Ecosystem Marketplace
A FOREST TRENDS INITIATIVE

Not So Niche

Co-benefits at the Intersection of Forest Carbon and Sustainable Development

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Foreword

The historic 2015 Paris Agreement on climate change recognizes the central role of forest protection in keeping global temperature rise in check. But saving forests without also protecting the people who inhabit them would be like saving museums but throwing out the art. More than 1.6 billion people depend on forests for their livelihoods. Forests are key sources of food and medicine. They protect watersheds, provide habitat for countless species, and regulate local climate. And they're an endless source of inspiration and cultural value, particularly for indigenous peoples.

This report grew out of a growing interest in understanding the beyond-carbon impacts of the hundreds of forest projects around the world designed to sequester carbon or avoid imminent emissions. Forest Trends' Ecosystem Marketplace began tracking these co-benefits in 2014, and we refined and expanded our related questions in our annual carbon markets survey in 2015. The findings are best understood in the context of the carbon markets information detailed in *Converging at the Crossroads: State of Forest Carbon Finance 2015*, which tracked record levels of climate finance flowing to forest protection.

The findings of our research show that, though finance flows to forest carbon projects on the basis of verified emissions reductions (known as "offsets" when purchased by buyers), project developers and buyers alike often say that the beyond-carbon impacts are the reason they are active in the carbon market in the first place. From job creation to land tenure reform to women's empowerment to biodiversity protection, this report conveys the multiple benefits that project developers tracked on the ground in 2014 – and the extent to which they were able to measure and verify them.

At the same time, the report reveals that while the companies and governments paying for forest carbon offsets are highly motivated by their associated co-benefits, the value of these "beyond-carbon" impacts is rarely captured monetarily. Ongoing efforts to improve measurement of and communication about forest carbon projects' multiple benefits – and to grow demand for the resulting emissions reductions – could allow project developers to create more opportunities for local communities and more effectively protect the myriad ecosystem services associated with forests. Providing finance for co-benefits would also incentivize project developers to more accurately monitor and report on impacts, thus ensuring that they occur and allowing investors to channel finance to where it is most needed.

This will be increasingly important as global efforts to halt tropical deforestation ramp up, and as the world rallies around the 17 Sustainable Development Goals – many of which, we argue, could be achieved in part through enhanced forest protection.

We hope that the information presented in this report will inspire confidence in the carbon markets' ability to deliver real results while at the same time providing a useful benchmark in terms of the current state of measuring and reporting on co-benefits. We are, as always, grateful to the hundreds of practitioners from every corner of the world that disclosed 2014 market data and the dozens that reported the details of impacts on people and ecosystems.

Michael Jenkins
Founding President and CEO
Forest Trends

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The Beyond-Carbon Impacts of Forest Carbon Projects: An Overview

The landmark Paris Agreement reached by 195 countries in December 2015 reaffirms the strategic importance of forest protection in the fight against climate change. Once again, this agreement encourages forested countries to enhance their natural carbon "sinks" through forest protection and calls on wealthy nations to offer results-based payments for avoided deforestation, and it sends a strong signal for scaled-up climate finance for forests in the near future.

The goal of the Agreement is clear: to limit global temperature rise to no more than 2°C while "pursuing efforts" to keep it even lower, to 1.5°C. However, just as it recognizes that the problem of climate change is anthropogenic, the Paris Agreement also recognizes that the solutions are people-centric. Countries agreed that curbing climate change must at the same time drive sustainable development, advance access to renewable energy, and promote the rights of indigenous peoples, gender equality, health, human rights, and more. Indeed, the Paris Agreement opens by welcoming the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs).

In many ways, the merging of forest, climate, and sustainable development agendas is already happening. Apart from the direct benefit of forest protection on decreasing carbon emissions and increasing carbon sequestration, forest projects yield indirect benefits, sometimes called co-benefits, multiple benefits, or synergies.[1] Forest carbon project developers and offset buyers have recognized these co-benefits, and Ecosystem Marketplace (EM) has learned through our annual carbon markets surveys that for some buyers, co-benefits are the primary reason for purchasing offsets from forest carbon projects. However, in many ways market participants are in the nascent stage of figuring out how to robustly deliver, measure, verify, and communicate co-benefits. This report explores the following questions: How are project developers identifying co-benefits? Are they monitoring and verifying impacts and if so, how? Does the market value of carbon offsets and other results-based payments reflect the achievement of co-benefits?

For the last six years, Ecosystem Marketplace has tracked developments in the forest carbon markets. Demand for forest carbon offsets in 2014 reached 34.4 million (M) tonnes of emissions reductions ($MtCO_2e$) as buyers injected $257 M into projects that reduce emissions from deforestation and forest degradation (REDD+),[2] plant trees, or promote carbon-conscious forest management. Despite the market growth, supply continues to exceed demand. This report goes beyond the headline numbers of our *State of Forest Carbon Finance 2015* report to look at the beyond-carbon impacts of carbon projects. While not a comprehensive research project, we document project-level efforts to achieve climate results that also improve local livelihoods and protect ecosystem services.

In 2014, these projects employed thousands of people, protected habitat for dozens of endangered species, and provided other measurable development benefits to forest communities across six continents. Though commonly called "co-benefits," these impacts are a testament to the fact that climate protection and sustainable development goals are impossible to separate. In this report we dive into the concept of forest conservation and sustainable development as two sides of the same coin and examine its state of play. Our hope is that our findings may provide important proofs of concept for how forest carbon projects can be designed to achieve verifiable sustainable development results and attract larger-scale financing to close the gap between supply and demand, and to operate across greater land areas such as at the regional or country level.

[1] We use the term "co-benefits" in this report because it is the widely used term, and because in the context of the carbon markets, it is the carbon benefits that buyers directly pay for. However, we do not mean to imply a hierarchy of importance (e.g., that carbon benefits are most important and the others are "co"- or secondary benefits).

[2] The "+" in REDD+ is used to indicate that avoided deforestation projects often include activities such as agroforestry or improved forest management that address the drivers of deforestation.

