Ecosystem Marketplace
A FOREST TRENDS INITIATIVE

Converging at the Crossroads

State of Forest Carbon Finance 2015

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About Forest Trends Ecosystem Marketplace

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, original articles, daily news feeds, 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 Swiss Agency for Development and Cooperation, the Climate and Land Use Alliance, the Good Energies Foundation, and the John D. and Catherine T. MacArthur Foundation.

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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Introduction

If you've found your way to this report, you're well aware that the world is standing at a crossroads when it comes to forests and climate change. Over the last decade, companies, governments, and communities have worked tirelessly to create new financial mechanisms they hope will reverse global forest loss and to create working landscapes that conserve carbon. Though the challenges are vast – forests may always have to compete with palm oil plantations and parking lots – the numbers embedded in this report show that forest carbon finance is on the rise.

The year 2014 saw the most payments for forest carbon offsets ever. A record $129 million flowed through compliance markets such as California and Australia with several others – Korea's, China's, and South Africa's – to possibly include forest carbon in the near future. Voluntary demand for forest carbon offsets increased, too, and several developments – including the flurry of green supply chain commitments by major commodity producers and the fact that more than 400 major companies now have an internal price on carbon – indicate that the world of private sector actors potentially interested in forest carbon interventions is quickly expanding.

At the same time, non-market payments for emissions reductions have reached $1.1 billion since 2009, with another $1.2 billion in pledges in the works. The United Nations climate negotiations in Paris this December will influence the shape and scale of these types of results-based payments in the coming years and thus the ability of at least 57 developing countries to meet "conditional" emissions reductions targets that depend on international finance.

The title of this year's report, *Converging at the Crossroads*, draws inspiration from the Robert Frost poem about "two roads diverged" that is so often cited in commencement speeches. And 2015 does mark a kind of graduation as finance to prepare countries and their institutions for avoided deforestation shifts towards payments for results. At the same time, private and public sector financing streams are converging as both companies and governments ramp up payments for emissions reductions, some through market-based transactions and others through non-market agreements – hence the change in subtitle from the *State of Forest Carbon Markets* to the *State of Forest Carbon Finance* in this sixth installment in this report series.

The crossroads represents the divergence at the center of Frost's poem – a key decision point that flows on to many others that it's a point of no return. We hope that the confluences detailed in this report inspire actors in all sectors to learn from each other's experiences as they come to their own crossroads. We are, as always, grateful to the hundreds of practitioners from every corner of the world that disclosed 2014 market data, and the dozens of individuals that contributed their expert review to this research process.

Michael Jenkins
Founding President and CEO
Forest Trends

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State of Forest Carbon Finance in 2015: An Overview

Nearly a quarter of the world's human population relies directly on forests for food, water, and shelter – and all life on Earth depends on forests for another essential ecosystem service: climate change mitigation. Deforestation and forest degradation currently contribute 10-15% of global greenhouse gas emissions. Reversing this trend will be essential to preventing runaway climate change. Financial mechanisms that put a value on the billions of tonnes of carbon stored in the world's remaining forests are beginning to change the current economic paradigm by which trees are worth more felled than standing.

In service of this goal, **in 2014, companies and governments across the globe committed $705[1] million in new finance for avoided deforestation, tree-planting, or carbon-conscious agriculture or forest management**. More than a third of this new finance was channeled through voluntary and compliance carbon markets in the form of direct market-based payments for emissions reductions in pilot initiatives across 44 countries, valued at $257 million. Developed country governments and other donors committed another $229 M in new "readiness"[2] finance to help 13 tropical forest countries[3] prepare to potentially receive international results-based payments for emissions reductions under a mechanism for Reducing Emissions from Deforestation and Forest Degradation (REDD+) under the United Nations Framework Convention on Climate Change (UNFCCC). Through the Amazon Fund, Norway's commitment to Guyana, and the REDD Early Movers program, public and private sector actors committed another $219 M in results-based finance[4] in 2014 to bilaterally pay for emissions reductions (see "Non-Market Payments," p. 20).

The largest contributor to last year's forest finance, **2014 represented a breakout year for the forest carbon markets**, with demand for forest carbon offsets reaching a record 34.4 M tonnes of emissions reductions ($MtCO_2e$). **New commitments to finance country readiness, on the other hand, dipped to an all-time low in 2014 as donors shifted efforts towards disbursing the finance from previous commitments** (see *Readiness "*Finance Fades," p. 18-19) **and as new results-based payments entered the pipeline** (see "Pending Pledges," p. 27-28).

The *State of Forest Carbon Finance 2015* report thus comes at a key moment in the world's efforts to appropriately value its forests. As readiness finance dwindles, both donor and recipient countries are navigating next steps. How will the hundreds of pilot forest carbon initiatives around the world "nest" into jurisdictional-level efforts to halt deforestation? Will the (mostly) public sector finance for REDD+ readiness effectively enable private sector payments for emissions reductions? And in turn, what can governments learn from the forest carbon markets, which have been dominated by private sector actors to date?

By looking at readiness finance and results-based payments together, the report reveals the considerable momentum that both preparation for and implementation of forest carbon finance has gained over the past decade. It also exposes the considerable remaining barriers to reaching a scale of public and private sector finance that keeps forests standing for centuries to come.

[1] In this report, "$" refers to "US$" unless otherwise noted.
[2] REDD+ "readiness" finance refers to money committed to tropical forest countries earmarked for activities that will prepare them for payments for avoided deforestation. "Readiness" encompasses Phases 1 and 2 of REDD+ under the UNFCCC (developing and implementing a REDD+ strategy) but *not* Phase 3 (payments for emissions reductions).
[3] Forest Trends' REDD*X* initiative tracks finance in 13 REDD+ countries based on partnerships with implementing governments and REDD+ Focal Points (see "Methodology," p. 35-36). These countries cover more than two-thirds of the forest area in all developing countries in the UN-REDD program.
[4] "Results-based finance" or "performance-based payments" refers to payments by governments, communities, or companies that implement pilot projects or programs to mitigate forest carbon emissions. Payments flow on the condition of emissions reductions being achieved and monitored.

Key Findings

- Across *all* years[5], Forest Trends' Ecosystem Marketplace has tracked a collective $5.1 billion (B) committed by governments, companies, and individuals to keep threatened forests standing, manage existing landscapes for carbon sequestration, or plant new trees.
- Over time, the majority of forest carbon finance ($2.8 B, tracked in 13 key tropical forest countries) has gone towards "readiness" efforts as countries prepare for Reducing Emissions from Deforestation and Forest Degradation (REDD+) while $2.4 B has been contracted through results-based payments for emissions reductions. However, the focus on readiness is fading as countries move towards implementation.
- In 2014, buyers and donors committed $705 M in new finance for forest carbon, with two-thirds of that finance ($476 M) paying for emissions reductions and one-third ($229 M) paying for REDD+ readiness.
- Payments for emissions reductions occur both through market-based transactions and through bilateral, non-market agreements. In 2014, market value reached $257 M while non-market payments totaled $219 M, as Norway and Germany committed new finance towards reducing tropical deforestation in Brazil and Guyana.
- On the carbon market side of the equation, 2014 represented a breakout year, with voluntary and compliance buyers demanding record offset volumes of 23.7 M tonnes of carbon dioxide equivalent ($MtCO_2e$) and 10.6 $MtCO_2e$, respectively. Voluntary value reached $128 M as prices recovered slightly to $5.4/tonne.
- Compliance buyers – mostly in California and Australia – spent $129 M on offsets that helped them cost-effectively meet carbon regulation in 2014, with compliance prices converging just beneath the going allowance price or the set carbon tax.
- On the supply side, the number of offsets issued has grown rapidly over the last two years, with 29.9 $MtCO_2e$ in new issuances in 2014. Meanwhile, offset retirements under the major voluntary carbon standards more than doubled over 2013's volumes to reach 10.8 $MtCO_2e$ last year.
- Despite the uptick in both voluntary and compliance market demand for offsets, forest carbon project developers reported that 51.2 $MtCO_2e$ remained unsold in their portfolios at the end of 2014. In 2014, 87% of offset transactions were for past or current vintages as supply stacked up; upfront investment in future emissions reductions fell to just one-third of market value.
- Ecosystem Marketplace's supply-and-demand model shows that by 2025, voluntary demand for forest carbon offsets is projected to exceed supply in only two of eight scenarios. However, with positive policy signals, voluntary demand is projected to reach a minimum of 106 $MtCO_2e$ in the next 10 years – up almost 350% from 2014 levels.
- California's cap-and-trade program is the key compliance market to watch in the near-term, with demand expected to ramp up as more sectors of the economy are folded under the regulation. Korea, China, and South Africa all have recently launched or upcoming carbon pricing policies that include land use, though the levels of supply and demand of forest carbon offsets on these markets are yet to be seen.
- Non-market payments for emissions reductions are expected to ramp up now that more than half of REDD+ readiness finance has been disbursed and countries are moving towards the implementation phase. A flurry of Letters of Intent and other early-stage agreements in 2013-2015 indicate that $1.2 B in results-based finance is currently "on the table" to be committed to tropical forest countries in the next few years.
- All eyes are on the Paris climate talks to see whether an international climate agreement will pave the way for the expansion of results-based payments for avoided deforestation. So far, 57 developing countries' climate plans include potential emissions reductions that are "conditional" on international finance and 29 specifically mention REDD+.

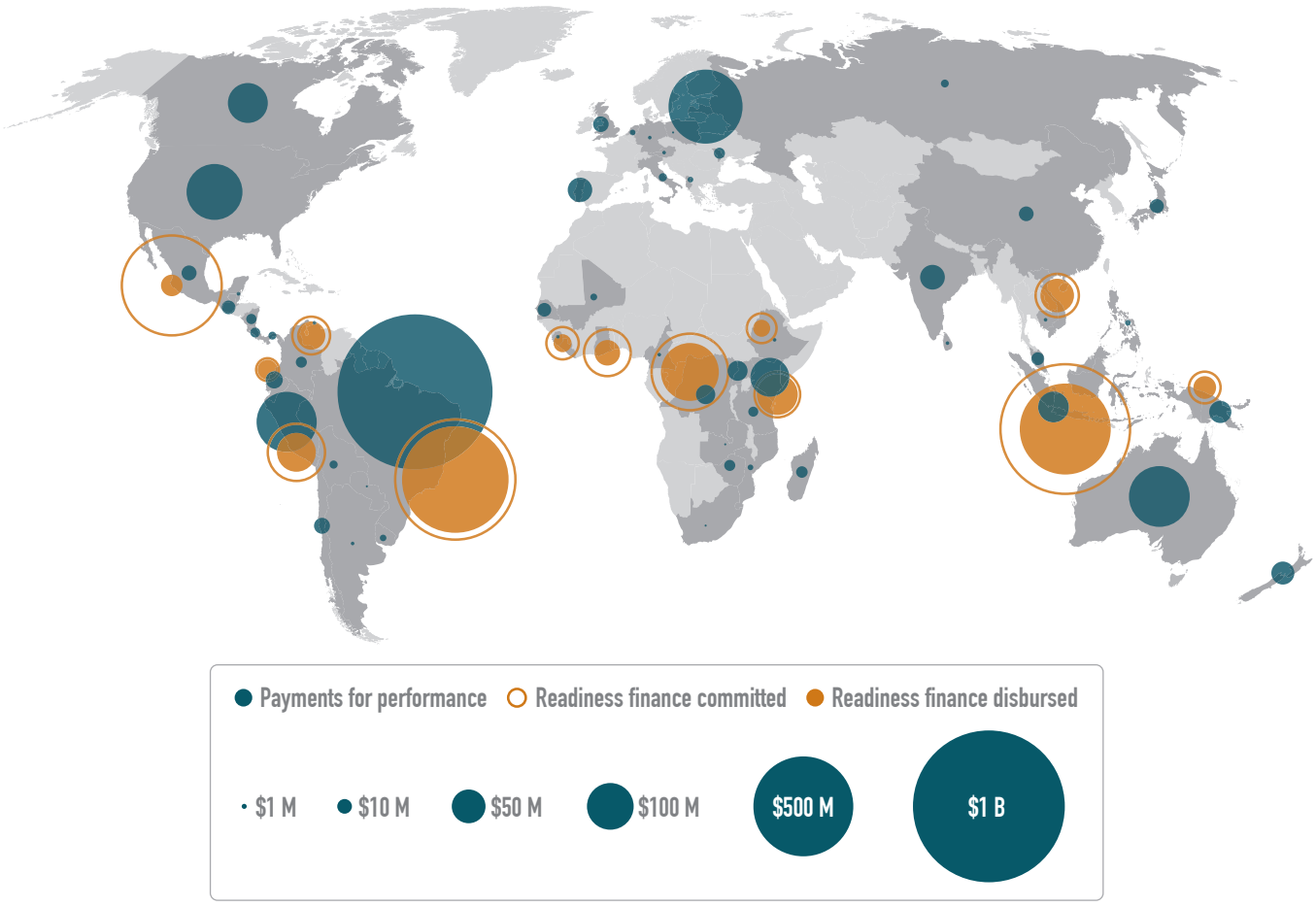
[5] "All years" refers to the total finance that we know of to date.

Historical Forest Carbon Finance Commitments Reach $5.1 B

Over the past six years, **Ecosystem Marketplace has tracked a collective $5.1 B committed by governments, companies, and individuals to keep threatened forests standing, manage existing landscapes for carbon sequestration, or plant new trees**. We track "commitments" at the point of contract between the donor and the recipient in the case of readiness finance, or between the buyer and the seller in the case of performance-based commitments. (See "Methodology," p. 35-36 for more details.)

As seen in Table 1, performance-based finance that flows on the condition of results being achieved is considered in two categories: market-based and non-market-based. Market-based payments encompass both voluntary and compliance markets in which verified emissions reductions (VERs, or offsets) are transacted by buyers and sellers, with buyers taking ownership of the tonnes – either to offset their own emissions or to resell them to end-users.

Figure 1: Comparison of Readiness Finance and Performance-Based Payments, All Years



Note: Based on $2.4 B in value associated with all years of tracking performance-based payments for forest carbon and $2.8 B in value associated with REDD+ readiness commitments made to 13 countries between 2009 and 2014.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

In contrast, non-market payments for emissions reductions are discrete agreements between donors and recipients – usually governments – to reduce deforestation. Though financial flows depend on emissions being reduced, the agreements do not produce tradable "offsets" and therefore do not affect the market dynamics discussed in in pages 7-17 of this report. See "Non-Market Payments," p. 20-21 for more detail on the evolution of non-market payments for emissions reductions.

Between market and non-market finance, a total of $2.4 B – 46% of total forest carbon finance tracked to date – has been committed to pay for emissions reductions.

