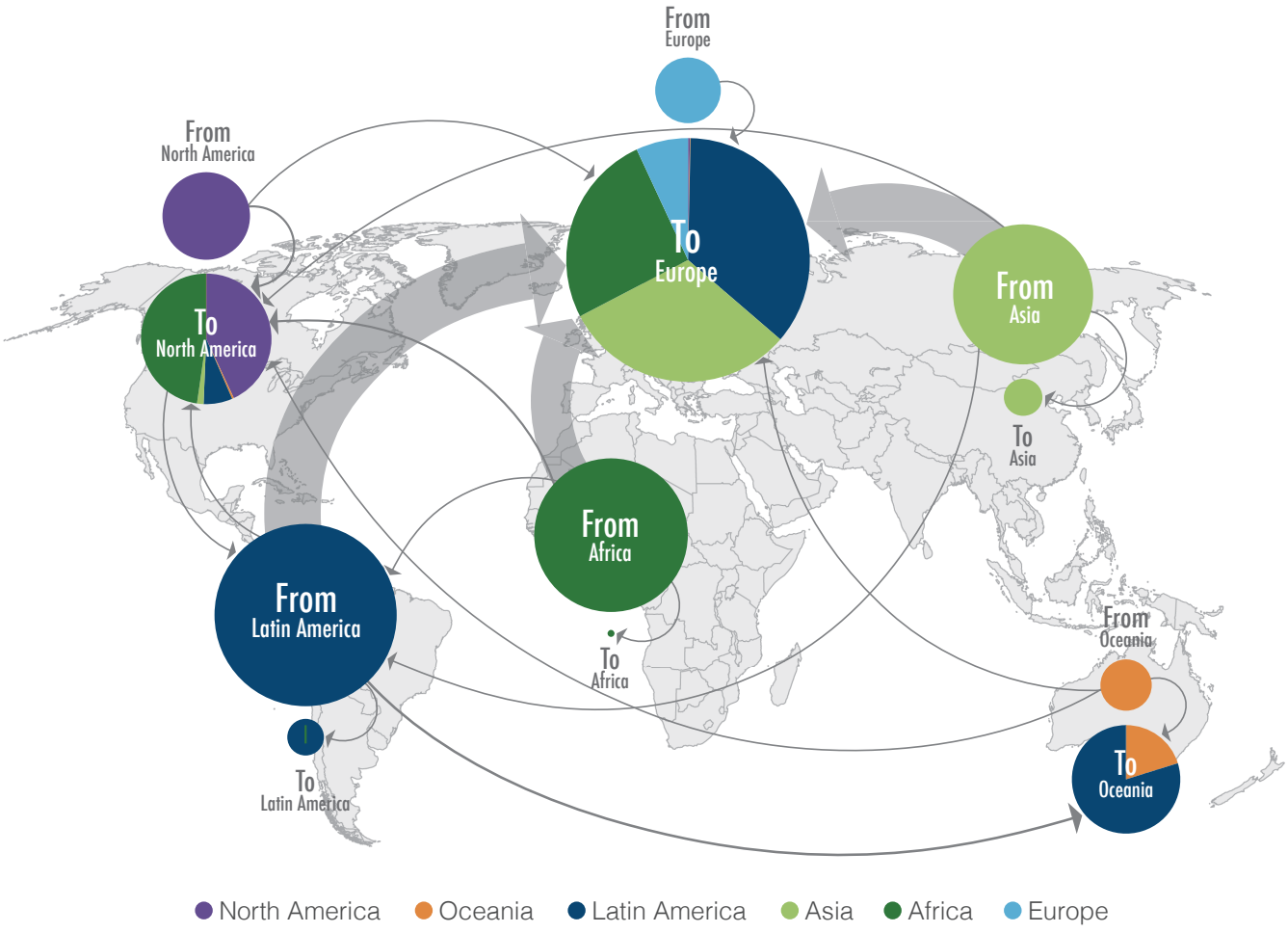
Buyers in developing countries contracted just 0.3 $MtCO_2e$ last year, though this demand was spread across six countries, including 15 transactions with Mexican companies and six with buyers in Peru. This demand was mostly contained within the continent: Latin American buyers purchasing offsets from Latin American projects and Africa-based companies buying from African-based projects.