Key Findings

Overarching Concepts

- Though referred to as "co"-benefits in the context of carbon markets, the beyond-carbon impacts of forest carbon projects are often of equal or greater importance to buyers of emissions reductions – and project developers often say they could not deliver climate results without also addressing issues such as local economic development, poverty alleviation, and land tenure reform.
- Many forest carbon projects reported to Ecosystem Marketplace on multiple impacts, with the most (78 projects) reporting on community benefits and the fewest (37) reporting on targeted benefits to women. While the carbon markets are in many ways at the forefront of figuring out how to apply results-based finance to non-carbon benefits, they are also at the beginning stages of this effort.
- Co-benefits, in particular biodiversity and community impacts, are often the "major" reason why buyers engage in forest carbon markets in the first place. However, buyers are not necessarily paying more per tonne for projects with verified co-benefits.
- Third-party standards offer frameworks for measuring and reporting on co-benefits, but the specific indicators tracked are often left up to project developers, making it difficult to compare impacts across projects.
- Clearer demand signals for co-benefits, in terms of both (higher) offer pricing and more specific "asks" for metrics, could support more on-the-ground impacts. This is beginning to happen as buyers get more sophisticated about the claims they make, and as standards evolve to better monitor and report on co-benefits.
- Improved co-benefits metrics at the project level could inform the Sustainable Development Goals as well as government-to-government agreements to stop tropical deforestation as these global efforts necessarily scale up to larger geographical scales.

About the Impacts

- **Land tenure & carbon ownership:** At least 22.4 million (M) hectares, an area the size of Ghana, was under active carbon management in 2014. Forest carbon projects helped to clarify land tenure across 2.2 M hectares.
- **Jobs & training:** Forest carbon projects employed nearly 8,000 people in 2014, three-quarters of them men. They also trained more than 46,000 people in skills such as agroforestry techniques, fire management, tree nursery management, and carbon accounting and monitoring.
- **Local communities & benefits sharing:** Communities directly owned 2.2 $MtCO_2e$ of the carbon offsets transacted in 2014, valued at $12 M. In addition, project developers made at least $4.3 M in direct payments to communities.
- **Women:** thirty seven projects reported empowering women through employment, leadership opportunities, education, and market access, though many acknowledged gender inequality as an entrenched problem.
- **Vulnerable & marginalized groups:** Forty-one projects provided benefits to marginalized and vulnerable populations by, for instance, targeting employment opportunities to indigenous peoples, landless farmers, or disabled individuals.
- **Biodiversity:** Forest carbon projects protected habitat for 141 endangered species, including charismatic fauna such as the Amazonian manatee, the giant armadillo, and the red-handed howler monkey. Forty-seven projects encompassed land areas with High Conservation Values (HCVs).
- **Water:** The watershed benefits of forest carbon projects were difficult to quantify but included erosion control, reduced flood risk, and improved water quality, sometimes because of community water projects.
- **Climate resilience:** Seventy projects reported that benefits such as habitat protection, increased community income, and forest fire management helped people and ecosystems build resilience to climate change impacts.

Methodology

This report is based on Ecosystem Marketplace's global annual survey of forest carbon and land-use project developers, and offset retailers active in the voluntary and compliance carbon markets. Survey respondents reported on the 2014 activities of a total of 144 agriculture, forest, and land-use projects, including the number of offsets transacted in 2014 and their prices. We consider "transactions" to occur at the point of contract when suppliers and buyers agree to the terms of offset delivery and payment. While our *State of Forest Carbon Finance 2015* report captures both the primary and secondary market transactions that compose total market value, this report's focus on project-level co-benefits means that all transaction volumes and values included are associated with the primary market – the initial offset sale from the project developer to either an end-user or a retailer.

Our annual survey of 2014 activity included detailed questions on co-benefits. The carbon market survey was open from February 9, 2015 through April 1, 2015. We did additional outreach to forest carbon project developers regarding the co-benefits questions between June 24, 2015 and July 28, 2015 and made a concerted effort to reach all active project developers. To supplement information obtained through our annual survey, we also conducted semi-structured interviews with project developers and other experts on co-benefits. (See the acknowledgements for more details.)

Of the 144 projects that reported to our survey, 81 (56%) answered at least a portion of our questions on co-benefits. The responses are broken down further here:

Table 1: Number of Projects Responding to Co-benefits Questions by Market Type, Country Development Status, Project Region, Project Type, and Standard

Market Type		Project Location, Country Development Status	
Voluntary	Compliance	Developed	Developing
68	7	21	58
Project Region			
North America	Latin America	Asia	Africa	Europe
11	38	5	15	5
Project Type			
REDD+	Tree-planting	Improved Forest Management	
28	33	17	
Standard			
Climate, Community & Biodiversity (CCB) Standards	Gold Standard	Plan Vivo	Other
34	4	5	27

Notes: Not all categories sum to 81 because not all projects responded to every question.

Source: Forest Trends' Ecosystem Marketplace. 2016. *Not So Niche: Co-benefits at the Intersection of Forest Carbon and Sustainable Development.*

The response rate by third-party standard is perhaps the most interesting to note, since standards are the main way that projects measure and verify co-benefits impacts. The Climate, Community & Biodiversity (CCB) Standards are co-benefits standards managed by and most often used alongside the Verified Carbon Standard (VCS); 30 projects that responded to the co-benefits questions used both together, though CCB was also used alongside other carbon standards in a few cases. Gold Standard and Plan Vivo are carbon standards that incorporate co-benefits requirements within their design (see standards tables, p. 23-25). The "other" category incorporates standards such as the Climate Action Reserve, Australia's Carbon Farming Initiative, the Pacific Carbon Standard, and internal/proprietary standards used by fewer than three projects. These other standards are designed to assess carbon sequestration or avoided emissions in forests but do not specifically measure co-benefits.