Table 1: Summary of Types of Forest Carbon Finance, 2014 and All Years

Type of Finance	2014	All Years
REDD+ Readiness Commitments	$229 M	$2,758 M
Market-Based Payments for Emissions Reductions	$257 M	$1,268 M
Non-Market-Based Payments for Emissions Reductions	$219 M	$1,111 M
Total	**$705 M**	**$5,137 M**

Notes: Ecosystem Marketplace has been tracking forest carbon finance annually since 2009 but our data goes back as far as the early 2000s, when payments for forest-based emissions reductions were just beginning. "All years" thus refers to the total finance that we know of to date.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Table 2: Overview of Market-Based Payments for Emissions Reductions in 2014 and Over Time

	Volume ($MtCO_2e$)		Value ($M)		Average Price ($/tonne)	
	2014	All Years	2014	All Years	2014	% Change in Price from 2013
Voluntary Total	23.7 M	156.1 M	$128 M	$933 M	$5.4	12%
Compliance Total	10.6 M	37.3 M	$129 M	$329 M	$12.7	31%
Grand Total	**34.4 M**	**193.4 M**	**$257 M**	**$1268 M**	**$7.4**	**42%**

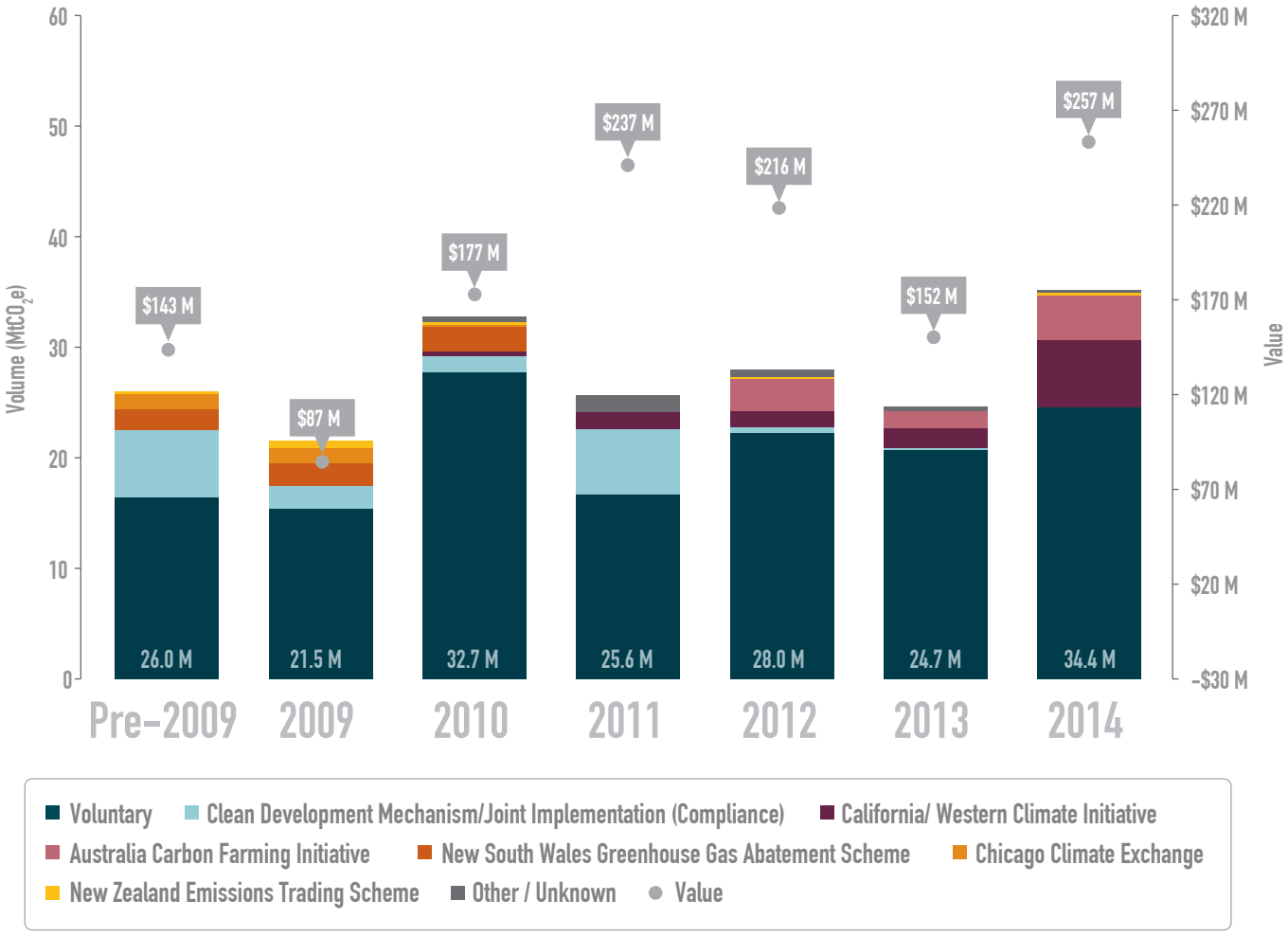
Note: Based on $1.3 B in payments for 193 $MtCO_2e$ of forest-based emissions reductions.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

$257 M Paid for Record 34.4 M Forest Carbon Offsets in 2014

Last year, companies, governments, and individuals contracted a record 34.4 $MtCO_2e$ in forest-based emissions reductions through voluntary and compliance carbon markets, at a total value of $257 M. This breakout year was driven in part by a more than 200% increase in compliance demand for forest carbon offsets. Californian and Australian businesses transacted 6.1 $MtCO_2e$ and 4 $MtCO_2e$, respectively, financing offsets from projects outside of the regulated sector in order to cover regulated emissions they were not (yet) able to reduce internally. Voluntary demand also grew by 18%, to 23.7 $MtCO_2e$, and voluntary prices recovered slightly to $5.4/tonne, up from an historic low of $4.8/tonne in 2013. Still, purely voluntary demand for forest carbon offsets has been higher in the past – in 2010.

Figure 2: Historical Market-Based Payments for Forest-Based Emissions Reductions: Transaction Volumes and Values



Note: Based on 193 $MtCO_2e$ in market-based transaction volume over time.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Compliance Demand Behind Half of 2014 Market Value

Across all years, voluntary buyers contributed 74% of all market-based forest carbon finance ($933 M), with compliance market buyers paying the remaining $329 M for offsets that helped them to cost-effectively meet regulatory obligations. **Last year, however, compliance transactions accounted for nearly half of total market value** as buyers in California spent $55 M on offsets developed under the state's forestry protocol and regulated entities in Australia paid $71 M to purchase offsets developed under the country's Carbon Farming Initiative (CFI).

However, the outlook for demand on 2014's two dominant compliance markets is quite different. While California's cap-and-trade policy runs through 2020, with additional sectors falling under compliance this year, Australia's record volume in 2014 will not be repeated. First implemented in 2012, the country's carbon tax was soon after repealed in July 2014 and replaced by a government-run Emissions Reductions Fund (ERF) with AU$2.6 B in funds. 2014's volume comes from emitters' push to "true up" on their compliance obligations through February 2015. But because compliance entities do not pay into the ERF, offset purchases through the Fund will not be considered compliance demand in the future. Australian market participants noted that many CFI projects were beginning to issue tonnes just as the carbon tax was repealed and that these projects will now vie for the limited ERF funds.

Table 3: Compliance Markets for Forest Carbon in 2014 and Over Time

	Volume ($MtCO_2e$)		Value ($M)		Average Price ($/tonne)
	2014	All Years	2014	All Years	2014
California*	6.1 M	11.4 M*	$55 M	$96 M	$8.9
Australia CFI	4.0 M	8.4 M	$71 M	$141 M	$17.7
CDM/JI	-	15.9 M	-	$61 M	-
NSW GGAS	-	6.3 M	-	$12 M	-
Other	0.5 M	4.7 M	$4 M	$59 M	-
Total	**10.6 M**	**46.7 M**	**$129 M**	**$369 M**	**$12.7**

Notes: Based on $329 M in compliance market payments for 37.3 $MtCO_2e$ of forest-based emissions reductions.
*Of the 11.4 $MtCO_2e$, 7.9 $MtCO_2e$ was compliance demand and 3.5 $MtCO_2e$ was pre-compliance demand transacted before the regulation started in 2013.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

As seen in Figure 2, ***which* compliance markets contribute the majority of value has fluctuated over the years**. Developed-country governments seeking to meet obligations under the Kyoto Protocol purchased most of their compliance-grade afforestation/reforestation offsets under the Clean Development Mechanism (CDM) ahead of 2012, when the first (and currently only) commitment period ended. The New South Wales Greenhouse Gas Abatement Scheme (NSW GGAS) – the first compliance emissions trading system (ETS) in the world when it commenced in 2003 – saw $11.7 M in transaction value for forest carbon offsets before 2009. After that, many of these projects transitioned to Australia's CFI. The European Union Emissions Trading Scheme, the largest compliance market for offsets, does not appear in the table above because it does not allow forestry offsets. Nevertheless, European buyers have purchased the most forestry tonnes over the years on a voluntary basis.

Pages 9-17 below will explore the details of 2014's carbon market transactions, with a close look at project location, project type, third-party standards, price dynamics, and buyers.

Location: Voluntary Buyers Seek Latin American Tonnes

Overall, voluntary offset buyers committed $46.1 M in results-based payments to Latin American projects in 2014, with significant offset volumes sourced from Peru (4 $MtCO_2e$ contracted at a value of $23.9 M) and Brazil (3.5 $MtCO_2e$ contracted at a value of $13.4 M). Meanwhile, compliance demand drove an influx of finance to projects in the United States (4.8 $MtCO_2e$ contracted at a value of $44.5 M) and Australia (4.5 $MtCO_2e$ contracted at a value of $71.9 M). Transaction volumes for Asia-originating forest carbon offsets increased to 5.5 $MtCO_2e$ while Africa's market share fell just slightly, with 3.8 $MtCO_2e$ transacted last year.

Last year, market buyers contracted 17.7 $MtCO_2e$ from developing countries – more than one and a half times the 11.8 $MtCO_2e$ contracted from land-use interventions in the developed world. However, because the average price for compliance tonnes was more than twice the average price for offsets on the voluntary market, the new results-based finance flowing to developed countries was about twice the new finance flowing to developing countries.

Across all years, though, **buyers have contracted at least $688 M for 130.5 million forest carbon offsets originating from developing countries – nearly twice the market value flowing to developed nations**. The majority (85%) of that value is attributed to primary market demand, meaning the finance is committed directly to project developers working on the ground.

Table 4: Demand for Forest Carbon Offsets by Activity Location, 2014

	Volume (tCO_2e)	Value ($M)	Average Price ($/$tCO_2e$)	Project Count	% Change from 2013 (Volume)	Area under Carbon Management[5] (ha)
Africa	3.8 M	$27.9 M	$7.3	23	-11%	2.8 M
Asia	5.5 M	$9.6 M	$1.7	9	96%	3.8 M
Europe	2.5 M	$27.9 M	$11.2	12	134%	0.6 M
Latin America	10.9 M	$46.1 M	$5.1	52	5%	12.1 M
North America	4.8 M	$44.5 M	$9.1	36	89%	6.4 M
Oceania	4.5 M	$71.9 M	$16.1	11	132%	1.1 M

Note: Based on 32 $MtCO_2e$ in market-based transactions associated with a project region.
Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Table 5: Overview of Forest Carbon Results-Based Payments by Project Country's Development Status

	Volume ($MtCO_2e$)		Value ($M)		Average Price ($/tonne)	
	2014	All Years	2014	All Years	2014	% Change in Price from 2013
Developed Countries	11.8 M	48.2 M	$ 126 M	$ 353 M	$12.9	24%
Developing Countries	17.7 M	130.5 M	$ 74 M	$ 688 M	$4.5	3%

Note: Based on $1 B in carbon market payments over time for 178.7 $MtCO_2e$ of forest-based emissions reductions.
Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

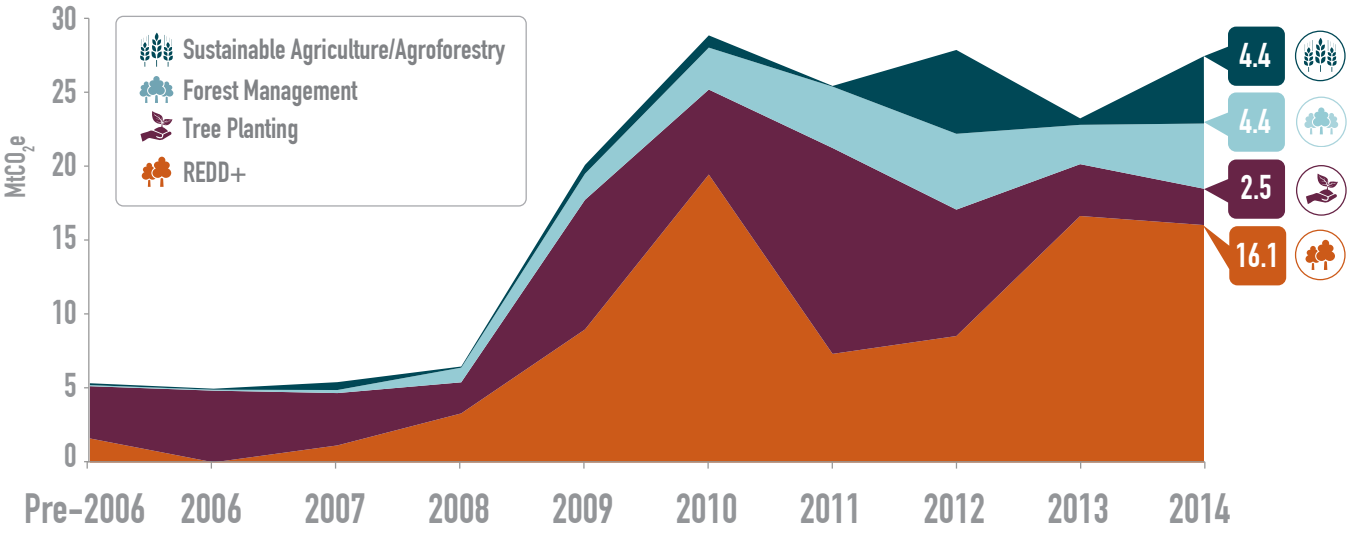
[6] Hectares impacted based on land area reported by projects reporting to Ecosystem Marketplace over the last three years.

Project Type: Market Actors Commit $63 M to REDD+

Last year saw steady demand for emissions reductions from projects that implement REDD+ activities, with 16.1 $MtCO_2e$ transacted at a value of $63 M in 2014.

Driven in part by an uptick in compliance demand in California and Australia, **transaction volumes for forest management and sustainable agriculture/agroforestry projects increased** over 2013, both contracting 4.4 Mt, which buyers valued at $43 M and $20 M, respectively. Meanwhile, demand for offsets from tree-planting projects reached a historic low of 2.5 Mt last year after peaking in 2011, when governments looked to these projects to fulfill obligations under the first commitment period of the Kyoto Protocol.

Figure 3: Volume of Demand for Forest Carbon Offsets by Project Type, All Markets, Historical



Note: Based on 27.4 $MtCO_2e$ in 2014 transaction volume associated with a project type, alongside historical data.
Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Offset prices varied across and within project types. Land-use interventions that require high inputs of time and labor, such as forest management and tree-planting, took home the highest average prices of $9.8/t and $8.9/t, respectively. These project types are also more often located in developed countries where the opportunity costs of alternative land uses are higher, and they tend to transact offsets in smaller volumes, thus necessitating higher prices per tonne to sustain project activities. In contrast, avoided deforestation projects can be very large in scale – often preventing half a million tonnes or more of emissions per year – and labor inputs per hectare can be less intense.

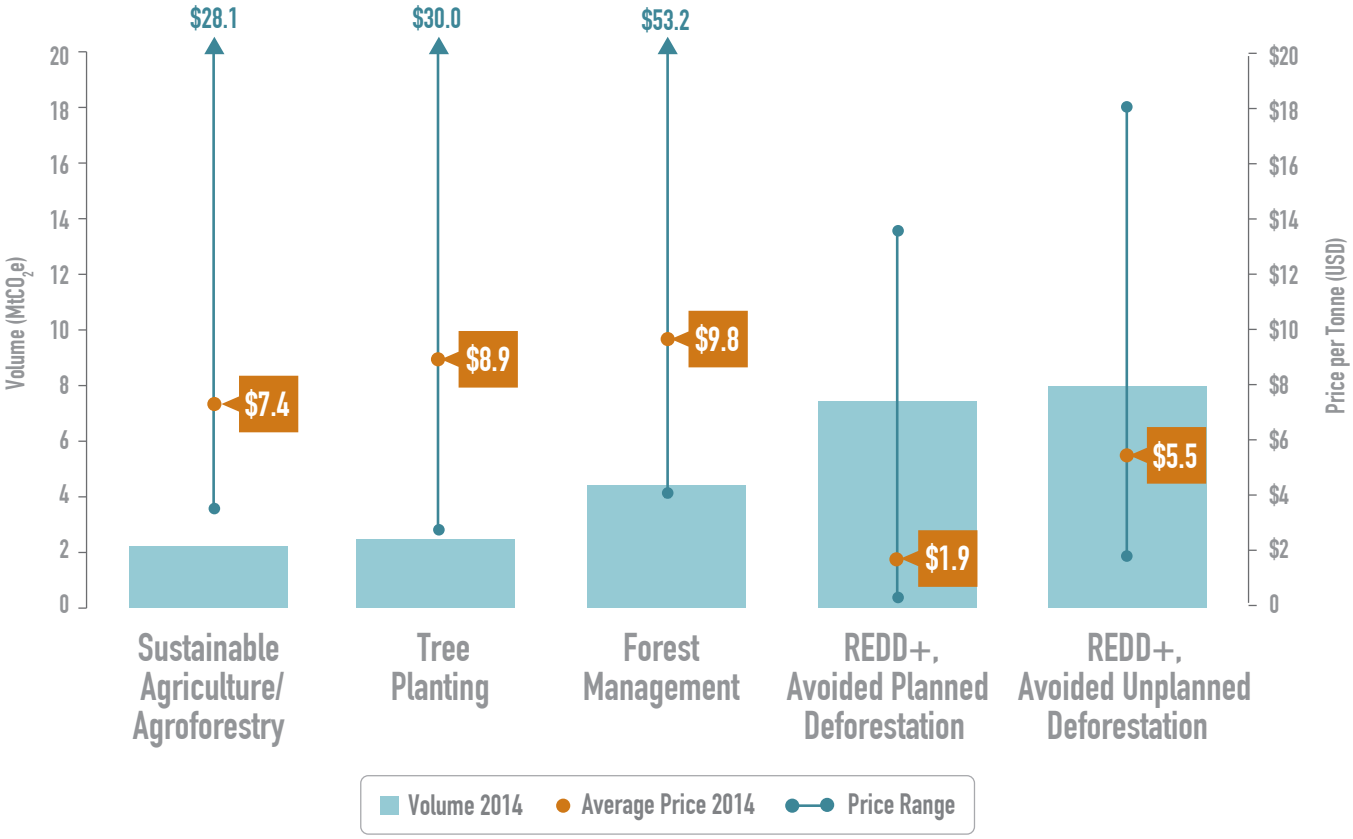
While **2014's average REDD+ offset price of $3.7/t fell slightly from $4.2/t in 2013**, prices diverged between REDD+ projects that addressed "unplanned" or mosaic deforestation – usually driven by subsistence agriculture, livestock grazing, collection of fuelwood charcoal, or illegal logging – and projects that avoided a planned harvest cycle.