Forest Carbon Finance: The Big Picture

The cumulative value of payments for emissions reductions from forest carbon projects over the years topped $1 billion this year, with a record $100 million flowing to REDD projects in 2013 alone. However, market observers frequently considered project-level funding, which is mostly coming from the private sector, to be a "drop in the bucket" compared to the many billions that developed-country governments are expected to commit to reducing deforestation in developing countries.

Forest Trends' REDD Expenditures Tracking Project (REDD*X*) tracked $4.5 billion in REDD commitments to 14 tropical forest countries in the last few years – a figure that indeed dwarfs project-level finance. However, less than $0.6 billion has so far been disbursed to recipient governments, according to REDD*X*. An even smaller figure is likely to reach pilot project-level activities – at least in the short term.

Figure 9: Flow of Transacted Volume from Project Region to Buyer Region, 2013 (% Share)



Notes: Based on 212 buyer types as described by survey respondents.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

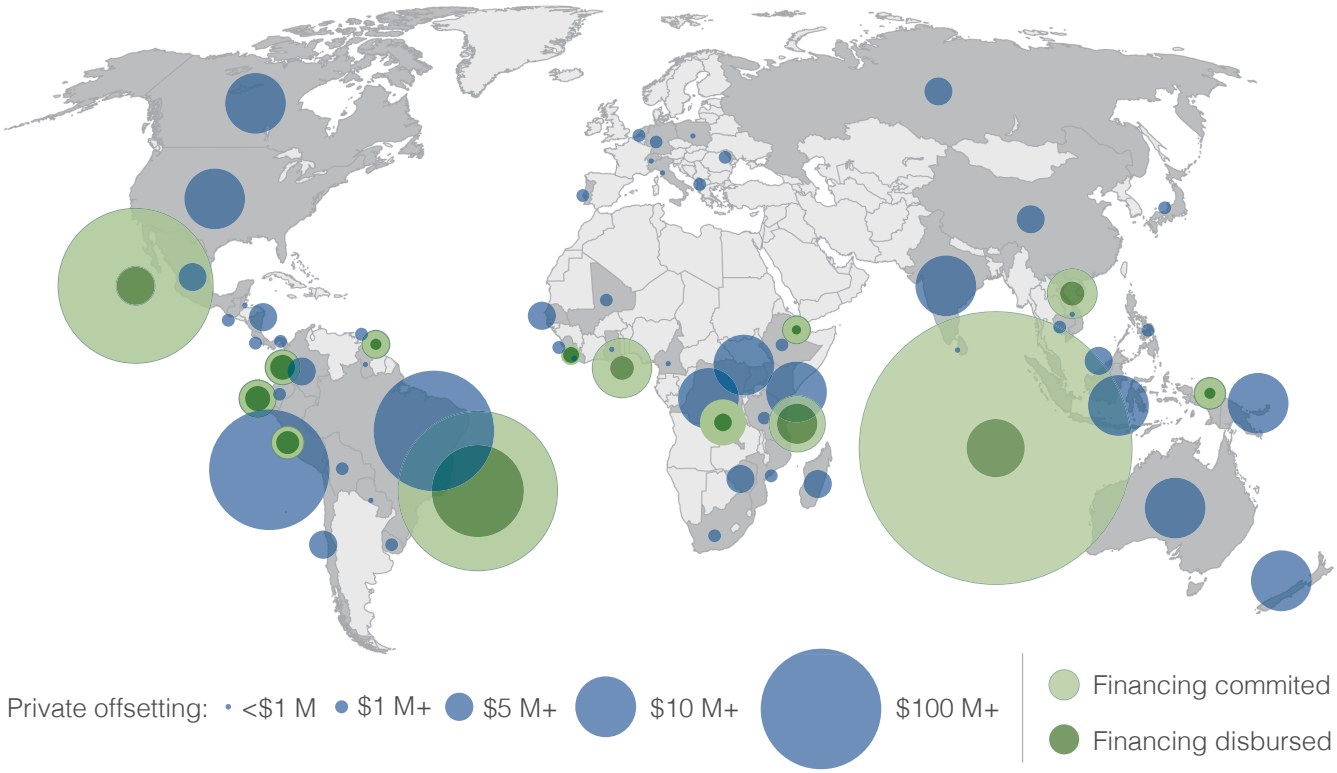
REDD*X* findings show that multilateral institutions such as the World Bank's Forest Carbon Partnership Facility (FCPF) have ramped up funding for REDD over the past few years, overshadowing the bilateral and private foundation funding supplying the bulk of funds in the "early" years of 2009 and 2010. In 2013, Finland, Germany, and Norway made new financial pledges totaling $180 million to the FCPF, which has now committed $825 million to 47 countries getting ready for or developing programs.