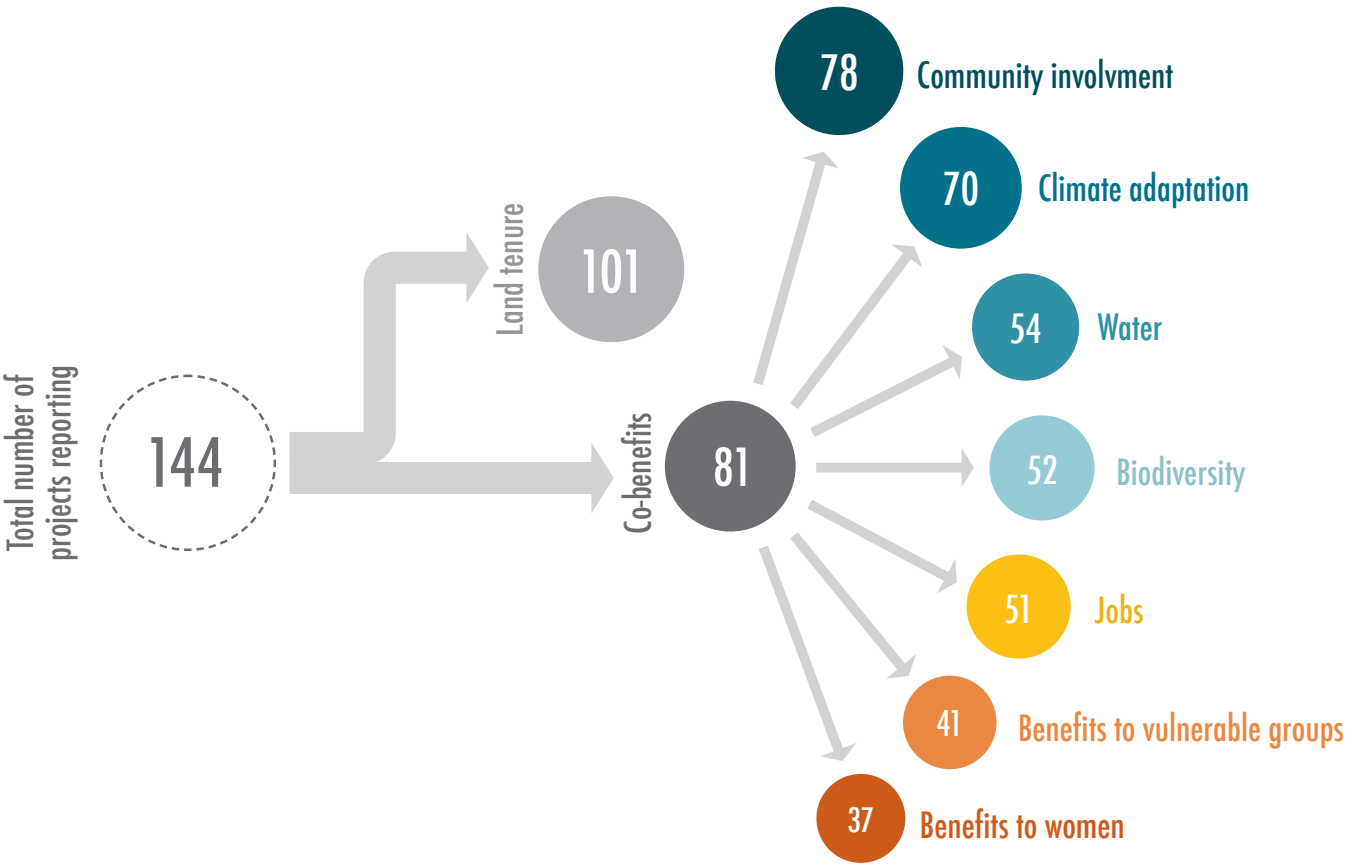
The fact that many projects that *didn't* use a co-benefits-inclusive standard nonetheless reported on multiple impacts may speak to the fact that these beyond-carbon impacts are in many ways inherent to forest carbon projects. Still, it is important to understand that only those impacts audited under a third-party standard are verified – and for *verified* impacts, it is also important to consider project stage. For instance, of the 34 reporting CCB projects, 22 had undergone verification while 12 were using the standard to guide project design and implementation but had not yet reached the verification stage.

Thus, the numbers and examples cited throughout this document are *as reported to Ecosystem Marketplace* through our annual carbon survey. Verifying impacts was beyond the scope of this survey-based project. The report should thus be considered our first attempt to aggregate disparate co-benefits data across multiple standards and explore the level of sophistication of measurement and reporting.

We asked projects to report on impacts achieved across several impact categories: land tenure; jobs and training; local communities and benefits sharing; women; vulnerable and marginalized groups; biodiversity; water; and climate adaptation. As shown in Figure 1, the number of projects responding varied by impact.

For benefits with relatively obvious potential metrics, we asked projects for specific data, such as the number of people employed or the estimated monetary value of direct payments to community members or associations. For benefits with less established metrics, we asked more open-ended questions, with the intention that the answers would provide insights into the "state of play" in terms of how project developers are currently tracking this co-benefit. Across all of the co-benefits questions, we asked respondents to limit their reporting to impacts achieved in the calendar year 2014 – the same timeframe as the market data – though for some metrics, we recognize that delineating impacts by year may be impractical. The survey also included questions about the demand for co-benefits: To what extent were buyers' offset purchases motivated by beyond-carbon impacts or tied to specific metrics other than verified emissions reductions?

Figure 1: Number of Projects Responding to Questions within Impact Categories



What this report does not cover

Because this report covers co-benefits at the level of forest carbon projects, it does not look at jurisdictional-scale avoided deforestation initiatives, and it does not discuss the REDD+ Social and Environmental Standards (SES) which are being used by governments to ensure the integrity of avoided deforestation programs as they develop at the state or country scale.

Although perhaps obvious, it is also important to note that this report does not cover the impacts of projects that didn't report to Ecosystem Marketplace's survey, and we cannot speculate about their presence or absence. It is possible that some projects did not report on co-benefits because they did not deliver them, but it's also possible that they simply chose not to respond because of time constraints, uncertainty about the value of reporting the data, or another reason.

Impact: Land Tenure & Carbon Ownership

The 144 forest carbon projects reporting to Ecosystem Marketplace's survey in 2014 covered at least 22.4 M hectares – an area about the size of Ghana. Our 2015 survey asked project developers to report the percentages of land by ownership type as well as the percentage of carbon rights owned by communities. It is important to understand that land ownership is not the same as carbon ownership. In some cases, carbon ownership is clearly "bundled" with land ownership, meaning one cannot be transferred without the other. But in other cases, carbon rights and land rights may be bought and sold as separate entities. In many countries carbon rights have yet to be clearly defined.[3]

In response to our survey question about who owns the land, 101 projects reported on land tenure. Land tenure is the legal structure that determines how lands can be used by individuals and communities. Our survey divided land tenure type into five categories: collective or customary ownership (e.g., cooperatives); private ownership by a single landowner; private ownership by many smallholders (each of whom privately own their own land); government ownership; and land concessions (e.g., land rights temporarily or permanently granted to another group by a government or private owner).