Table 6: Demand for Forest Carbon Offsets by Project Type, 2014

	Volume (tCO_2e)	Value	Average Price ($/ tCO_2e)	Project Count	% Change from 2013 (Volume)	Area under Carbon Management (ha)
Avoided deforestation (REDD)	16.1 M	$63 M	$3.7	41	6%	15.0 M
Forest management	4.4 M	$43 M	$9.8	40	66%	10.2 M
Sustainable agriculture/ agroforestry	4.4 M	$20 M	$9.7	6	410%	0.1 M
Tree-planting	2.5 M	$22 M	$8.9	53	-30%	1.0 M

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Figure 4: Transacted Volume and Average Price by Project Type, 2014



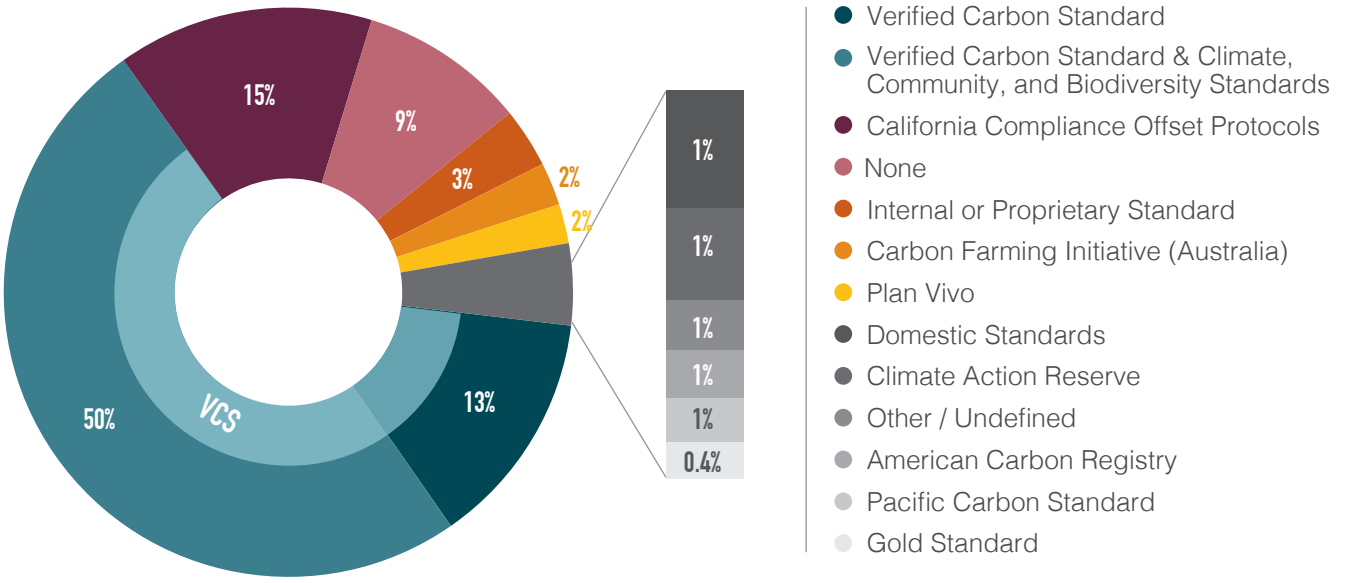
Note: Based on 24.5 $MtCO_2e$ in 2014 transaction volume associated with a project type and price.
Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Standards: 91% of Offsets Transacted Use a Third-Party Carbon Standard

Ninety-one percent of forest carbon offsets transacted in 2014 were developed under a third-party verified standard, many of which have guided project development over the last decade. The Verified Carbon Standard (VCS) held 63% market share in 2014. More than three-quarters, or 12.3 $MtCO_2e$ of the 16.5 $MtCO_2e$ transacted under VCS, also used the Climate, Community, and Biodiversity (CCB) Standards to verify "beyond carbon" benefits, a 32% increase over 2013's VCS+CCB volume.

Other voluntary standards used on the forest carbon market include Plan Vivo, which is focused on small-holder activities; the Climate Action Reserve (CAR) and the American Carbon Registry (ACR), both focused on North America and transitioning some of their projects under the California compliance protocols; and the Gold Standard, which debuted its forestry methodology in 2013 and its agricultural standard in 2014. Domestic standards included the California compliance offset protocols (15% market share) and Australia's Carbon Farming Initiative (2% of tonnes associated with a standard, though likely all Australia compliance tonnes used this standard), as well as British Columbia's Pacific Carbon Standard, the UK's Woodland Carbon Code, New Zealand's Permanent Forest Sink Initiative, Japan's Verified Emissions Reduction Scheme, and China's Certified Emissions Reductions. Another 0.8 $MtCO_2e$ were contracted under other internal/proprietary standards used in a single jurisdiction or project.

Figure 5: Market Share by Independent Standard, 2014



Note: Based on 26.1 $MtCO_2e$ in 2014 transaction volume associated with a standard.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

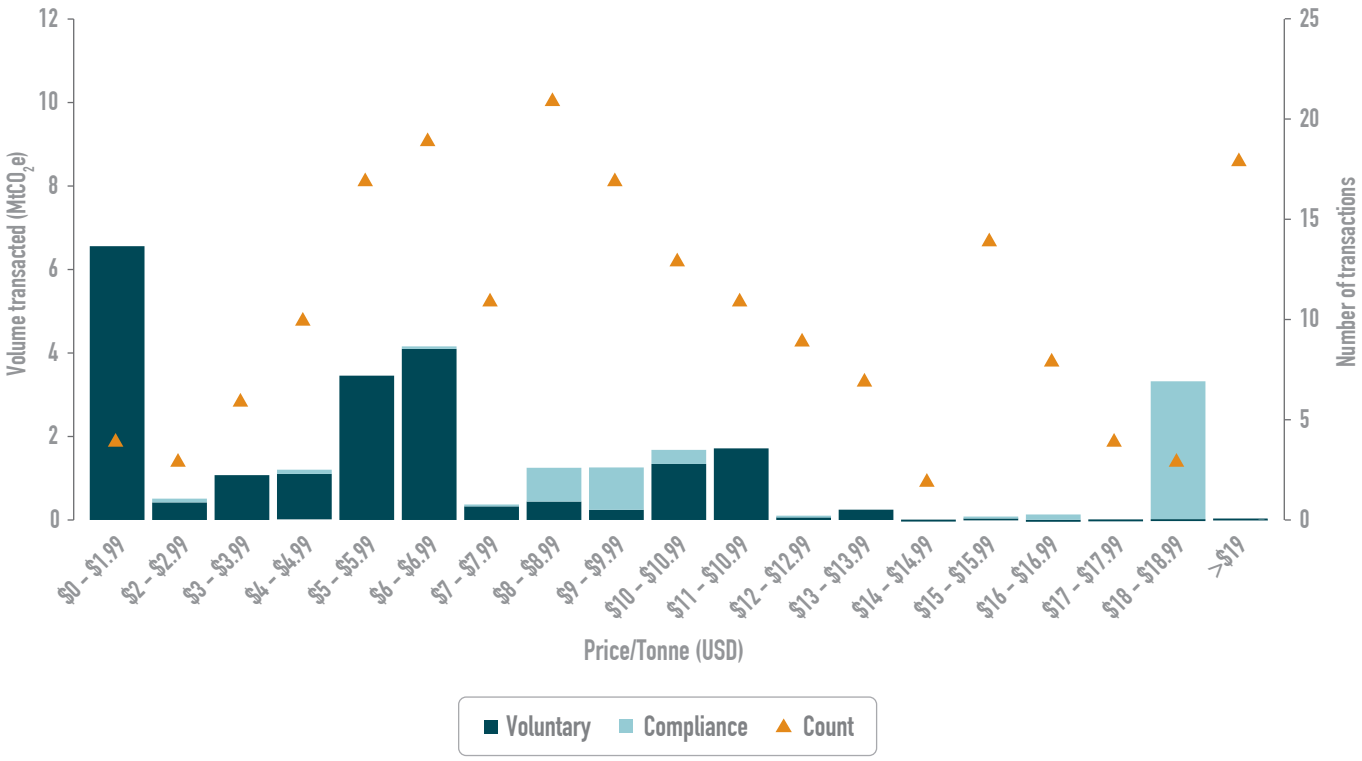
The number of contracted offsets that were not developed under a standard increased fivefold to 2.5 $MtCO_2e$ last year. Nearly all of these tonnes originated from developed country forest management or sustainable agriculture projects that had close relationships with domestic buyers didn't require a standard.

Offset prices varied across standard, though project type was usually the bigger price differentiator. For instance, VCS tonnes sold at an average of $4.3/t last year – close to the average price for REDD+ offsets, and indeed 93% of contracted VCS tonnes were REDD+. Meanwhile, offsets developed under the Gold Standard's afforestation/reforestation methodology transacted at an average of $11.1/t last year. The North American-facing standards CAR and ACR also transacted tonnes at above-average prices of $9/t and $7.2/t, respectively, while Plan Vivo offsets averaged $7.5/t.

Price Dynamics: Offsets Worth More in Compliance Markets, but Still Used as Cost-Containment Mechanism

Because the per-tonne price of a carbon offset transacted on the voluntary carbon market is usually the result of a bilateral, discrete negotiation between a buyer and seller, prices have historically ranged widely. Last year was no exception, with offsets contracted for as little as $0.5/t and as much as $53/t. Prices varied depending on project type, project location, project standard, the volume transacted, buyer market, and other attributes.

Figure 6: Volume Transacted by Offset Price and Market



Note: Based on 27.2 $MtCO_2e$ in transaction volume associated with a price.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Still, as shown in Figure 6, there was some consolidation around offset prices last year. Nearly a third of offsets (8.7 $MtCO_2e$) sold to voluntary buyers were priced between $4/t and $7/t. Another 21% of offsets transacted voluntarily sold for less than $2/t, usually sold in bulk from REDD+ projects.

Because offsetting is used as a cost-containment mechanism in compliance markets, compliance prices converged just beneath the going allowance price or the set carbon tax. In California cap-and-trade, allowance prices averaged $12/t in 2014 – just above the government-set reserve price of $11.3/t – so offsets sold for less: between $8/t and $11/t. In Australia, the carbon tax was set at $24.2/t for the 2013-2014 period (before its repeal in July 2014), and thus offsets were priced below that mark, with some convergence between $18/t and $19/t.

Buyers: Energy and Finance Sectors Lead 2014 Demand

Among the offsets that found a buyer last year, 93% of tonnes were sold to private sector buyers seeking to meet a voluntarily set greenhouse gas reduction target or to comply with regulation, with voluntary buyers accounting for 76% of total market value. Offset retailer transactions, valued at $16 M in 2014, reflect demand that did or will result in additional sales to end-users. The role of carbon offset retailers that purchase and then resell offsets to end-users has fluctuated over time, with these secondary market participants selling as many as 6.3 $MtCO_2e$ in 2012 and as few as 1.2 $MtCO_2e$ in 2010. Last year, retailers held 11% market share, transacting 3.2 $MtCO_2e$ of the tonnes that changed hands on voluntary and compliance carbon markets. However, secondary market prices were below the market average, indicating that retailers may be pressured to lower prices in an attempt to offload tonnes.

Table 7: Overview of Forest Carbon Results-based Payments by Primary Versus Secondary Market

	Volume (tCO_2e)		Value		Average Price ($/tonne)	
	2014	All Years	2014	All Years	2014	% Change in Price from 2013
Market	**2014**	**All Years**	**2014**	**All Years**	**2014**	**% change in price from 2013**
Primary Market	26.1 M	172.8 M	$244 M	$961 M	$7.7	53%
Secondary Market	3.2 M	23.1 M	$16 M	$164 M	$4.7	-32%

Note: Based on $1.1 B in results-based payments for 195.4 $MtCO_2e$ of forest-based emissions reductions that could be traced back to a primary versus secondary market actor.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

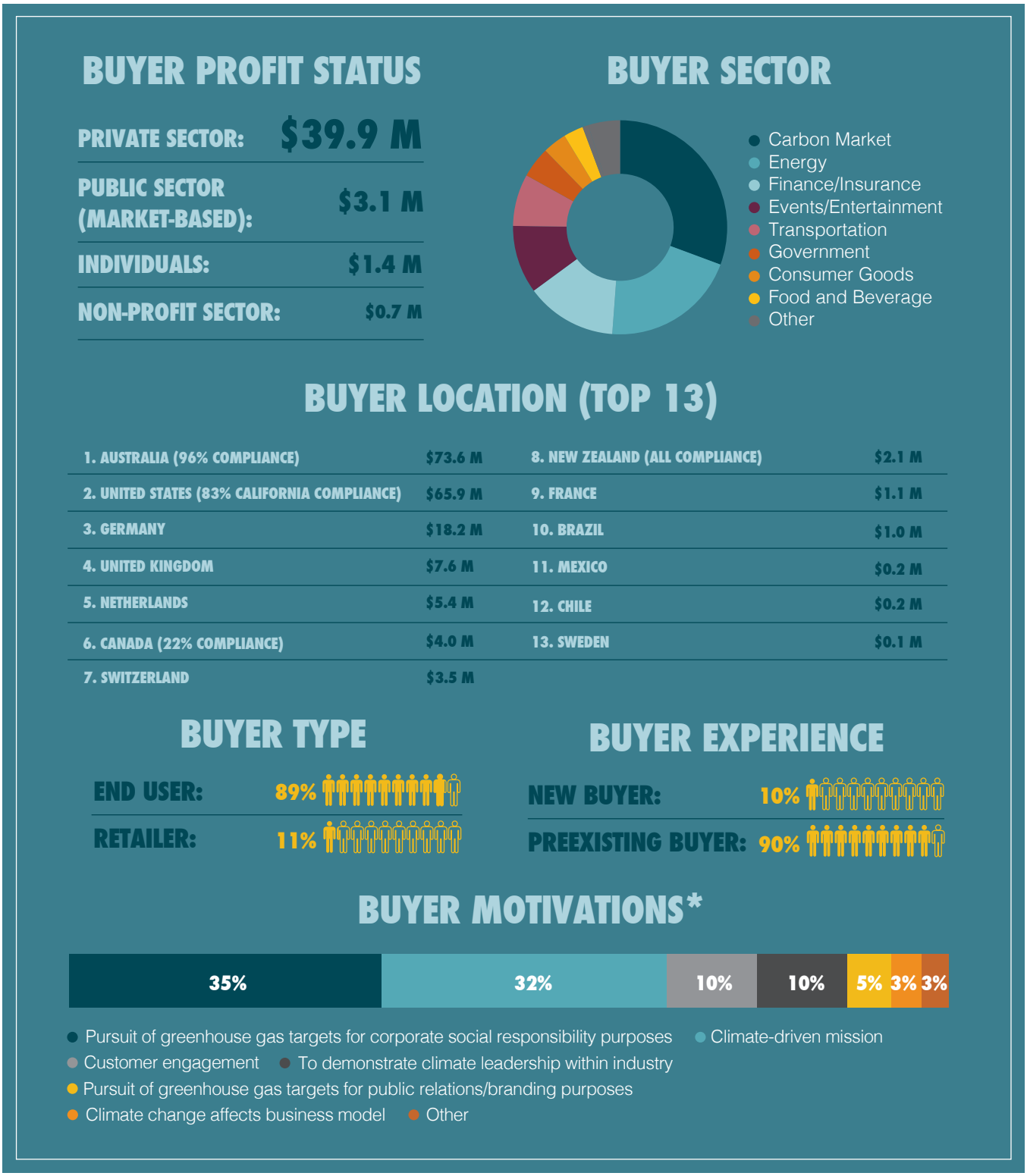
Apart from carbon market actors, the energy and finance sectors led end-use offset demand, followed by the events and entertainment sector which – because of high-profile offsetting events such as the World Cup – jumped from just 1% market share in 2013 to 10% in 2014. **Demand from individuals also increased from just over $700,000 in value in 2013 to $1.4 M last year**, mostly led by non-profits such as The Nature Conservancy, Code REDD, and others connecting directly with constituents that bought more than 200,000 tonnes – more than a fivefold increase over demand from individuals in 2013. Code REDD in particular is experimenting with using social media to connect individuals with REDD+ projects, and 15 projects are now engaged with Code REDD's Stand for Trees campaign[7], which launched in February 2015.

Still, **suppliers reported that their core source of voluntary demand – the private sector – was composed of a familiar pool of companies**. While 2014 forest carbon offset buyers hailed from a variety of sectors and at least 26 different countries, most of them were repeat customers. Suppliers reported that first-time buyers accounted for roughly 10% of total purchases last year. The majority of this new demand came from companies in Latin America and Africa.

Forest project developers indicated that 51.2 $MtCO_2e$ remained in their portfolios unsold at the end of 2014, mostly because they tried to but could not identify a buyer (56% of unsold tonnes), but in some cases because they were awaiting policy guidance (20%), holding out for a future pick-up in offset prices (19%), or didn't intend to sell all the offsets in their portfolio (3%). Notably, the number of unsold tonnes exceeded the sold tonnes by 48% last year, meaning project developers hoped to sell more than twice as many offsets as they did.