The majority of this funding has been disbursed through FCPF's Readiness Fund, but the institution reached a significant milestone in December 2013 when it approved the Methodological Framework for its Carbon Fund, unlocking a potential $465 million in payments for emissions reductions. There are currently 11 countries in the Carbon Fund pipeline.

It is important to note that almost all of the commitments tracked by REDD*X* are grants to help countries develop and implement a REDD strategy, not payments-for-performance in the actual reduction of forest carbon emissions, which Ecosystem Marketplace tracks in this report series. Payments for verified emissions reductions occur in the third and final phase of the UN-REDD program, and no national government has reached that stage yet.

However, select jurisdictions (e.g., states, provinces, regions) are leading the way for payment-for-performance REDD at a scale larger than the project level. In 2013, the German development bank KfW agreed to finance the reduction of at least 8 $MtCO_2e$ of emissions reductions from the Brazilian state of Acre in a $40-million agreement spanning the next four years. This agreement builds on similar financial contributions

Figure 10: Comparison of Project- and Country-Level Finance, All Years



Notes: Based on value associated with all years of tracking for the State of the Forest Carbon Markets reports and REDD*X* finance data, as of October 2014.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

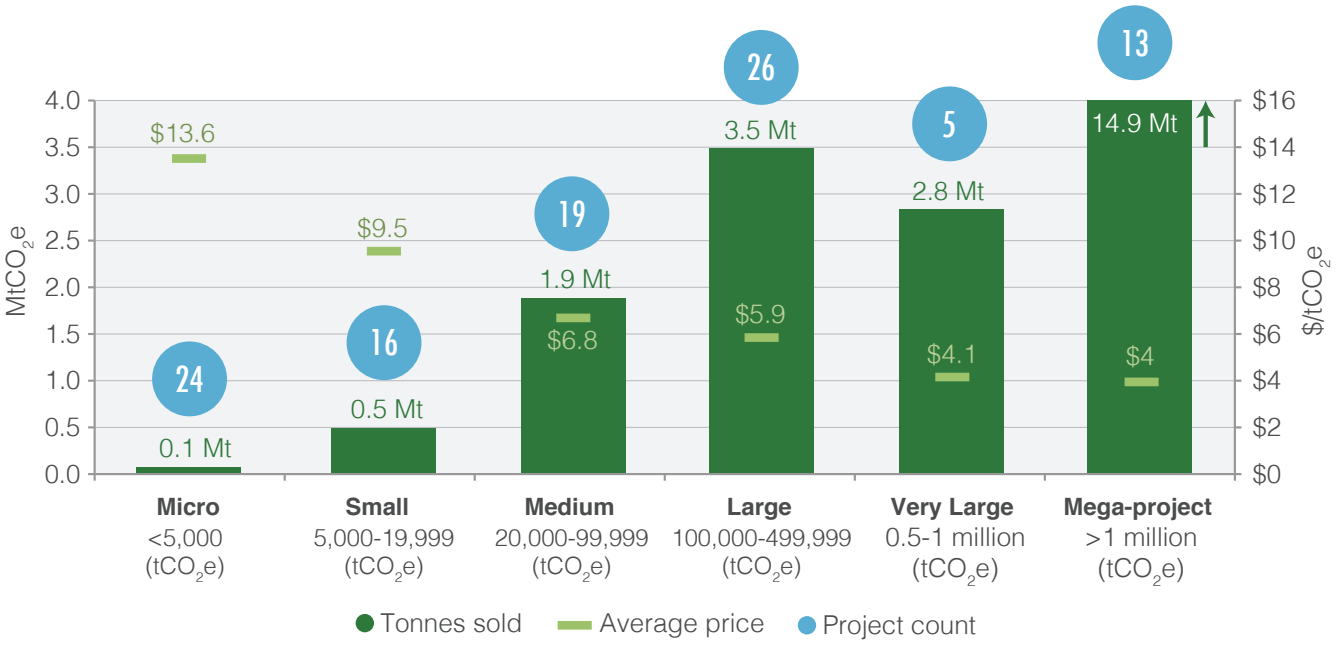
between the two governments in 2012. Dozens of other jurisdictions are developing similar programs.