Collective or customary land tenure was the most commonly reported (see Figure 2), covering at least 9.4 M hectares across 24 projects, though only about one $MtCO_2e$ in offset sales were associated with collectively owned land. Private land tenure spanned 6.6 M hectares, with 45 projects reporting private ownership by many smallholders (associated with 3.1 $MtCO_2e$) and 17 reporting a single private landowner (associated with 3.7 $MtCO_2e$). A total of 19 projects reported that all or a portion of their land area was government-owned, covering a total of 0.5 M hectares, and 9 projects reported that their land was under a concession, also covering 0.5 M hectares.

When we asked about the percentage of the carbon rights owned by communities, only 35 projects responded. Of these, 21[4] said the carbon was 100% community-owned. This translates to communities owning at least 2.2 $MtCO_2e$ of the offsets transacted in 2014 and directly earning an estimated $12.1 M from the sales. Another 14 said that communities owned a portion of the carbon asset in the project. The majority of the projects (19) that reported some percentage of community carbon ownership also reported collective or customary land ownership (Figure 2), though community members sometimes owned all or a portion of the carbon asset on government-owned or privately owned land.

Carbon ownership is a question that many forest carbon projects are still figuring out in real-time. In part because all major carbon standards require documentation of land ownership, forest carbon projects can help to clear up ambiguous land ownership situations. **A total of 27 forest carbon projects covering 2.2 M hectares reported that land tenure was clarified as a result of their activities**, for instance by gaining legal documentation for existing claims, by facilitating arbitration between conflicting parties, or by providing the financial resources for communities to engage in a legal land tenure process. For example, in the Multi-Species Reforestation project in Mato Grosso, Brazil, project developer ONF International provided technical assistance with GIS to help local people map their properties and meet Brazil's law that landowners must not deforest more than 20% of an area in order to maintain private land ownership.

In some cases, forest carbon projects entered uncharted territory in terms of land and carbon rights. In the Yaeda Valley REDD+ project in Tanzania, members of the Hadza hunter-gatherer tribe fought to apply Tanzanian law in a new way and became the first to secure Customary Rights of Occupancy at the community level. In the Cheakamus improved forest management project in British Columbia, Canada, project developer Brinkman Climate worked with the government on an Atmospheric Benefit Sharing Agreement (known as an "ABSA") that allowed the carbon rights to be lent out to the First Nations involved in the project for a set amount of time. Both processes took several years but may pave the way for future projects to secure similar agreements.

[3] Fernanda Almeida, Alexadre Corrivea-Bourque, and Annie Thompson. 2014. *Status of Forest Carbon Rights and Implications for Communities, the Carbon Trade, and REDD+ Investments*. Rights and Resources Initiative. Available at: http://www.rightsandresources.org/documents/files/doc_6594.pdf

[4] Note that Figure 2 shows 19 projects with 100% carbon ownership. The discrepancy is because two projects that reported 100% carbon ownership did not also report on land tenure.

Figure 2: Impact of Forest Carbon Projects on Land Tenure and Carbon Ownership in 2014

101 forest carbon projects reported on land tenure

35 forest carbon projects reported on carbon ownership

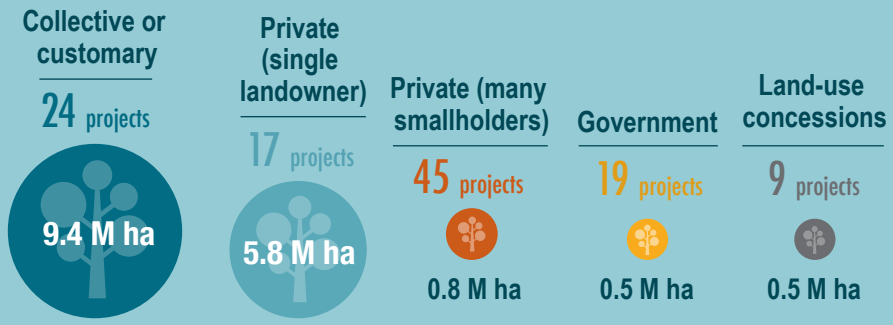
COMMON METRICS TRACKED BY PROJECTS:

Type of land tenure; carbon ownership

27 projects helped to clarify land tenure in the project area, affecting a total of **2.2 M** hectares

Count of Projects Reporting Land Tenure Type and Carbon Ownership, 2014

Hectares associated with this land tenure type and number of projects, 2014



Communities owned an estimated 2.2 $MtCO_2e$ of the carbon offsets transacted in 2014, valued at $12.1 M

Source: Forest Trends' Ecosystem Marketplace. 2016. *Not So Niche: Co-benefits at the Intersection of Forest Carbon and Sustainable Development.*

Note: Based on responses associated with 10.7 $MtCO_2e$. Note that projects reported the percentage of hectares under each tenure type.

Impact: Jobs & Training

The impact of forest carbon projects on local economies is one of the more straightforward co-benefits categories to measure, and many project developers train and employ local people. **Nearly 8,000 people were directly employed by forest carbon projects in 2014, including almost 3,000 people in Latin America and more than 2,500 people in Africa**. Almost all of the jobs were rural and created in developing countries, and more than 1,200 people were employed in Least Developed Countries,[5] including the Democratic Republic of Congo (DRC), Ethiopia, Nepal, Tanzania, Uganda, and Zambia. Most projects employed fewer than 10 people, though a few – mainly large-scale tree-planting projects – employed dozens or hundreds, contributing significantly to the total numbers. The 8,000 total represents only direct employment.