[7] https://standfortrees.org/

Figure 7: Buyer Analysis by Profit Status, Sector, Location, Type, Experience, and Motivation, 2014



Notes: Based on 199 transactions associated with buyer profit status, 187 transactions associated with buyer sector, 232 transactions associated with buyer type, 58 transactions associated with buyer experience, and 130 transactions associated with buyer motivations, as described by survey respondents.
*Percentages may not add up to 100% due to rounding.

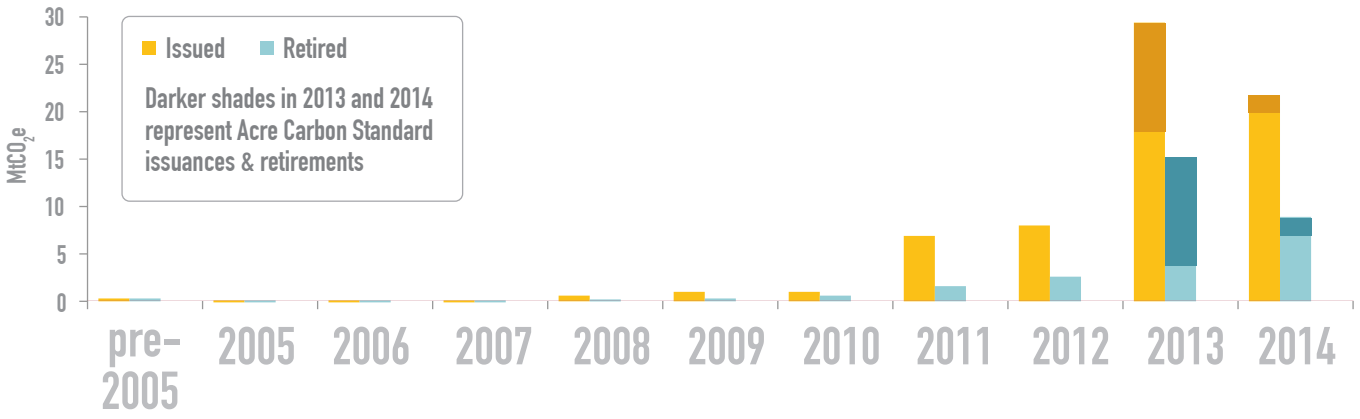
Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Supply Dynamics: Offset Issuances Stack Up

This report tracks offset transaction volumes as the key measure of year-on-year forest carbon market demand, with new contracts representing new finance committed to pay for emissions reductions. An accurate measure of supply is more elusive, but one important metric is offset issuances, or the number of emissions reductions that have been verified and then listed on a registry. As shown in Figure 8, **the number of issued offsets has grown rapidly over the last two years, with 29.9 $MtCO_2e$ in new issuances in 2014**.

Excluding the 11.5 $MtCO_2e$ and 1.9 $MtCO_2e$ issued under the Acre Carbon Standard in 2013 and 2014, respectively – a part of the bilateral deal between Germany and Acre and therefore outside the purview of market dynamics – 2014's issuances grew by 40%. Forty-five percent of 2014 issuances occurred under four voluntary standards: 23% under VCS (6.6 $MtCO_2e$); 9% under ACR (2.7 $MtCO_2e$); 8% under the Gold Standard (2.3 $MtCO_2e$), and 5% under the CAR (1.4 $MtCO_2e$, considered early action for California compliance). Another 46% of issuances occurred under compliance standards: 19% (5.5 $MtCO_2e$) were issued as Australian Carbon Credit Units and 17% were issued under the California compliance offset protocols (4.8 $MtCO_2e$), with another 10% (or 3 $MtCO_2e$) issued for compliance under CAR.

Figure 8: Historical Issued, Retired, and Transacted Offset Volumes



Note: This figure tracks land-use project registry data reported for the Acre Carbon Standard, ACR, CAR, California Compliance Offset Protocols, Gold Standard/CarbonFix, ISO 14064/65, the Pacific Carbon Standard, PFSI, Plan Vivo, VCS, and the Woodland Carbon Code.

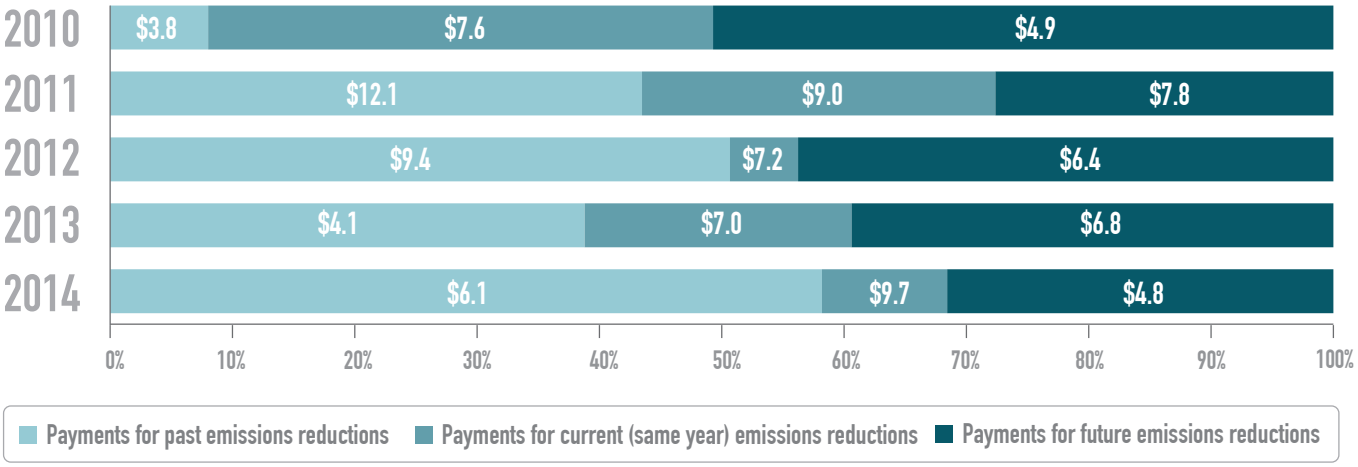
Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Figure 8 also illustrates offset retirement, which occurs when an end-user officially "retires" tonnes on a registry, thereby taking them out of circulation on the carbon market. Retirements have historically trailed both issuances and transactions. This is in part because of secondary market activity (with offsets sold more than once before final retirement) but also because buyers sometimes wait years after the initial purchase to retire the offsets. Especially in the early years, fewer buyers took this final step to register the emissions reduction. However, again excluding the Acre Carbon Standard numbers, **last year's retirements more than doubled compared to 2013 numbers, reaching 10.8 $MtCO_2e$**. The majority of retirements (74%) were of offsets developed under VCS, the voluntary standard most commonly used for forest carbon – indicating that more end-users are taking the final step to retire tonnes against voluntary emissions reductions commitments. Retirement numbers under the California and Australia compliance markets are not publically available.

Demand Dynamics: "Spot" Transactions Pick Up but Future Investment in Emissions Reductions Diminishes

Another way to look at carbon market dynamics is to consider how payments for emissions reductions flow across time – specifically how buyers' demand for past, current, and future offset vintages has shifted over the years. As shown in Figure 9, while 2010 buyers committed more than half of that year's market value to emissions reductions set to occur in future years, upfront investment has since fallen to compose less than one-third of 2014 market value.

Figure 9: Percentage of Offsets Transacted by Past, Current, and Future Vintages, 2010-2014



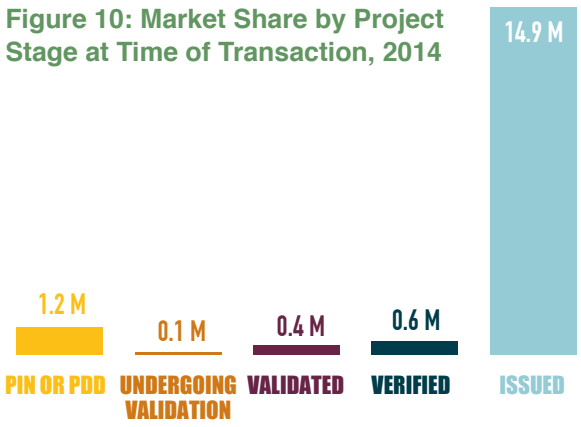
Note: Based on $651 M in payments for offsets associated with a vintage.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

This shift toward more transactions of past or current offset vintages is an indicator that less finance is flowing to early-stage projects. In 2010, many forest carbon projects were in earlier stages of development, and buyers paid for future emissions reductions to give nascent projects a boost – or, in the case of payment-on-delivery contracts, as a "wait-and-see" approach to offset purchases. Half a decade later, many projects have now made it through all stages of development, from initial project design document to issuing tonnes – 87% of 2014's offset transactions were for past or current vintages (see Figure 9). These already-issued vintages are typically transacted on a "spot" basis, and today fewer buyers are paying upfront for future emissions reductions.

Average prices for future-vintage offsets reached an all-time low in 2014 of $4.8/tonne. In 2010, buyers paid lower prices for future vintages because they were considered riskier – few projects had actually made it through all stages of development to issue tonnes. Now, future vintages may be discounted for the opposite reason: offset issuances are building up (see p. 16), and buyers worry about projects' long-term financial viability if supply continues to exceed demand.

Figure 10: Market Share by Project Stage at Time of Transaction, 2014



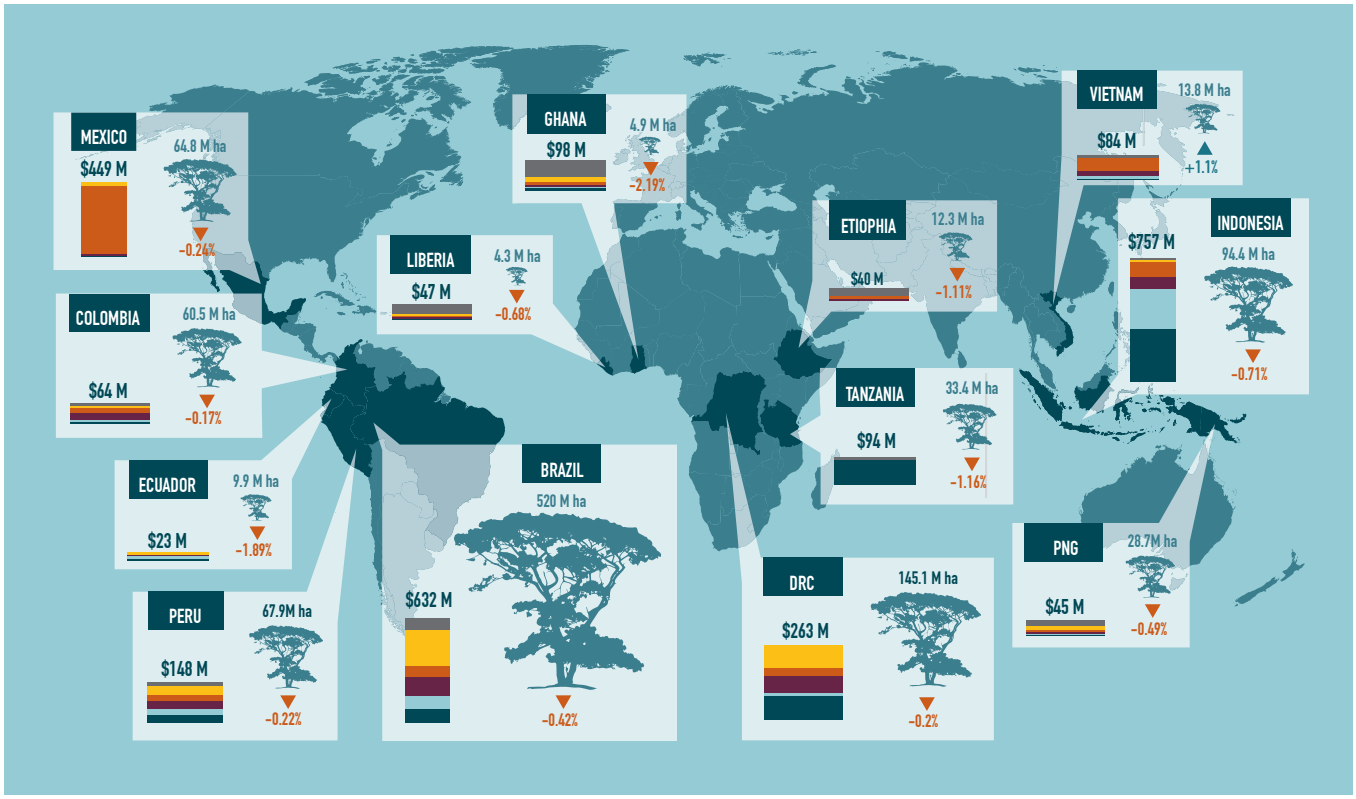
Note: Based on 17.2 $MtCO_2e$ in transaction volume associated with a project stage.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Readiness Finance Fades As Donors Disburse Funds, Ramp Up Demand for Results

Alongside the market-based finance committed by (mostly) private sector actors to pay for project-level emissions reductions, (mostly) public sector actors have simultaneously committed $2.8 B to finance REDD+ readiness efforts in tropical forest countries. As countries move from preparing their forest institutions, laws, and stakeholders for REDD+ finance to actually receiving it, **the expectation was always that readiness commitments would give way to results-based payments. REDD*X* tracking shows that this is indeed happening**, with new commitments for readiness dwindling to $229 M in 2014 and more than half of readiness funds already disbursed.

Figure 11: REDD Finance Committed and Disbursed in 13 Countries, 2009–2014



Total Readiness by Year ($2.75 B total)

Forest cover, 2010
Annual rate of forest cover change, 2005–2010
Bar charts: Annual commitments
2009 2010 2011 2012 2013 2014
Heights of Brazil and Indonesia bars are adjusted to fit graphic

Notes: Based on $2.8 B in readiness finance committed to 13 REDD countries between 2009 and 2014. Annual deforestation rates are the latest available data from the Food and Agricultural Organization of the United Nations.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

As seen in Figure 11, commitments to the 13 tropical forest countries tracked by REDD*X* have varied widely across landscapes and years. **Two countries with large expanses of threatened forests, Brazil (520 M forested hectares) and Indonesia (94.4 M forested hectares) have together been on the receiving end of half of all**

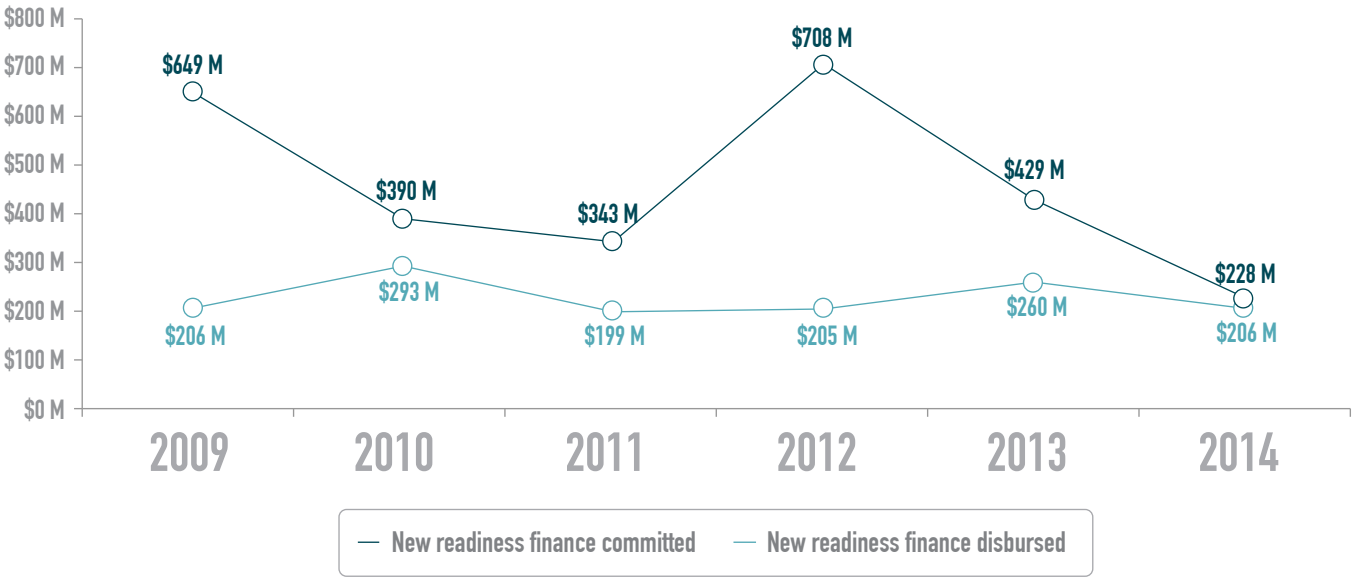
REDD+ readiness commitments, with $632 M in readiness finance committed to Brazil and $757 M committed to Indonesia.

Of the five African nations tracked by REDD*X*, donors have over time committed the most readiness dollars ($263 M) to the Democratic Republic of Congo (DRC), though no new finance materialized in 2014. In contrast, three African countries – Ghana, Ethiopia, and Liberia – received modest REDD+ readiness commitments until very recently: the $114 M in commitments to these countries in 2014 made up half of all new readiness finance contracted last year. Ghana and Ethiopia also have among the most severe rates of deforestation, with Ghana losing more than 2.2% of its forests annually and Ethiopia losing more than 1.1%. Nearby Tanzania also has a high annual deforestation rate (1.2%) but has seen almost no new commitments for readiness since 2010.