Project Needs: Seeking Financial Pacesetters

Offset suppliers report struggling to identify new sources of demand that can keep pace with the growing number of forest carbon projects reaching maturity and supplying more tonnes. A record 29.5 $MtCO_2e$ of forestry offsets were issued in 2013, more than tripling available supplies from 2012. Meanwhile, project developers and retailers reported that only 11% of offsets sold last year were contracted to "new" buyers; the other 89% were sold to buyers already active in the voluntary carbon market, meaning sellers often compete for the same clients. Though voluntary offset prices vary widely, competition drove at least some sellers to accept less cash per tonne. For projects that generate and issue tens or hundreds of thousands of emissions reductions annually, developers say the volume of offsets sold – rather than the price per tonne – is more important for cash flow. As illustrated in Figure 11, project size and offset price are inversely related: the greater the project's estimated annual emissions reductions, the lower the price per offset in 2013. While there were more micro, small, and medium projects by count, projects that reduced 100,000 tCO_2e or more annually contributed 90% of the transacted volume last year – pulling down average prices. Voluntary buyers paid an average of $\$4.8/tCO_2e$ for forest carbon offsets in 2013, the lowest prices since 2009.

Across project types, developers say 2013 sales resulted in overall values far below what is needed to sustain these projects. Survey respondents reported needing between $249 million and $450 million per year to maintain currently active forest carbon projects, which have the potential to reduce between 20 $MtCO_2e$ and 36 $MtCO_2e$ annually. Clearly, this need was not entirely met by the $192 million in carbon finance that supported these projects last year.

Figure 11: Volume and Price by Project Size, 2013



Notes: Based on responses associated with 23.7 $MtCO_2e$ transacted from 103 projects that reported project size in estimated annual emissions reductions.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

Developer Predictions: Realism Reigns

In 2013, the forest carbon markets were in the midst of several shifts: the scaling up and "nesting" of avoided deforestation projects within jurisdictions; the transition from pre-compliance to compliance demand in California; buyers' evolving preferences for project types, standards, and locations; carbon pricing policies fading out in a few states and countries while new ones emerged elsewhere.

Given this state of turnover, predicting the future state of the market is no easy task. Nevertheless, Ecosystem Marketplace once again asked suppliers to "guesstimate" market size for the current and future years. Their views provide valuable insight into how suppliers of forest carbon offsets intend to navigate challenges in the voluntary and compliance-driven offset markets.

Figure 12 shows that project developers' predictions of transaction activity become more conservative in the face of policy challenges and somewhat fickle voluntary demand. This year's survey respondents estimated that the market would transact 30 $MtCO_2e$ in 2013 – a bit under the actual volume of 32.7 $MtCO_2e$.