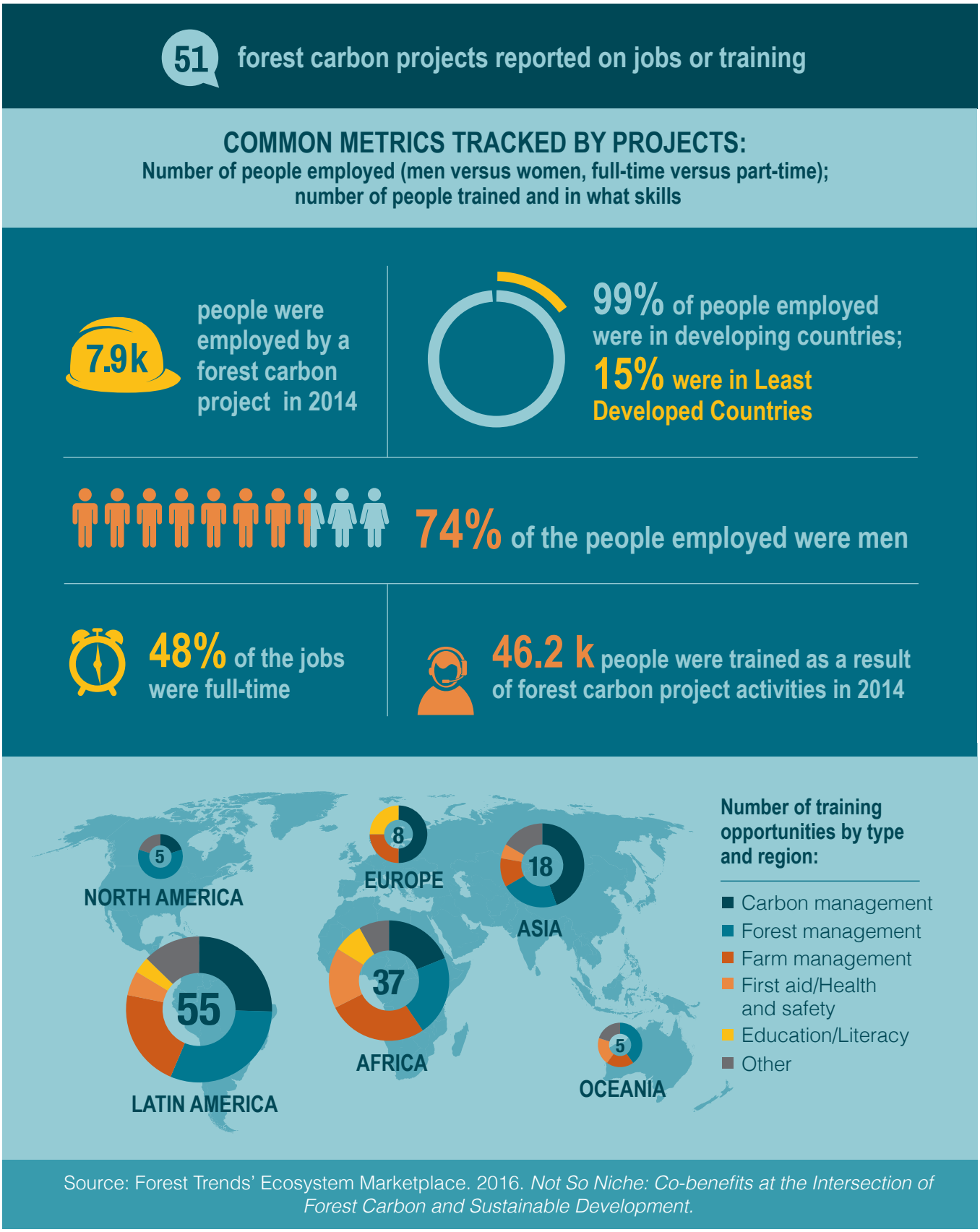
Members of the Hadza tribe learned how to map and measure the carbon content of their woodlands. Photo courtesy of Carbon Tanzania.

About half of the jobs were full-time roles while the other half were part-time or seasonal employment. **The survey responses revealed a gender imbalance among those employed by forest carbon projects, with women holding one-quarter of the total jobs**. The gender gap was the widest in Latin America, where women held only 20% of jobs associated with forest carbon projects in 2014. Africa and Asia had the narrowest gender gaps, but still in both of these regions women held only 32% of jobs. Across all regions, only four projects employed more women than men. Several project developers described culturally enforced gender roles as part of the problem.

Beyond employment, forest carbon projects also trained more than 46,000 people in 2014, mainly in Africa (75% of people trained) and Latin America (22%). People were trained in a wide range of skills, though most skills fell into the broad categories of forest management and carbon management. To this end, people were trained in agroforestry techniques, taking forest inventories, local forestry laws, fire management, carbon accounting and monitoring, GPS use, tree nursery management, monitoring biodiversity with wildlife cameras, REDD+ science and policy, and more. However, projects also trained people in a range of other skills more widely associated with economic development, health, and education. Examples of other training areas included: accounting, marketing, beekeeping, eco-charcoal production, organic crop management, public health (including HIV/AIDS), handicrafts, and the effects of climate change.

[5] A Least Developed Country is a country that exhibits the lowest indicators of socioeconomic development as defined by the United Nations. A list and more information is available here: http://data.worldbank.org/region/LDC.

Figure 3: Impact of Forest Carbon Projects on Jobs and Training in 2014



Source: Forest Trends' Ecosystem Marketplace. 2016. *Not So Niche: Co-benefits at the Intersection of Forest Carbon and Sustainable Development.*

Impact: Local Communities & Benefits-Sharing

Aside from revenue earned directly through carbon ownership or employment, local communities also benefitted from forest carbon projects in other ways, and 78 project developers reported some level of detail about these non-monetary community impacts. Twenty-two projects reported direct cash payments to community members or associations. These payments were sometimes, but not necessarily, connected to community carbon ownership: 11 projects reported direct cash payments to community members, even if communities did not legally own the carbon asset.

Overall, though, direct payments were not a major way that forest carbon projects impacted local economies. Job creation, carbon asset ownership, and general economic development through, for instance, improved farming practices or routes to market were more common. Fifty-five project developers reported on a wide range of "community benefits:" everything from major infrastructure improvements (boreholes for clean water, a phone tower, a generator, a waste management center) to essential supplies (school books, dental kits, vaccinations, mosquito nets, condoms, an outboard motor for river transport) to community services (a fire truck, a health center, agricultural extension services, an agricultural cooperative).

Projects' reporting on community benefits also ranged in terms of specificity. Wildlife Works was one project developer that had extensive metrics, reporting 8,463 students receiving school supplies, 486 medical consultations, and 660 mothers and infants vaccinated in 2014 in their Mai Ndombe REDD+ project in the DRC. Carbon Green Africa also got specific for its Kariba REDD+ project in Zimbabwe, reporting that the rehabilitation of 65 boreholes provided cleaner water to 35,000 people. Other projects reported less easily quantified community benefits, mentioning impacts such as "pride about their community."