Aside from Brazil, Latin American countries have been promised $685 M in REDD+ readiness finance, with the most commitment money going to Mexico ($449 M), followed by Peru ($148 M), Colombia, ($64 M), and Ecuador ($23).

Of the $2.8 B in REDD+ finance committed to REDD*X*'s 13 tropical forest country governments by donor countries over time, more than half ($1.4 B) has been disbursed to date. As REDD+ countries continue implementing the activities they planned as part of "readiness" – such as engagement with forest communities and industries; strengthening the capacity of forestry ministries and other relevant institutions; analyzing existing laws and policies related to land use; and more – the finance promised for these activities has (in many cases) been disbursed. In fact, while new commitments to readiness have dropped off since 2012, disbursements of already-committed money have remained relatively steady over the past six years (see Figure 12). At a macro-scale, this relative consistency makes sense, since donor contracts for REDD+ readiness activities typically schedule disbursements over several years.

Figure 12: Readiness and Results-Based Finance Committed and Disbursed by Year, 2009-2014



Note: Based on $2.8 B in readiness finance committed between 2009 and 2014.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Drilling down to the country level reveals that disbursement rates have varied widely across countries. Brazil has so far received 82% of the REDD+ readiness finance donors have committed while only 5% of the funds committed to Mexico have reached institutions on the ground. (See the REDD*X* report[8] for more detail on disbursement discrepancies.)

[8] Forest Trends' REDD*X* Initiative. 2015. REDD+ Finance Flows 2009-2014: Trends and Lessons Learned in REDD*X* Countries. Forest Trends: Washington, DC.

Non-Market Payments for Emissions Reductions Reach $1.1 B

As readiness finance dwindles, public sector actors are paying for emissions reductions outside of carbon market mechanisms – creating a new category of forest carbon finance as tracked in this report. These results-based agreements typically occur in several stages. First, a donor party will put a certain amount of money on the table – a pledge to pay for emissions reductions (and sometimes other results), if they are achieved. These pledges typically come in the form of Letters of Intent (LOIs) or Memorandums of Understanding (MOUs) signed among the parties. Once emissions reductions are achieved and verified, the pledges may turn into contracts to pay for emissions reductions and are thus tracked as results-based finance in this report.

As seen in Table 8, **three non-market agreements have reached this "commitment" stage, with donors paying Brazil and Guyana a total of $1.1 B for emissions reductions – $219 M of which was contracted in 2014**. All three meet the requirements of "results-based" payments in that emissions reductions are quantified, usually by converting the number of hectares of avoided deforestation to a value of tCO_2e,[9] and payments flow based on the number of emissions reductions achieved and verified.

All results-based programs to date have used a proxy price of $5/tonne to determine payment flows, though in all cases the pledged finance is not expected to cover all emissions reductions achieved. Because of this, our report does not track non-market payments for emissions reductions in terms of the number of tonnes "offset," though we do provide information on the number of emissions reductions achieved versus paid for, where available.

Table 8: Non-Market Payments for Emissions Reductions

From	To	Year Initiated	Pledged Amount	Payments for Emissions Reductions to Date	Payments for Emissions Reductions in 2014	Price Used
Norway, Germany, and Petrobas	Brazil's Amazon Fund	2008	$1 B	$904 M	$122 M	$5/tonne
Norway	Guyana	2009	$250 M	$190 M	$80 M	$5/tonne
Germany (REDD Early Movers)	Acre, Brazil	2012-2013	$40 M	$17 (estimated)	$17 M (estimated)	$5/tonne
Totals			**$1.29 B**	**$1.11 B**	**$219 M**	

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Brazil's Amazon Fund, which started in 2008, is the earliest example of performance-based payments for avoided deforestation, with Norway pledging up to $1 B to Brazil in that year. Since 2009, the Brazilian development bank BNDES that manages the Fund has raised approximately $904 M; the monies came from Norway ($870 M), Kreditanstalt für Wiederaufbau (KfW) ($28 M), and the state-owned Brazilian energy company Petrobas ($5.6 M) – with $122 M in new finance contracted in 2014.[10] Payments to the Amazon Fund are performance-based in that they depend on Brazil reducing its deforestation rate, which it has reduced by 80% under 2004 levels. The Technical Committee of the Amazon Fund calculates that these efforts have resulted in 516 $MtCO_2e$ of emissions reductions, 181 $MtCO_2e$ of which have been directly paid for by Norway, KfW, or Petrobas, based on a $5/tonne price.

[9] Guyana uses 367 tCO_2e per hectare; Brazil's Amazon Fund uses 485 tCO_2e per hectare. Both are considered conservative values.

[10] Last year's commitments to the Amazon Fund include a $122 M contribution by Norway as a December 2014 amendment to the original agreement and a $0.6 M contribution by Petrobas through seven donation agreements signed in 2014. See p. 28 of BNDES. 2015. Amazon Fund: Activity Report 2014. (http://www.amazonfund.gov.br/FundoAmazonia/export/sites/default/site_en/Galerias/Arquivos/Relatorio_Atividades/RAFA_2014_ing.pdf)

A pioneer in performance-based payments, Norway forged similar results-based payment agreements with Guyana in 2009 and Indonesia in 2010, for $250 M and $1 B, respectively. Norway has so far released $190 M in payments to Guyana for emissions reductions,[11] with an estimated $80 M committed in 2014 specifically. Money is channeled through the Guyana REDD+ Investment Fund, with the World Bank as a trustee. Emissions reductions due to reducing deforestation are verified by a third party – the auditor Det Norske Veritas – with at least 26.7 $MtCO_2e$ in emissions reductions achieved so far, though Norway does not intend to pay for 100% of the tonnes.

Norway's $1 B commitment to Indonesia does not appear in Table 8 because in fact Norway has only paid out $50 M in readiness funds (tracked in our readiness data). Payments for emissions reductions were meant to begin at the jurisdictional level in 2013 and at the national level in 2014, but **because Indonesia has not successfully reduced its deforestation rate, no results-based payments have been contracted – an example of *non*-payment for *non*-performance.**[12]

Since Norway's early commitments, Germany's development bank KfW has also begun to forge performance-based agreements for emissions reductions through its REDD Early Movers program (REM). In 2013, REM pledged up to $40 M to the state of Acre, Brazil for delivering 8 $MtCO_2e$ between 2013 and 2016. The Brazilian state is using the Acre Carbon Standard to verify emissions reductions and has begun issuing tonnes on the Markit registry also used by many voluntary carbon market projects. As seen in Table 8, Forest Trends' REDD*X* initiative has tracked $17 M in results-based payments to Acre to date.

REM expanded in late 2014 when Norway joined Germany on the donor side and both countries pledged approximately $50 M[13] each to Ecuador and Colombia. Neither program is operational yet, so these agreements are detailed in "Pending Pledges," p. 27.[14]

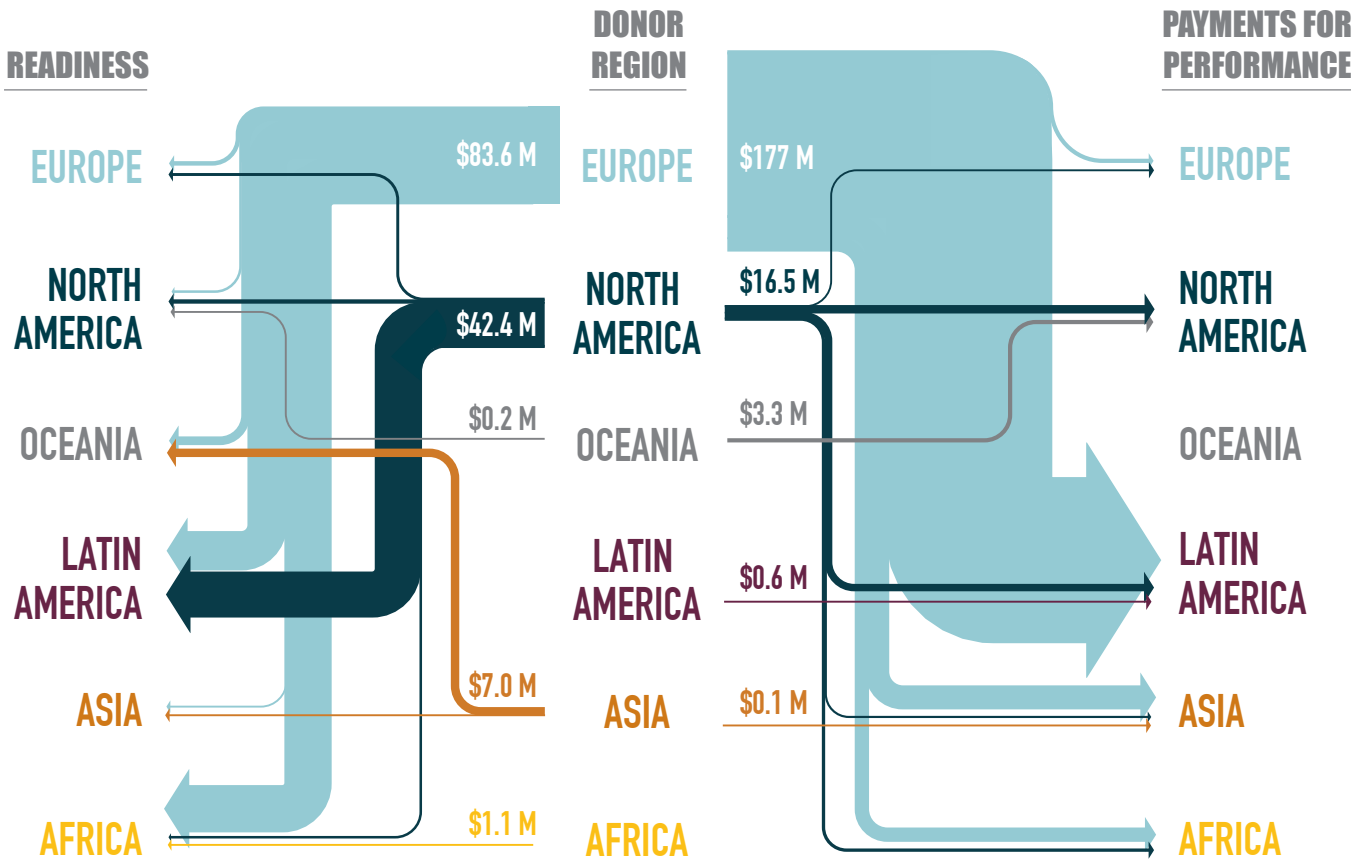
[11] Tim Laing. 2015. The Impacts of International REDD+ Finance: Guyana Case Study. Climate and Land Use Alliance. (http://www.climateandlandusealliance.org/uploads/PDFs/Impacts_of_International_REDD_Finance_Case_Study_Guyana.pdf)
[12] Frances Seymour, Nancy Birdsall, and William Savedoff. 2015. The Indonesia-Norway REDD+ Agreement: A Glass Half-Full. Center for Global Development: Washington DC. (http://www.cgdev.org/sites/default/files/CGD-Climate-Forest-Paper-Series-20-Seymour-Savedoff-Birdsall-Indonesia-Norway_1.pdf)
[13] Norway has pledged NOK 300 million each to Ecuador and Colombia, and Germany has pledged EUR 11 million to Ecuador and EUR 10.5 million to Colombia. USD equivalents may change based on future exchange rates.
[14] This report series previously tracked the total REM finance and corresponding emissions reductions as "contracted" in the year the agreement was initiated, but we've since realized that this was premature. While very few market-based contracts for emissions reductions at the project level fall through (most tonnes are now exchanged after issuance, on a spot basis), the same cannot be said for non-market pledges for emissions reductions made at a larger geographical scale – with major pledges (such as Norway's to Indonesia) going unpaid due to non-performance. Thus, we are now counting non-market pledges (including REM) as "contracted" only when the initial agreement moves beyond an LOI or MOU to an Emissions Reductions Payment Agreement or an actual payment for emissions reductions.

Europeans Behind 78% of 2014 Forest Carbon Finance; Norway, Germany Top Funders Over Time

On the REDD+ readiness side, the majority of funders – called "donors" because these finance flows do not pay for VERs – are **developed country governments, which because of their "historical responsibility" for climate change are expected to bear the brunt of the financial burden for mitigating emissions under an international agreement.** Multilateral institutions such as the World Bank, the Forest Investment Program, and the International Development Bank as well as private foundations have also financed REDD+ readiness activities over the years.

As shown in Figure 13, Europeans committed at least $83.6 M to REDD+ readiness and $177 M to pay for forest-based emissions reductions in 2014 and were therefore behind 78% of all new forest carbon finance dollars tracked last year. On the readiness side, European donors committed $37 M to Africa and $33.7 M to Latin America. On the results-based finance side, European buyers spent $144 M on emissions reductions originating from Latin America (mostly through the government-government agreements outlined on pages 20-21), with smaller but significant amounts flowing through market-based payments for forest carbon pilots in Asia ($18.8 M) and Africa ($11.2 M).

Figure 13: Flow of Finance from Donor/Buyer Region to Recipient Region, 2014



Notes: Based on $134 M in REDD+ readiness finance associated with a donor region and $198 M in results-based payments associated with a buyer region in 2014. Results-based payment values are conservative and based only on transactions that traced both the supplier region and the buyer region.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015.*

North American donors and buyers were a distant second to Europeans, committing $42.4 M to readiness and $16.5 to pay for VERs last year – with 40% of offset demand among North American buyers associated with domestic projects in 2014. Buyers in North America also committed finance to conserving or planting forests in Latin America ($5.6 M), Africa ($2.6 M), and Asia ($1.7 M). **Primarily developing regions also committed modest finance domestically**, with African and Asian governments respectively committing $1.1 M and $0.3 M for in-region readiness, as co-finance associated with international donor efforts. Latin American buyers also paid more than $600,000 for locally sourced forest carbon offsets last year.

Across all years, donor country governments have committed a total of $3.3 B to REDD+ efforts in tropical forest countries – $2.2 B for readiness and $1.1 B for emissions reductions. The majority of this public sector finance is attributed to **Norway and Germany, which have committed 34% ($1.1 B) and 14% ($0.46 B) of all government-to-government REDD+ finance, respectively, for both readiness and results-based payments**.

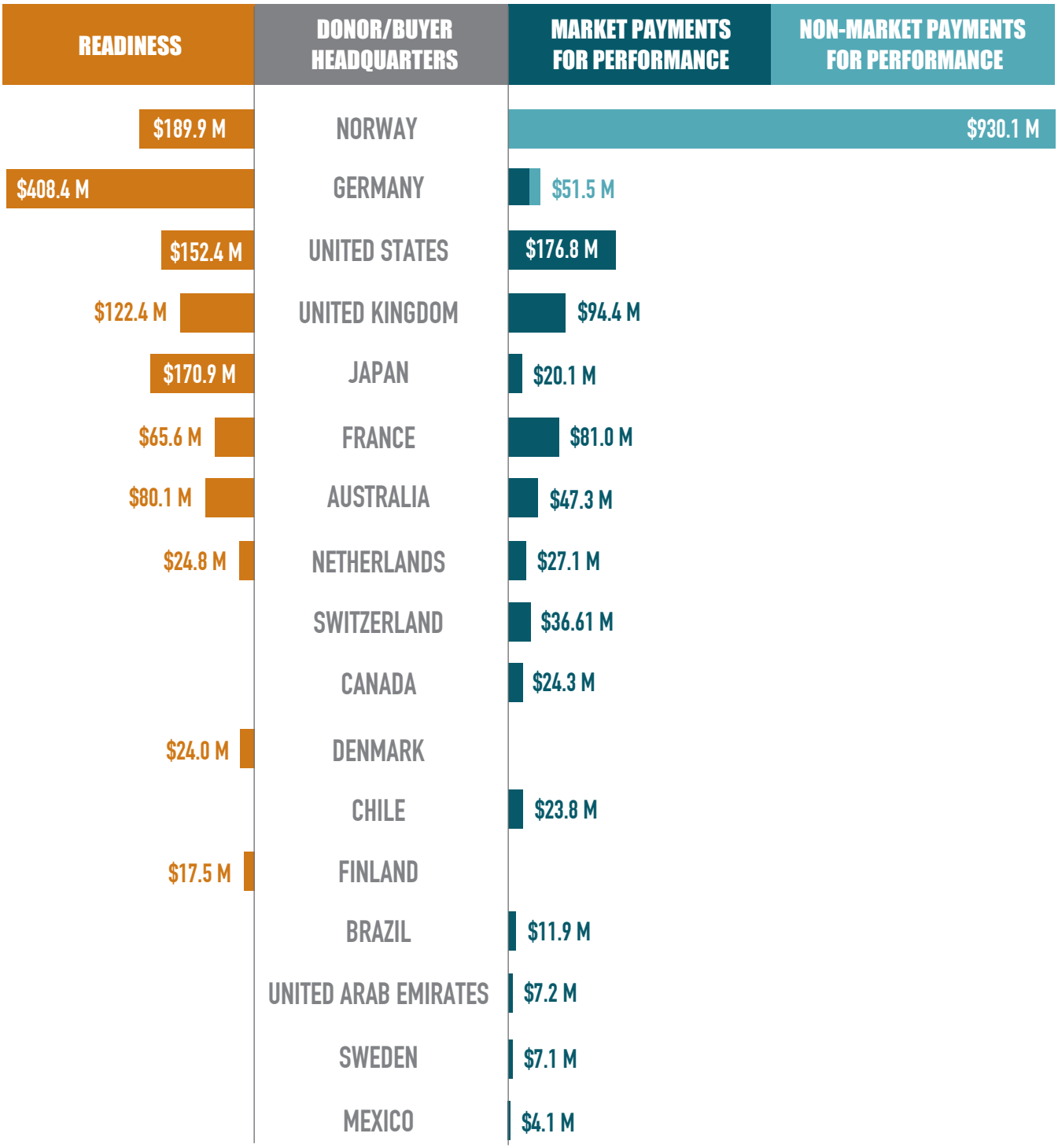
However, as shown in Figure 14, **public sector finance for REDD+ is not necessarily creating the conditions for private sector investment**. Outside of REDD Early Movers, the private sector in Germany does engage in voluntary offsetting, spending $34.5 M on offsets since 2009. But the Norwegian private sector is notably absent: *no* pilot forest carbon initiative reported selling offsets to a Norwegian company.