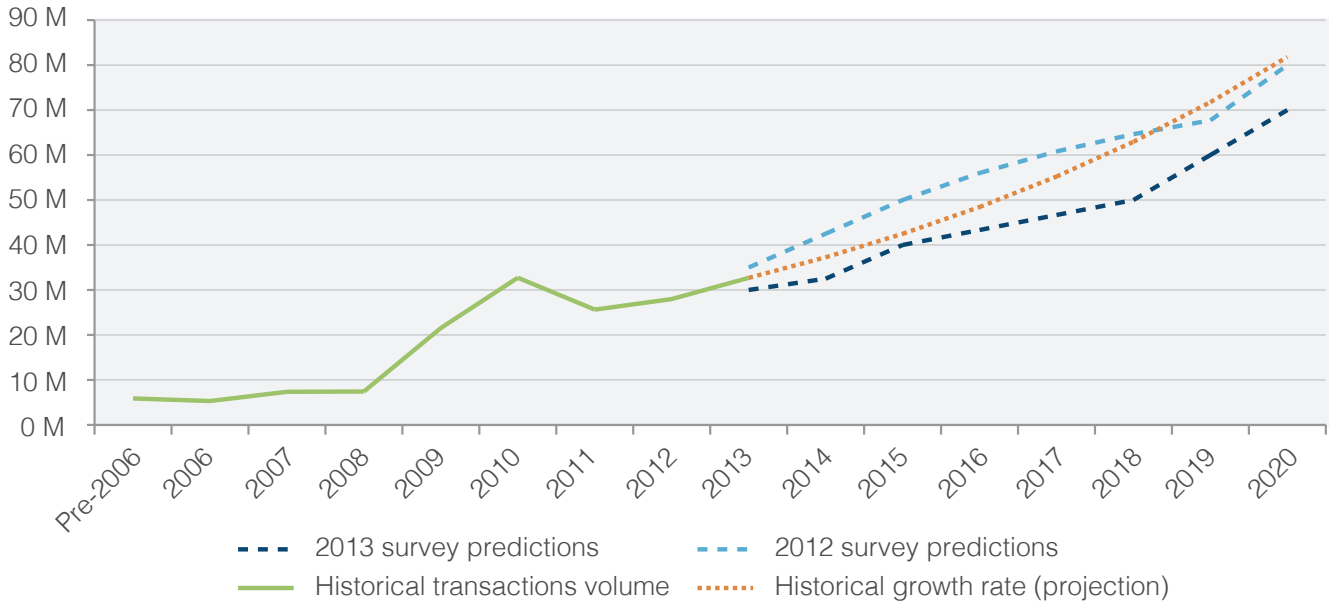
On a long-term basis, they foresee a marketplace in 2020 that is significantly smaller than was predicted by prior years' respondents. While two years ago market participants projected 93 $MtCO_2e$ of forest carbon transactions in 2020, that projection has since tempered: 2012's respondents predicted an 80 $MtCO_2e$ forest carbon market by the end of the decade, and 2013 respondents lowered their expectations even further, to 70 $MtCO_2e$ by 2020, across all market and project types.

Market participants' projections are now actually more conservative than the historical market growth rate of 14% – the year-on-year average growth between 2010 and 2013. A continuation of this historical growth rate would result in a market size of 82 $MtCO_2e$ in 2020.

While estimates of existing and future market needs abound, ranging from millions to billions of dollars, market participants point out that the cost estimates of what is needed to stop deforestation and reduce land-use emissions far outweighs the current capacity of the forest carbon markets, absent any regulatory signals or complementary market opportunities.

Substantial market expansion is ultimately tied to regulatory drivers. While recent policy announcements

Figure 12: Project Developers Predictions, All Markets, 2012-2013



Notes: Based on predictions provided by 73 survey respondents.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

— such as the New York Declaration on Forests with its aim of ending forest loss by 2030 — hold promise, they also raise all too common questions about finding the financing needed to meet these ambitious goals.

Amid significant policy uncertainty, the major stakeholders in the forest carbon markets – developers, standards, registries, analysts, consultants, communities, and buyers – are focusing on initiatives within their control. But a growing number acknowledge that they must also be ready to adapt to a rapidly changing market environment, whether that translates into increased government-to-government transactions, further momentum along the pay-for-performance path or an expanded shift from voluntary to compliance-driven project activities. Regardless of the exact nature of the evolution, the forest carbon markets are undoubtedly turning over a new leaf.

Table 2: Various Estimates of Market Reality and Future Needs, 2013 and Beyond

$192 M	$119 M	$274 M	$0.9 - $1.6 B	$2.3 B
2013 market value: ACTUAL	Value of unsold offset portfolio	2013 value if developers had received desired price	Developer estimates to fully support existing projects	Value of developers' 5-year pipeline (if sold at 2013 prices)

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

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Forest Carbon Partners (www.forestcarbonpartners.com) is an investment fund managed by New Forests. Forest Carbon Partners finances and develops forest carbon offset projects for the California carbon market. We work with family, industrial, and tribal landowners to create carbon offset projects that deliver real financial value – increasing and diversifying revenue for timberland owners. Our work delivers a reliable, high-volume supply of offsets to businesses regulated under the California cap and trade system.

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