To better understand the distribution of local benefits and community inclusion, Ecosystem Marketplace also asked projects who decides how to spend the cash payments or distribute the non-monetary resources. Twenty-one projects reported representative decision-making such as through a director's board, city council, village government, landowner management committee, or tribal leaders. Five reported individual decision-making by, for instance, individual farmers; two reported that all community members got together to vote or come to consensus; and four reported a combination of processes.

Beyond resource management, we also asked project developers to identify all of the ways in which communities were involved (or not) in project activities more broadly in 2014 (Figure 4). The results were similar to 2013's responses. **Most projects (53) reported that community members "implemented project activities" while in far fewer projects (16) community members *led* management of the project**. Informing community members about project activities and obtaining free, prior and informed consent (FPIC)[6] is a tenet of leading carbon standards, but informing did not always lead to consultation about project design. Standards are working on improving the quality of community involvement by requiring more meaningful participation (see Carbon and Co-benefits Standards, p. 21).

[6] FPIC is the principle that a community has the right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy, or otherwise use. More information is available from the Forest Peoples Programme: http://www.forestpeoples.org/guiding-principles/free-prior-and-informed-consent-fpic.

Figure 4: Impact of Forest Carbon Projects on Local Communities in 2014

78 forest carbon projects reported on community involvement

20 forest carbon projects reported monetary values related to benefits sharing

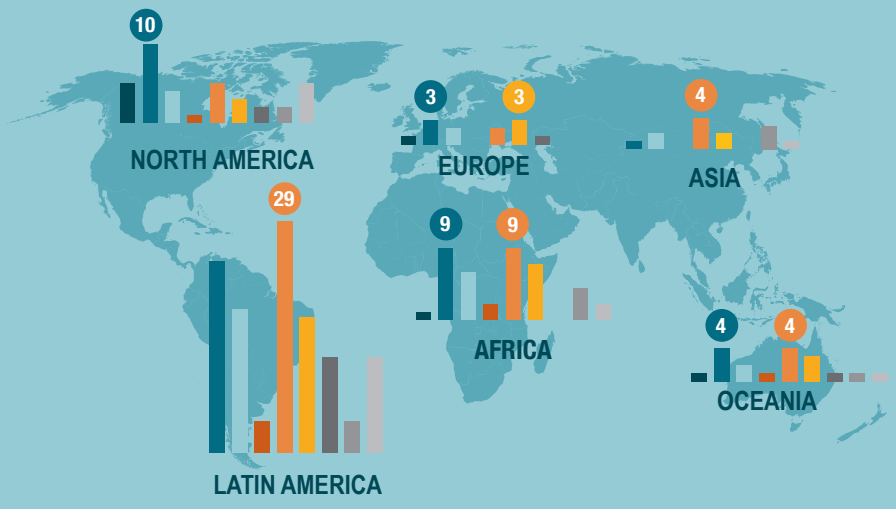
COMMON METRICS TRACKED BY PROJECTS:

Specific community benefits and their estimated value; any direct cash payments to communities; whether project benefits the poorest population or indigenous peoples

22 projects reported direct payments to communities

55 projects reported additional direct benefits to communities

Count of projects reporting community/stakeholder engagement, by region, 2014



Type of community stakeholder engagement:

- Were not involved in the project
- Received information about the project
- Were consulted in the design of the project
- Led project design
- Implemented project activities
- Monitored project performance
- Led management of the project
- Owned a portion of associated carbon assets
- Owned all associated carbon assets

Who decides how to spend the money or distribute the resources?

21 projects representative decision-making

5 projects individual decision-making

2 projects community-wide decision-making

4 projects mixed/ other

Source: Forest Trends' Ecosystem Marketplace. 2016. *Not So Niche: Co-benefits at the Intersection of Forest Carbon and Sustainable Development.*