Examples of countries (other than Germany) in which national financial support for REDD+ is compounded by additional private sector demand for forest carbon offsets among buyers headquartered in that country include: Australia, France, Japan, the Netherlands, the United Kingdom, and the United States. However, while readiness finance committed by the Australian and American governments specifically goes to tropical forest countries, market-based payments commonly finance emissions reductions at home as well as abroad. For instance, companies headquartered in the United States have spent the most – $177 M – on forest carbon offsets over the past four years, but 54% of that value is associated with California cap-and-trade and thus flowed to US-based projects.

As REDD+ countries themselves, the Brazilian and Mexican governments are not expected to contribute to readiness finance to other countries, but they do aid domestic efforts through in-kind support or co-finance. Meanwhile, Brazilian and Mexican companies have committed $16 M to purchase forest carbon offsets over the years – often financing domestic projects. Overall, buyers headquartered in developing countries have committed $43.5 M, or 6% of total demand associated with a buyer, with Chilean companies accounting for more than half of that value.

In other countries, public sector commitments to REDD+ readiness abroad are notably disconnected from private sector demand for forest carbon offsets like in Norway. Denmark and Finland have committed public money to readiness, but demand for forest carbon offsets among Danish and Finnish companies is nonexistent in present or historical market data. On the other side of the coin, carbon market actors in five countries – Canada, Chile, Sweden, Switzerland, and the United Arab Emirates – are active in purchasing forest carbon offsets despite no corresponding public sector commitments to REDD+ readiness.

Figure 14: Comparison of Readiness and Results-Based Forest Carbon Finance by Top Donor/Buyer Countries, All Years



Note: Based on all REDD+ readiness finance associated with a donor country and results-based finance associated with a buyer country between 2011 (the earliest year for which country-level data is available) and 2014.

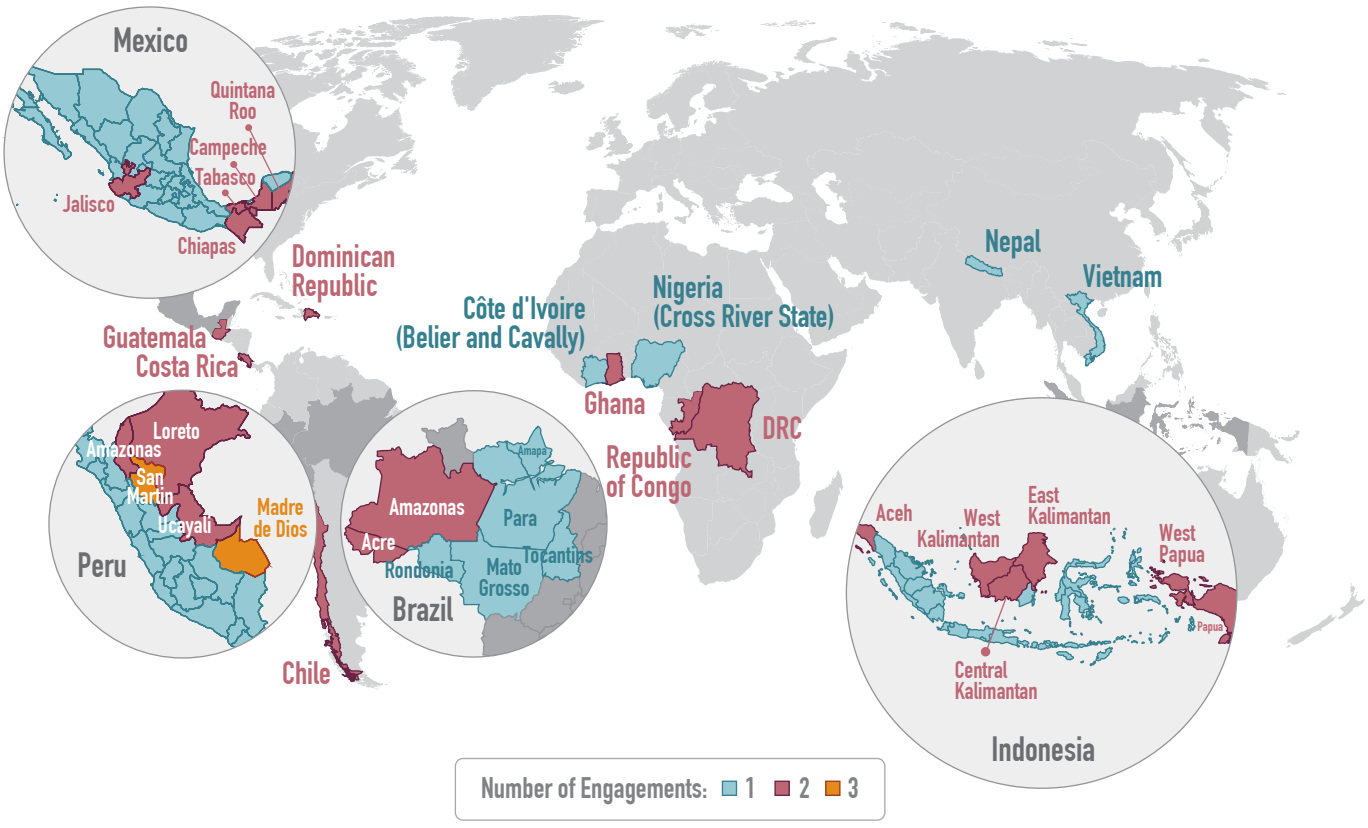
Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Projects Try to Sync With Larger-Scale Program Development

As tropical forest country governments progress from readying to implementing avoided deforestation programs, one of the key questions they face is how to incorporate project activities that have developed outside of UNFCCC efforts. Many forest carbon pilots have created reference levels for deforestation in a particular project area, achieved and verified emissions reductions under a standard, and received payments for offsets – all ahead of sub-national or national efforts to quantify avoided emissions from reducing deforestation.

The number of public sector REDD+ programs is expanding and includes both states/provinces and countries. The Governors' Climate and Forests (GCF) Task Force that supports the development of sub-national REDD+ programs added four new member governments in the last year to now engage with 26 tropical forest jurisdictions.[15] Several subnational governments – including Acre and Amazonas (Brazil); Madre de Dios and San Martin (Peru); and Mai Ndombe (DRC) – are working with VCS's Jurisdictional and Nested REDD+ (JNR) program, and Chile and Costa Rica are piloting VCS JNR at the national scale. And 11 countries have now presented Emissions Reductions Program Idea Notes to the World Bank's Forest Carbon Partnership Facility's (FCPF) Carbon Fund, meaning they are on their way to potentially receiving Carbon Fund payments for emissions reductions (see "Pending Pledges," p. 27-28).

Figure 15: Map of Public Sector REDD+ Programs Around the World



Note: Based on pilot initiatives tracked by Ecosystem Marketplace over the last six years.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

[15] These include: Acre, Amapá, Amazonas, Mato Grosso, Pará, Rondônia, and Tocantis in Brazil; Aceh, Central Kalimantan, East Kalimantan, Papua, West Kalimantan, and West Papua in Indonesia; Bélier and Cavally in Ivory Coast; Campeche, Chiapas, Jalisco, Quintana Roo, and Tabasco in Mexico; Cross River in Nigeria; and Amazonas, Loreto, Madre de Dios, San Martin, and Ucayali in Peru.

Figure 15 illustrates the jurisdictions that fall into these three categories – GCF Task Force Member, VCS JNR pilot, and FCPF Carbon Fund pipeline – with different shading for those in more than one category. Over time, Ecosystem Marketplace has tracked a total of 112 forest carbon projects in these jurisdictions, though not all of them are actively thinking about how to "nest" within state- or country-level efforts. Nesting describes the process by which project-level REDD+ activities may be reconciled with avoided deforestation efforts at a larger (e.g., state-, province-, or national-level) scale in order to access future flows of forest carbon finance and retain legitimacy.

In 2014, 40 projects reported on these nesting efforts – the most responses since this question was introduced three years ago. **More projects than ever (13) are now in preliminary discussions with government entities about how to incorporate their projects into emerging or planned REDD+ programs**. Another 13 are in the midst of technical discussions or engaged in integrating their project baselines with regional monitoring, reporting, and verification efforts.

However, a few projects "downgraded" from self-identifying as formal pilots in 2013 to now reporting that they're still seeking regulatory approval, or at an even earlier stage in the process. In some jurisdictions, this may be because governments are now getting more involved and beginning to put formal procedures in place that take time to implement. In others, it may be because nesting is more complex in practice than projects originally anticipated. For instance, in cases where a spatially defined project has achieved verified emissions reductions but the larger region has documented increased deforestation, reconciling reference levels is a particular challenge – and could have significant financial implications for projects.

Figure 16: Pilot Projects Reporting Progress Public Program Integration, 2012-2014

Notes: Based on 40 projects that reported nesting progress in 2014, 27 in 2013, and 18 in 2020.
*MRV = Measuring, Reporting, and Verification.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

Pending Pledges of $1.2 B to Pay for Emissions Reductions

While payments for emissions reductions are already flowing through three bilateral agreements (see p. 20-21), many more are in the works. Through the FCPF, the REDD Early Movers program, the BioCarbon Fund's Initiative for Sustainable Landscapes (ISFL), and bilateral deals between Norway and Peru and Norway and Liberia, a total of **$1.2 billion in additional non-market-based payments for VERs could flow in the coming years**.

Table 9: Pending Non-Market-Based Payments for VERs

From	To	Year Initiated	Pledged Amount	Payments for Emissions Reductions to Date
Forest Carbon Partnership Facility's Carbon Fund	Chile	Not specified	5.2 $MtCO_2e$	August 2014, Letter of Intent
	Costa Rica	$63 M	12 $MtCO_2e$	September 2013, Letter of Intent
	DRC	Not specified	10 $MtCO_2e$	June 2014, Letter of Intent
	Ghana	Not specified	18.5 $MtCO_2e$	September 2014, Letter of Intent
	Mexico	Not specified	8.7 $MtCO_2e$	November 2014, Letter of Intent
	Nepal	Not specified	14 $MtCO_2e$	June 2015, Letter of Intent
	Republic of Congo	Not specified	11.7 $MtCO_2e$	September 2014, Letter of Intent
	Vietnam	Not specified	10.3 $MtCO_2e$	December 2014, Letter of Intent
	Total	**$465 M currently in the fund**	**90.4 $MtCO_2e$**	**2013-2015**
Germany & Norway (REDD Early Movers)	Ecuador	$50 M[16]	10 $MtCO_2e$	December 2014, Memorandum of Understanding
	Colombia	$50 M	10 $MtCO_2e$	December 2014, Memorandum of Understanding
Norway	Liberia	$150 M ($70 M for readiness; $80 M for VERs)	Not yet specified	2014, Letter of Intent; VERs likely to pass through the World Bank
	Peru	$300 M ($50 M for readiness; $250 M for VERs)[17]	Not yet specified	2014, Letter of Intent; VERs likely to pass through the World Bank
Initiative for Sustainable Forest Landscapes	Ethiopia and Zambia (also scoping Colombia and Indonesia)	$360 M currently in the fund (~$100 M for technical assistance)	Not yet specified	No agreements signed to date

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

[16] REDD Early Movers amounts according to email correspondence with German development bank KfW in April 2015.
[17] The currency of the agreement is in Norwegian kroner – NOK 300 M for readiness and NOK 1.5 B for results-based payments. USD equivalents may change based on future exchange rates.

A flurry of LOIs signed bilaterally in the last two years between the FCPF's Carbon Fund and the governments of Chile, Costa Rica, DRC, Ghana, Mexico, Nepal, the Republic of Congo, and Vietnam specify a maximum number of VERs that Carbon Fund investors will pay for, but not (yet) a dollar amount, though investors have signaled that they're willing to pay around $5/tonne. Costa Rica's LOI is the only one that does specify a maximum value – of $63 M for 12 $MtCO_2e$. **The Carbon Fund currently has $465 M in potential results-based money**, and, in addition to the eight countries listed above, Guatemala, Indonesia, and Peru are also in the pipeline.

Also under the World Bank, the ISFL currently has $360 M[18] in capital from Norway, Germany, the UK, and the US. The initiative is considering four countries in which to pilot a landscape approach that might include agroforestry, water management, or clean cookstove programs as a part of comprehensive efforts to reduce deforestation[19] – with contracts expected to be signed for VERs. As of 2014, programs were opened in Ethiopia and Zambia while programs in Colombia and Indonesia were still in the scoping stage, with no official agreements signed to date.

In 2014, Norway signed LOIs with Liberia and Peru for $150 M and $300 M, respectively,[20] and starting in 2018, both countries will have the opportunity to earn money for VERs. If and when all of these LOIs and MOUs turn into Emissions Reduction Purchase Agreements (ERPAs) or similar contracts to pay for emissions reductions, they will be tracked as "committed" finance in the context of this report.

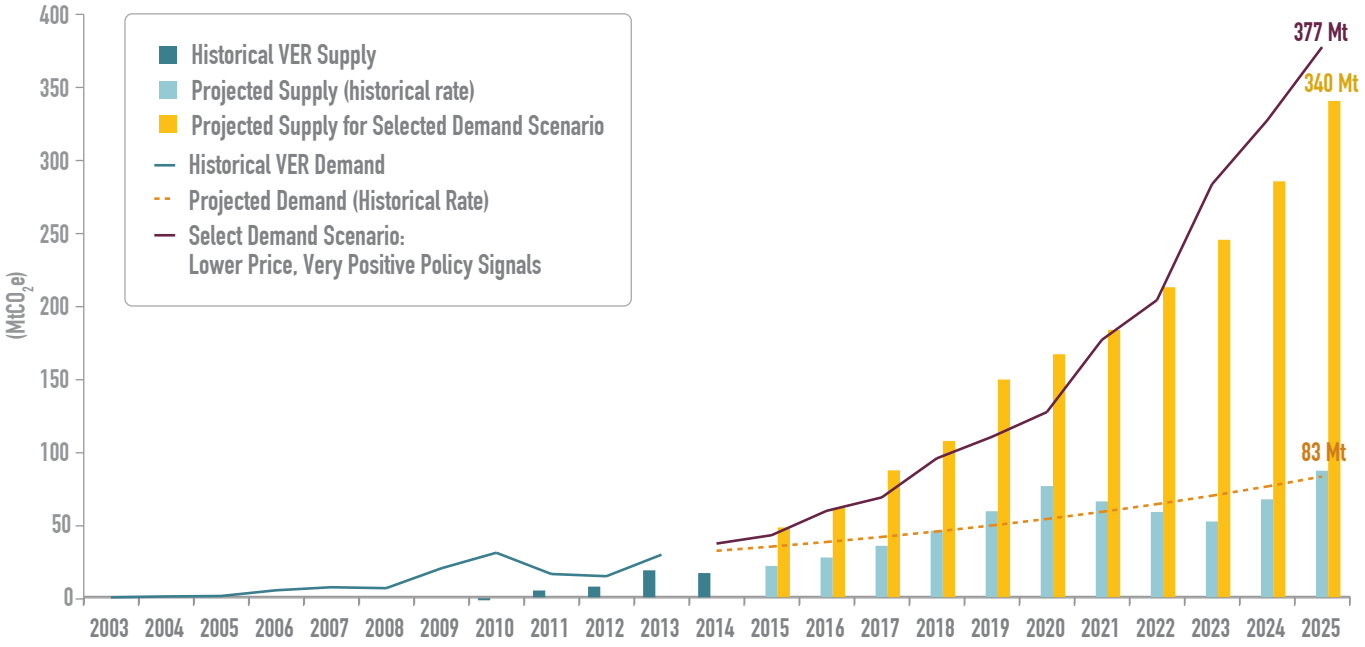
[18] The amount of capital available for ISFL is subject to exchange rate fluctuations. The Fund uses an average of actual and projected exchange rates over one calendar year to calculate commitments not yet received in USD.
[19] BioCarbon Fund: Initiative for Sustainable Forest Landscapes. 2015. Presentation to CSOs. Washington DC. (http://www.biocarbonfund-isfl.org/sites/biocf/files/documents/BioCF%20ISFL%20CSO%20Session%20Washington%20March%209%202015.pdf)
[20] These commitments were made in NOK; USD equivalent is approximate and subject to exchange rate changes.