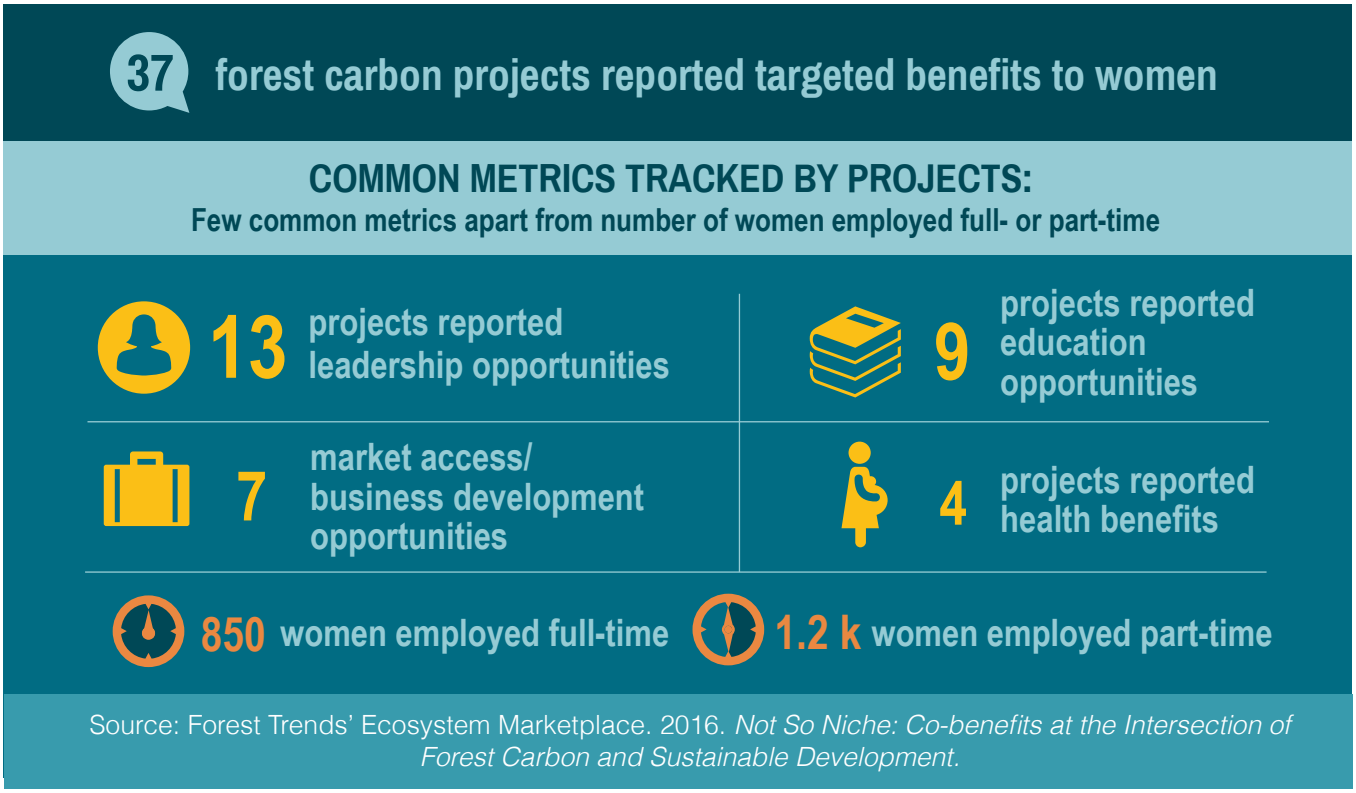
Impact: Women

Many forest carbon project developers are thinking deeply about the role of women and girls in forest management, especially since some research shows that gender equity in natural resource management is not only a matter of justice but also a means to improve conservation outcomes.[7,8] Of the projects that reported detailed co-benefits data to Ecosystem Marketplace's survey, 37 specifically reported on targeted benefits to women. Commonly reported benefits included education for women and girls (9 projects), market access or business development (7 projects), and health benefits, particularly when clean cookstoves were used as a means to reduce deforestation (4 projects).

The most frequently mentioned term in the write-in response, however, was leadership opportunities. One example is TIST, the International Small Group Tree Planting Program that operates in India, Kenya, Tanzania, and Uganda and includes women by design. TIST has worked with 60,000 small farmers since 1999 and requires that at least one of each group's representatives be female. **Many other projects also mentioned "equal opportunity" as a tenet of their design, but there was a sentiment among respondents that gender inequality is an entrenched problem**. It takes long-term commitment to change, they said, and even then the cultural barriers to parity can be strong.

Beyond employment, several projects focused on specific economic opportunities for women, such as small business development, income diversification, or microfinance. In its projects in Central America, EcoPlanet Bamboo provides all of their 300+ full-time employees a $5,000 life insurance policy – implemented mainly in response to women's desire for financial stability. Women make up 28% of EcoPlanet's 600+ employees across Central America, South Africa, and Ghana, and they hold some of the highest-level positions: supervisors, plantation managers, and general managers at the country level.

Figure 5: Impact of Forest Carbon Projects on Women in 2014



[7] Agarwal, Bina. "Gender and Forest Conservation: The Impact of Women's Participation in Community Forest Governance." *Ecological Economics* 63, no 11, 2009: 2785-2799.
[8] Westermann, Olaf, Jacqueline Ashby, and Jules Pretty. "Gender and social capital: The importance of gender differences for the maturity and effectiveness of natural resource management groups." *World Development* 33, no. 11, 2005: 1783-1799.

Impact: Vulnerable & Marginalized Groups

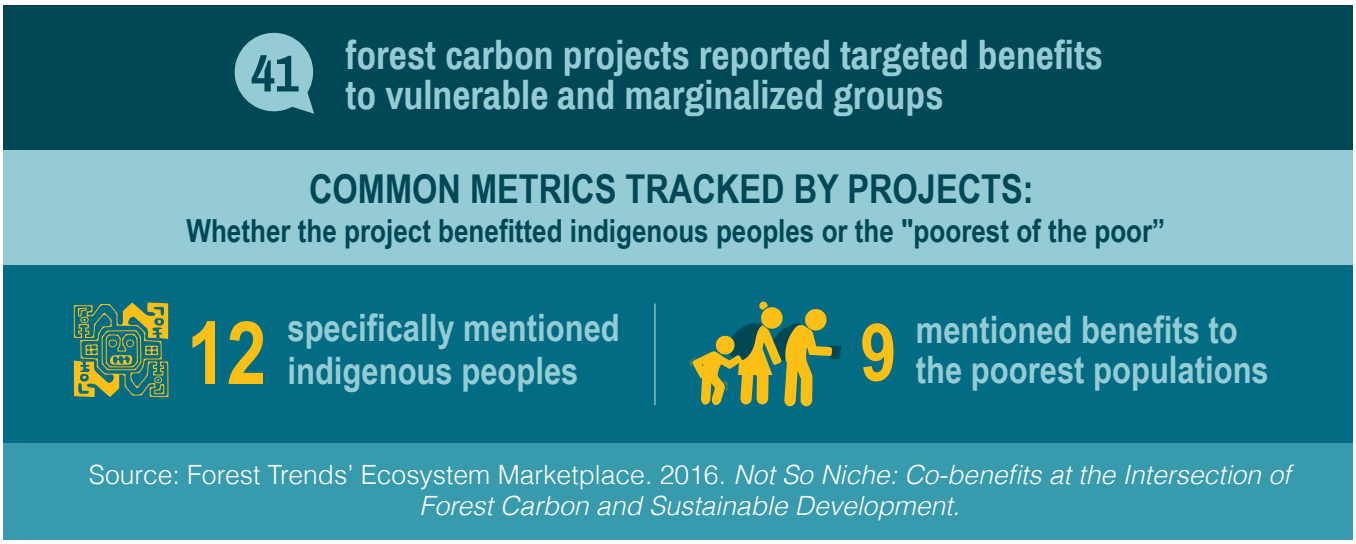
Many forest carbon projects seek to provide opportunity specifically for vulnerable and marginalized groups, and 41 reported examples to Ecosystem Marketplace's survey for 2014. These projects mostly mentioned economic opportunities such as employment, market access, and income diversification, as well as training in technical skills. **A handful of projects offered targeted employment opportunities for indigenous people, landless farmers, disabled individuals, and other marginalized groups.**

Nine projects were explicitly designed to benefit the poorest populations – one way to earn distinction under the CCB Standards (see p. 23). **Often, economic benefits to vulnerable populations were directly linked to carbon ownership, with the offset payments flowing to poor people.** Several project developers identified specific vulnerabilities and tried to address them. In a reforestation project in Loreto, Peru, for instance, project developer Plant Your Future identified female and/or elderly heads of households for extra support.