On Voluntary Market, Supply Inevitably Exceeds Demand in Absence of "Very Positive" Policy Signals

While previous reports in this series have reported on survey respondents' unfailingly optimistic projections of future voluntary demand for forest carbon offsets, this year's model-based analysis offers a more sobering picture of supply and demand over the next 10 years. Looking at eight potential scenarios of policy and price signals, our model[21] projects that forest carbon offset supply destined for voluntary buyers will exceed demand in every scenario in 2020. Five years later, **in 2025, demand is projected to exceed supply in only two of the eight scenarios**: the two scenarios with "very positive" policy signals, one of which is pictured in Figure 17 below.

However, the past is not necessarily a good predictor of the future, and the model's projections vary widely based on policy and price signals, with voluntary supply going as low as 60 $MtCO_2e$ (in the "high offset prices, negative policy signals" scenario) in 2025 – or as high as 340 Mt for the "lower offset prices, very positive policy signals" scenario pictured in Figure 17. Demand projections fluctuate even more dramatically, from just 28 $MtCO_2e$ to 377 $MtCO_2e$ by the quarter-century mark.

Figure 17: Supply-and-Demand Projections for a "Lower Price, Very Positive Policy Signals" Scenario



Notes: Based on a decade's worth of proprietary Ecosystem Marketplace forest carbon data.
Full interactive model available at: http://theredddesk.org/markets-standards/analysis/forest-trends
Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

However, with either *positive* or v*ery positive* policy signals, voluntary demand is projected to reach a minimum of 106 $MtCO_2e$ by 2025 – up almost 350% from 2014 levels. *Positive* policy signals have historically

[21] To approximate forest carbon supply and demand, the model considers only forestry projects in developing countries and omits emissions reductions generated and contracted at the state, regional, or national scale that are expected to be bilaterally contracted between public agencies and are thus unrelated to voluntary market demand. The model homes in on policy and price signals because many other variables – project stage, project age, project type, project location, buyer location, standard and/or certification type, land tenure, project size, and economic performance of buyer country – were subjected to multivariate statistical significance tests and determined to be insignificant. The two variables that were significant were policy signals and price.

included positive news related to regional carbon trading programs (e.g., the Western Climate Initiative, the Costa Rica Carbon Program, Japan's J-Credit Scheme, etc.) while *very positive* signals have historically been larger in scale (e.g., the bill for nationwide cap-and-trade in the United States, the emergence of REDD+ methodologies under VCS, etc.). Examples of *negative* policy signals include press around unscrupulous actors involved in UK-based broker scams and *very negative* ones include the US Congressional failure to pass cap-and-trade legislation.

Our analysis finds that **positive policies have a disproportionate effect on the voluntary market compared to negative policies**, with demand tripling under positive policy scenarios but only halving in response to negative signals. Project developers are in general more responsive to positive market developments than are buyers, often quickly developing projects in an effort to capture "pre-compliance" demand. New policy developments in compliance markets also have knock-on effects in the voluntary market. As found in *The Bottom Line: Taking Stock of Corporate Demand for Voluntary Carbon Offsetting,*[22] unregulated companies that operate in the vicinity of a compliance offset market are more likely to be familiar with the mechanisms – and more likely to offset.

Prices also send strong signals to market participants, however, in a more dynamic and nuanced way. In general, demand for REDD+ offsets is highly elastic, with buyers purchasing more tonnes when prices are lower and fewer tonnes when prices are higher. Supply, on the other hand, is fairly inelastic, so when prices drop, suppliers often try to make up the difference by selling larger volumes.

[22] Allie Goldstein. 2015. The Bottom Line: Taking Stock of Corporate Demand for Voluntary Carbon Offsetting. Forest Trends' Ecosystem Marketplace: Washington, DC. (http://www.forest-trends.org/documents/files/doc_4858.pdf)

Solid Compliance Demand in California, Uncertainty Elsewhere

Compliance demand for forest carbon offsets tripled last year, and, given the market's historically steady but meager voluntary demand under most scenarios, many market actors are looking to emerging carbon pricing programs to pick up the slack. The outcome of the Paris negotiations may send a strong signal about a potential pathway for international results-based payments for REDD+. Yet, even following a positive outcome in Paris, formalized contributions to REDD+ regions would not go into force until 2020 – or later. In the meantime, there are a few key compliance carbon-pricing policies to watch.

California: With its up-and-running cap-and-trade program that allows regulated entities to use offsets to meet up to 8% of their compliance obligation, California represents the most certain source of demand for forest carbon in the next few years. Domestic forestry projects (from the lower 48 US states) made up more than half of total offset transactions in 2014, and as more sectors are folded under the regulation, demand is expected to ramp up – to the point that undersupply is projected unless the California Air Resources Board (ARB) adopts additional offset protocols. The state signed MOUs with Acre, Brazil and Chiapas, Mexico in 2010 to potentially collaborate on a REDD+ market, but the ARB has yet to set a timeline for making a decision on international offsets. Some experts predict discussions will resume in 2016. If the outcome is positive, buyers in the state could demand up to 40 $MtCO_2e$ of REDD+ offsets through 2020 (ARB limits the use of international offsets to 4% of the compliance emissions obligation). However, Brazilian states – and certainly pilot initiatives – may ultimately be limited by the national government in their ability to generate and transact emissions reductions sub-nationally, post-2020.

Australia: Australia repealed its carbon tax in July 2014 and replaced it with an AU$2.6 billion Emissions Reduction Fund through which the government purchases domestic offsets through a reverse auction. Offsets developed under the Carbon Farming Initiative are eligible, and in the first government auction in April 2015, land-use projects accounted for 60% of the 47 $MtCO_2e$ purchase, valued at AU$660 million. Analysts project that Australia will need to buy a total of 236 $MtCO_2e$ by 2020 to meet its target of reducing emissions 5% under 2000 levels[23] – but whether the government will follow through on this level of demand may be subject to political winds.

Korea: South Korea's Emissions Trading System launched in 2015 and aims to reduce emissions 30% under the business-as-usual scenario by 2020, making it the second-largest ETS in the world after the European Union's (which excludes forest carbon). Offsets may be used to meet up to 10% of compliance entities' obligations, for a potential demand of 57 $MtCO_2e$ in 2015. Domestic forestry is one of several allowed offset types. Starting in "Phase II" of the ETS in 2021, up to half of the offsets in the system may come from international sources, though the government has yet to determine whether this will include REDD+.[24]

China: China currently has seven sub-national carbon market pilots that allow compliance entities to use offsets for between 5% and 10% of their obligation. The country plans to launch nationwide cap-and-trade in 2017, and five of the 178 approved offset methodologies are for land-use interventions, though forest carbon project development has been limited so far.

Japan: Japan's Joint Crediting Mechanism (JCM) is designed as a results-based fund for low-carbon projects in developing countries – a tool to help Japan meet its 2020 emissions reduction target. As of 2014, the JCM had signed preliminary bilateral agreements with 12 countries and begun feasibility studies for 74 projects, five of which are REDD+.[25]

[23] ustralian Government, Department of the Environment. Australia's Emissions Projections. Available at: https://www.environment.gov.au/climate-change/emissions-projections

[24] International Carbon Action Partnership. 2015. Korea Emissions Trading Scheme. (https://icapcarbonaction.com/index.php?option=com_etsmap&task=export&format=pdf&layout=list&systems%5B%5D=47)

[25] Overview of the Joint Crediting Mechanism available at: http://gec.jp/jcm/about/index.html

South Africa: South Africa's carbon tax is set to take effect in 2016, and regulated entities are allowed to offset up to 10% of their obligation for a total potential demand of 30 $MtCO_2e$ annually.[26] Domestic forestry offset projects are eligible. However, since the tax has been delayed, market participants are taking a "wait-and-see" approach. As a result, forest carbon project development in South Africa has been very limited to date.

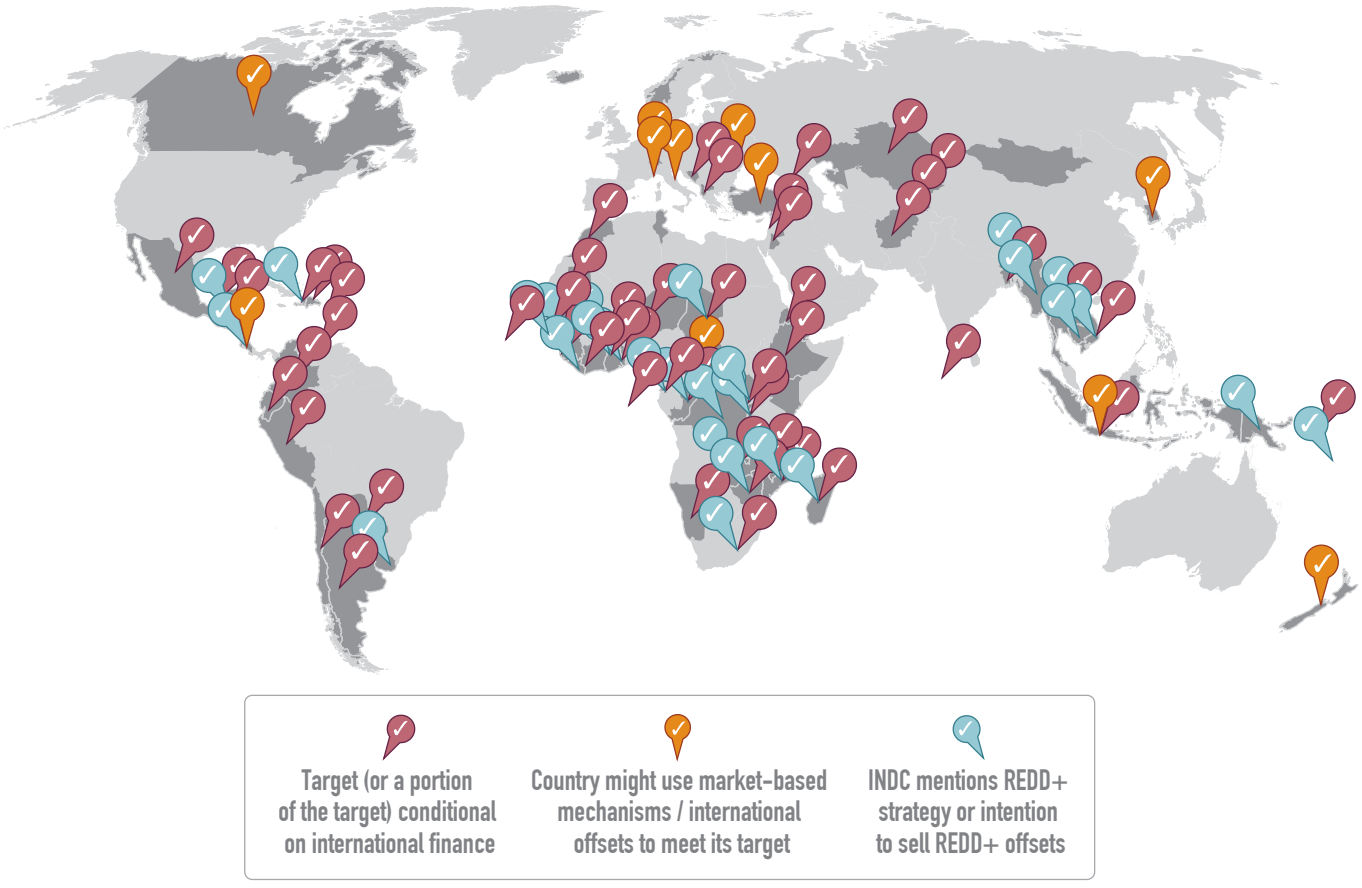
[26] National Treasury, Republic of South Africa. 2014. Carbon Offsets Paper for public comment. Available at: http://www.treasury.gov.za/public%20comments/CarbonOffsets/2014042901%20-%20Carbon%20Offsets%20Paper.pdf

Fifty-Seven Developing Country Commitments to Reduce Emissions Depend on International Finance

While compliance markets for forest carbon reached record demand last year, these markets – namely California's and Australia's – do not include REDD+ and therefore do not finance reduced deforestation in threatened tropical forests. The groundwork to do so is being laid under the UNFCCC.

At the December 2013 talks in Warsaw, negotiators decided on a "REDD+ Rulebook" that determined the basics on how countries should create deforestation reference levels and how they should measure, report, and verify activities designed to slow deforestation. In June 2015 in Bonn, negotiators compromised on the final three sticking points: safeguards, non-market payments, and non-carbon benefits. Now, **all eyes are on the Paris talks to see whether an international agreement will materialize**, which would pave the way for formalized and continued expansion of the early results-based payments already underway as tracked in this report.

Figure 18: The Role of Market-Based Mechanisms in Countries' Submitted Intended Nationally Determined Contributions (INDCs)



Notes: Based on analysis of 122 INDCs submitted to the UNFCCC as of October 9, 2015. The International Emissions Trading Association's INDC tracker summarizes the role of markets in the INDCs and is available here: https://docs.google.com/spreadsheets/d/1YgIQiiucWW9vuDUAMeRstzzLxTXi6zFWtFVClqtRTe4/edit

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

At the time of this report's publication, 150 countries (including the 28 European Union member states) had submitted their climate plans (known as Intended Nationally Determined Contributions, or INDCs) to the UNFCCC. These INDCs are the embodiment of the new "bottom-up" approach to an international climate deal, with each

country first self-determining what it thinks it can do and then meeting in Paris to formalize global ambition. Still, as Figure 18 reveals, the differentiation between developed and developing countries that was the basis of previous negotiations prevails. **Though developing countries are now expected to make emissions reductions alongside developed ones, they are still calling on rich countries to atone for their historic responsibility for climate change – primarily through finance.**

Of the developing countries that have submitted INDCs, 57 indicated both unconditional and conditional climate targets – with the more ambitious emissions reductions goals dependent on the flow of international finance. At least three – the Dominican Republic, Equatorial Guinea, and Madagascar – said that their entire climate commitment depends on international finance. Overall, **29 developing countries specified that they plan to implement a national REDD+ framework or sell REDD+ offsets**, and many others included the land-use sector but did not mention REDD+ specifically.

However, some developing countries – notably Brazil – have specified that while finance for avoided deforestation should be results-based, that's not the same thing as being offset-based. In other words, even if emissions reductions are quantified and verified, that doesn't mean that a financier may claim the tonnes against their own emissions. Meanwhile, 12 countries – among them Canada, New Zealand, South Korea, and Switzerland – specified that they *might* use international offsets to meet their INDCs.

Many more said they would not use international offsets to meet their targets. However, this doesn't preclude these countries from participating in an international carbon market or from financing REDD+, it simply means that these reductions will not be "counted" against their INDC target. Several countries that exclude market-based mechanisms from their UNFCCC climate plans – notably China, the EU, and the US – have existing carbon markets at some level, from regionally in the EU to sub-nationally in California.

Demand Developments to Watch

The Green Climate Fund: Total pledges to the Green Climate Fund (GCF) surged past the $10 B mark at last year's climate negotiations in Lima, Peru. While far short of the $100 B per year by 2020 that developed countries promised, it was a key milestone – and one that could impact demand for avoided deforestation if even a small portion of GCF money is used to finance REDD+ or climate-smart agriculture interventions. Forestry and land-use is a GCF priority - and one that might hit on both of its two objectives: climate change mitigation and adaptation in developing countries.

Aviation negotiations: To meet its goal of keeping global net carbon emissions from the aviation sector at 2020 levels post-2020 (and precluding the invention of a no-carbon jet fuel), the International Civil Aviation Organization (ICAO) will need to develop a market-based mechanism to reduce its emissions. Offsets are likely to be a key component, and ICAO is considering including REDD+ offsets in what would be the first sector-based ETS. The details are expected to be ironed out in time for ICAO's next triennial meeting in 2016.[27]

The New York Declaration on Forests: In September 2014, 37 national and 20 subnational governments, 53 companies and institutions, 16 indigenous community networks, and 54 civil society organizations committed to halving deforestation by 2020 and ending it by 2030. The private sector signatories represent $1.36 trillion in annual revenues tied in part to the "big four" deforestation-driving commodities: palm oil, soy, beef, and pulp and paper. Most of these companies – including household names such as Walmart, L'Oréal, Danone, McDonald's, and General Mills – have specific targets to reduce deforestation within their supply chains, with deadlines coming up fast. They join another 270 companies with similar commitments not tied to the Declaration but otherwise documented by the Supply Change project collaborators.[28] Emerging regional REDD+ certification (e.g., to FCPF Methodological Framework or VCS JNR) could be an obvious indicator of tropical forest regions that supply these commodities with a low(er) deforestation risk.

Internal carbon pricing: Currently, 437 companies are now calculating an internal price on carbon, according to CDP – more than triple the number from the previous year. Another 583 said they plan to start putting a price on carbon within two years.[29] Nearly a third of the companies that internally priced carbon in 2013 also engaged in carbon offsetting, according to an Ecosystem Marketplace analysis of CDP data. Buyers such as Microsoft, The Walt Disney Company, TD Bank, Aviva, and Barclays charge their business divisions according to their emissions and use a portion of the revenue to purchase offsets. As more companies put an internal price on carbon, more may turn to offsetting to neutralize unavoidable emissions.

Ecosystem-based impact investment: In response to a survey by NatureVest and Eko Asset Management Partners,[30] 51 private investors indicated that they intend to deploy $5.6 B in conservation impact investments before 2018 – almost triple the $1.9 B they spent between 2009 and 2013. About 1% of past investment ($58 M) went to land-based funding mechanisms such as REDD+. Investors said the limiting factor to growth is not available capital but rather a shortage of deals with the appropriate risk/return profiles. Public-private partnerships could help address this challenge. For example, the Althelia Climate Fund found a way to reduce risks to its REDD+ investors by securing a $133.8 M loan guarantee from the US Agency for International Development.

[27] Pamela Campos and Annie Petsonk. 2013. Implementing an ICAO Market-Based Measure to Limit Carbon Pollution. Originally published in The Air & Space Lawyer, Volume 26, Number 3. (c) 2013 by the American Bar Association. Available at: http://www.edf.org/sites/default/files/implementing_icao_market-based_measure_limit_carbon_pollution_asl_petsonkcampos_winter2013.pdf

[28] Supply Change is a project convened by Forest Trends. Its collaborators include Forest Trends' Ecosystem Marketplace, WWF, and CDP. More information at http://www.supply-change.org/

[29] CDP. 2015. Putting a price on risk: Carbon pricing in the corporate world. Available at: https://www.cdp.net/CDPResults/carbon-pricing-in-the-corporate-world.pdf

[30] NatureVest and Eko Asset Management Partners. 2014. Investing in Conservation: A Landscape Assessment of An Emerging Market. Available at: http://www.naturevesttnc.org/pdf/InvestingInConservation_Report.pdf

Methodology

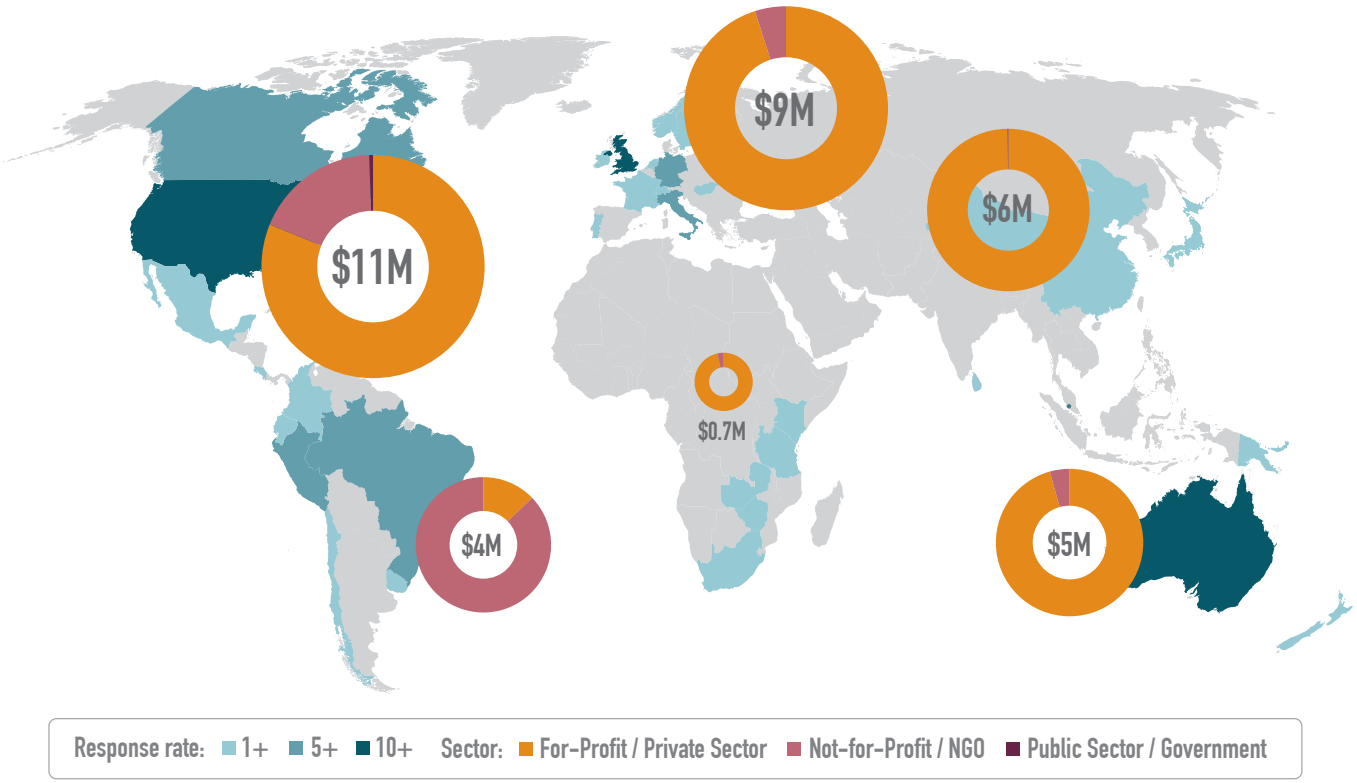
This report unites data from Forest Trends' Ecosystem Marketplace and REDD*X* initiatives. Ecosystem Marketplace tracks results-based payments for forest-based emissions reductions – historically focusing on market-based mechanisms. REDD*X* tracks REDD+ readiness and results-based finance to 13 tropical forest countries.

Both initiatives acknowledge a "commitment" at the point that a contract is signed. For results-based finance, this is when a supplier and buyer agree to the terms of payment and delivery of emissions reductions results, which may occur immediately or in future years. For REDD+ readiness, this is the point of contract between a donor and a recipient, when the delivery of funding from donors to recipients is legally guaranteed.

Ecosystem Marketplace distributes its global annual survey to hundreds of forest carbon project developers and offset retailers. A total of 144 agriculture, forest, and land-use projects and pilot initiatives reported detailed data on 2014 project activities. Historical analysis is also informed by another 316 pilots that provided data in previous years. Ecosystem Marketplace tracks both compliance-driven and voluntary carbon offset demand that includes demand for forest carbon offsets, as well as results-based agreements among governments.

Figure 19 illustrates regional response rate by country and profit status. Suppliers from 35 countries transacted offsets in 2014. Project developers and retailers were headquartered on six continents: 42 in North America, 39 in Europe, 19 in Latin America, 16 in Oceania, 6 in Asia, and 6 in Africa.

Figure 19: Response Rate by Country, Contracted Volume by Developers' Headquarters Region, and Market Share by Suppliers' Profit Status



Note: Based on 34.4 $MtCO_2e$ in contracted volume reported by 144 forest carbon offset project developers, retailers, and jurisdictional initiatives in 2014.

Source: Forest Trends' Ecosystem Marketplace, *State of Forest Carbon Finance 2015*.

REDD*X*'s primary data collection is carried out by national partners in each country: the Institute for Conservation and Sustainable Development of Amazonas in Brazil; Fundación Natura in Colombia; the University of Kinshasa in

the Democratic Republic of Congo (DRC); EcoDecisión in Ecuador; the Environment and Coffee Forest Forum in Ethiopia; the Nature Conservation and Research Centre in Ghana; Pelangi in Indonesia; the Skills and Agricultural Development Services in Liberia; an independent consultant in Mexico; the Wildlife Conservation Society in Papua New Guinea; the Peruvian Society of Environmental Law in Peru; an independent consultant in Tanzania; and Forest Trends Vietnam in Vietnam.

These partners conduct surveys and in-person interviews to track REDD+ readiness commitments from the original donor to the first recipient, and often through multiple organizations as the finance makes its way down to the ultimate implementing organizations. They determine the timing of the original commitment as well as when and how the finance flows. REDD*X* then hosts review workshops with national stakeholders to validate the data.

There are a few differences between our methodologies for collecting data on readiness versus results-based payments:

Geography: Results-based finance commitment data is global while readiness finance data is limited to13 tropical forest countries. These 13 countries account for the majority (65%) of global tropical forest cover.

Activities: REDD+ readiness finance is limited to activities – such as institutional strengthening, policy and law analysis, deforestation reference levels, and safeguards development – that will prepare for the implementation of REDD+, as defined by the relevant country government. Some governments include tree-planting and sustainable agriculture interventions as a part of their national REDD+ program (the "+" implies those additional activities) while others use a more limited definition for avoided deforestation. In contrast, results-based finance includes commitments to pay for emissions reductions from all land-use interventions – avoided deforestation, tree-planting, forest management, and sustainable agricultural land-use management, as well as emerging project types such as soil carbon and wetland restoration.

Sector: Historically, readiness finance has come mostly from public coffers while results-based payments fall under the purview of private sector actors looking to fulfill CSR commitments or comply with regulation. However, this distinction is beginning to fade as governments forge results-based contracts for VERs.

Scale: Most bilateral results-based finance currently go to project-level land-use interventions while most readiness finance is committed at a larger scale to national or sub-national governments. However, this is also a distinction that may soon be outdated as smaller-scale pilot activities "nested" into state-, regional-, and national-level efforts to curb deforestation.

Directory of Forest Carbon Offset Suppliers

Organization Name	Website
2050 Consulting	www.2050.se
33 Forest Capital	www.33forestcapital.com
3Degrees	www.3degreesinc.com
Algoma Highlands Conservancy	www.algomahighlandsconservancy.org
Allcot Group	www.allcot.com
Anthrotect	www.anthrotect.com
Asia Network for Sustainable Agriculture and Bioresources (ANSAB)	www.ansab.org
Asociación Indígena Campesina Gran Jardín de la Sierra	www.granjardindelasierra.com
Asociación para la Investigación y Desarrollo Integral (AIDER)	www.aider.com.pe
BaumInvest GmbH & Co	www.bauminvest.de
BioCarbon Group	www.biocarbongroup.com
BioCarbon Partners	www.biocarbonpartners.com
Biofilica Environmental Investments	www.biofilica.com.br
Blue Source LLC	www.bluesource.com
Bonneville Environmental Foundation	www.b-e-f.org
Bosque Sustentable, A.C.	www.sierragorda.net
Bosques Amazónicos SAC	www.bosques-amazonicos.com
BP Target Neutral	www.bptargetneutral.com
Brasil Mata Viva (IMEI Consultoria)	www.brasilmataviva.com.br
Brinkman Climate	www.brinkmanclimate.com
Carbon Africa Ltd	www.carbonafrica.co.ke
Carbon Clear	www.carbon-clear.com
Carbon Green Africa	www.carbongreenafrica.net
Carbon Market Solutions Ltd	www.carbonmarketsolutions.com
Carbon Neutral	www.carbonneutral.com.au
Carbon Online Kft.	www.carbononline.co
Carbon Tanzania	www.carbontanzania.com
Carbon Trade Exchange	www.ctxglobal.com
Carbonfund.org Foundation, Inc.	www.carbonfund.org
CarbonSinkGroup S.r.l.	www.carbonsink.it
Carbosur	www.carbosur.com.uy

Organization Name	Website
Cassinia Environmental	www.cassinia.com
CEDECO	www.cambio2.org
Centro de Conservación, Investigación y Manejo de Áreas Naturales - Cordillera Azul (CIMA - Cordillera Azul)	www.cima.org.pe/
China Carbon N.V.	www.chinacarbonfund.com
China Green Carbon Foundation	www.thjj.org
City of Arcata	www.cityofarcata.org
Clean Air Action Corp	www.TIST.org
ClearSky Climate Solutions	www.clearskyclimatesolutions.com
CLevel	www.clevel.co.uk
Climate Friendly	www.climatefriendly.com
Climate Trust	www.climatetrust.org
ClimatePartner GmbH	www.climatepartner.com
CO_2OL	www.co2ol.de
Compensation International Progress S.A-Ciprogress Greenlife	www.ciprogress.com
Conservation Carbon Company	http://conservecompany.com/
Conservation International	www.conservation.org
Cool Planet	www.coolplanet.com.au
Cooperativa Agraria Cacaotra Acopagro	www.acopagro.com
Cooperativa AMBIO	www.ambio.org.mx
CPS Carbon Project Solutions Inc.	www.carbonprojectsolutions.com
C-Quest Capital LLC	www.cquestcapital.com
Credible Carbon	www.crediblecarbon.com
Delta Institute	www.delta-institute.org
Ducks Unlimited, Inc.	www.ducks.org
EcoAct	www.eco-act.com
Ecomapuá Conservação Ltda.	www.ecomapua.com.br/quem_bio.html
EcoPlanet Bamboo	www.ecoplanetbamboo.com
Ecotierra	www.ecotierra.co/en
Ecotrust Forest Management	www.ecotrustforests.com
EcoTrust	www.ecotrust.org
EcoWay S.p.a	www.ecoway.it
EKO Asset Management Partners LLC	www.ekoamp.com
Ekos	www.ekos.org.nz

Organization Name	Website
Face the Future	www.facethefuture.com
Ferrero Trading Lux SA	www.ferrero.com
FiniteCarbon	www.finitecarbon.com
First Climate Markets AG	www.firstclimate-climateneutral.com/gb/
Fondazione per l'Ambiente T.Fenoglio	www.fondazioneambiente.org
Forest Carbon	www.forestcarbon.co.uk
Form Ghana Ltd.	www.formghana.com
Fundação Amazonas Sustentável (Sustainable Amazonas Foundation)	www.fas-amazonas.org
Green Farm / CEO	www.greenfarmco2free.com.br
Green Resources	www.greenresources.no
GreenCollar Group	www.greencollarclimate.com.au
Greenfleet	www.greenfleet.com.au
Greenoxx NGO	www.greenoxx.com
HIBB & CO. TOGO	www.hibbcotogo.com
IDESAM	www.idesam.org.br
InfiniteEARTH Ltd	www.infinite-earth.com
Initiative Développement	www.id-ong.org
Lee International	www.go-worldlee.com
Livelihoods Venture	www.livelihoods.eu
Mikro-Tek Inc	www.mikro-tek.com
Mindo Cloudforest Foundation	www.mindocloudforest.org
Mountain Association For Community Economic Development	www.maced.org
NativeEnergy, Inc.	www.nativeenergy.com
New Forests	www.forestcarbonpartners.com
Northwest Natural Resource Group	www.nnrg.org
Nucleo Carbonio	www.rivistasherwood.it/serviziecosistemici/
Numerco	www.numerco.com
Offsetters Climate Solutions	www.offsetters.ca
ONF International	www.onfinternational.org
Pacific Forest Alliance	www.pacificforestalliance.org
Permanent Forests NZ	www.permanentforests.com
Peru Carbon Fund	www.perucarbonfund.com
Planetair	http://planetair.ca/
PrimaKlima -weltweit-	www.primaklima.org

Organization Name	Website
Pronatura México, A.C.	www.neutralizate.com and www.pronatura.org.mx
Rainforest Alliance	www.rainforest-alliance.org/
Regione Autonoma Friuli Venezia Giulia and Regione Veneto	www.regione.fvg.it; http://www.regione.veneto.it
Socio-eCO2nomix-Global	www.vccslindia.org/
South Pole Carbon	www.southpolecarbon.com
Sustainable Carbon Projetos Ambientais Ltda.	www.sustainablecarbon.com
Sustainable Travel International	www.sustainabletravel.org
Taking Root	www.takingroot.org
Terra Global Capital, LLC	www.terraglobalcapital.com
Terraprima	www.terraprima.pt
The CarbonNeutral Company (now Natural Capital Partners)	www.carbonneutral.com
The Cochabamba Project	www.cochabamba.coop
The Conservation Fund	www.conservationfund.org
The Nature Conservancy	www.nature.org
The Paradigm Project	www.theparadigmproject.org
Tierra Resources	www.tierraresourcesllc.com
TimberWest	www.timberwest.com
Uganda Carbon Bureau	www.ugandacarbon.org
Verus Carbon Neutral	www.verus-co2.com
Vi Agroforestry	www.viagroforestry.org
Wildlife Conservation Society	www.wcs.org
Wildlife Works	www.wildlifeworks.com/
Yorkshire Dales Millennium Trust	www.ydmt.org
ZeroMission	www.zeromission.se

Note: These forest carbon offset suppliers responded to Ecosystem Marketplace's survey in 2015 and indicated that they would like to be listed in the report directory. This is not a comprehensive list of all forest carbon offset suppliers.

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Ecosystem Marketplace

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

Water Initiative

Protecting watershed services through markets and incentives that complement conventional management

Forest Trade & Finance

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

BBOP

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

the katoomba group

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

Communities and Markets

Supporting local communities to make informed decisions regarding their participation in environmental markets, strengthening their territorial rights

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Marine Ecosystem Services Program

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Public-Private Co-Finance Initiative

Creating innovative, integrated, and efficient financing to support the transition to low emissions and zero deforestation land use

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