Twelve projects specifically mentioned benefits to indigenous peoples, who are disproportionately among the poorest populations in the world.[9] The survival of indigenous communities is intricately connected with the survival of the world's remaining forests. According to a recent study by the World Resources Institute, indigenous peoples have legal rights to an eighth of the world's forest area and, on average, keep deforestation rates 11 times lower than on land owned and managed by non-indigenous peoples.[10] However, **just a few forest carbon projects – the Great Bear project in British Columbia, Canada, and the Surui REDD+ project in Rodonia, Brazil, for instance – are fully indigenous-owned.**

Skeptical of capitalist markets that have historically excluded or bulldozed them, some indigenous groups are creating their own version of "Indigenous REDD+" that includes non-market mechanisms, with avoided deforestation payments going towards funding indigenous "Life Plans" – essentially low-deforestation economic development roadmaps.[11] The concept of Indigenous REDD+ will be increasingly important under the Paris Agreement, which embraces both market and non-market approaches for REDD+. It also lays the groundwork for investment at larger geographic scales that will necessarily include more indigenous territories.

Figure 6: Impact of Forest Carbon Projects on Vulnerable and Marginalized Groups in 2014



Source: Forest Trends' Ecosystem Marketplace. 2016. *Not So Niche: Co-benefits at the Intersection of Forest Carbon and Sustainable Development.*

[9] Gillette Hall and Harry Springs. 2010. "Indigenous Peoples, Poverty, and Development." Accessed February 12, 2016: http://go.worldbank.org/IEJYK3VL00.
[10] Caleb Stevens, Robert Winterbottom, Katie Reytar, and Jenny Springer. *Securing Rights, Fighting Climate Change*. Washington, DC: World Resources Institute, 2014.
[11] See: Ecosystem Marketplace. 2015. "Full Circle: REDD+ and Indigenous People." Accessed March 17, 2016 (http://www.forest-trends.org/publication_details.php?publicationID=4942)

Impact: Biodiversity

Fifty-three forest carbon projects reported to Ecosystem Marketplace on biodiversity benefits, responding to targeted survey questions about protection of endangered species and areas of HCV.[12] Of these, 34 projects listed a total of **141 endangered species protected across six continents** – a few examples appear in Figure 7. Aside from tracking specific species, forest carbon projects often look at their contribution to HCV areas as a proxy for measuring biodiversity protection. The CCB Standards specifically require a "do no harm" approach for HCV areas within the project area. All told, 47 projects reported on their protection of HCVs. The majority of forest carbon projects that reported protecting HCV areas were located in Latin America.

Clockwise from upper left: Red-handed howler monkey, Baird's tapir, maned wolf, and giant armadillo.

As national REDD+ programs move from the "readiness" to the results-based payment phase, experts are thinking about how best to learn from the project-level experience of measuring biodiversity. A 2014 study by the Forest Carbon, Markets and Communities program found that many forest carbon projects do not have quantitative biodiversity baselines, making it difficult to determine whether biodiversity impacts are a result of project activities. In addition, they track a limited number of indicators (e.g., measuring expanded forest cover but not necessarily connectivity).[13] The study concluded that national REDD+ programs could set measurable goals that more closely align with the Aichi Biodiversity Targets of the Convention on Biological Diversity.

[12] An HCV area is an area of significant biological, ecological, social, or cultural importance at the national, regional, or global scale. More information about HCVs is available through the HCV Resource Network: https://www.hcvnetwork.org/.
[13] Panfil, Steven and and Celia A. Harvey. 2014. "REDD+ and biodiversity conservation: Approaches, experiences and opportunities for improved outcomes." USAID-supported Forest Carbon, Markets and Communities (FCMC) Program, Washington, DC, USA. Accessed March 17, 2016 at:: http://www.fcmcglobal.org/documents/Biodiversity_Standards_Synthesis.pdf.

Figure 7: Impact of Forest Carbon Projects on Biodiversity in 2014

53 forest carbon projects reported on biodiversity benefits

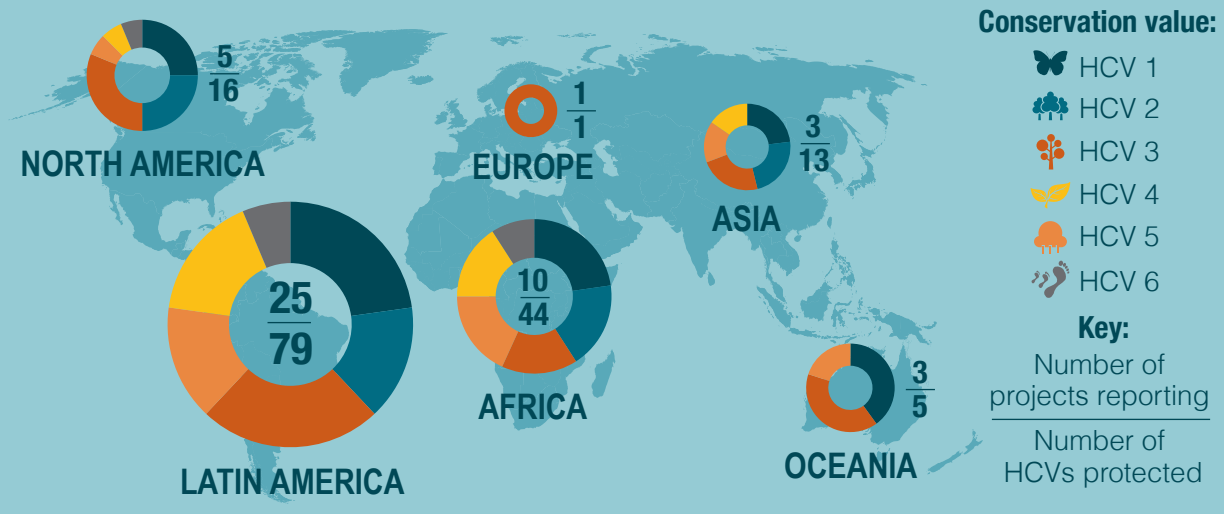
COMMON METRICS TRACKED BY PROJECTS:

Endangered or threatened species protected;
whether the project protects an area of High Conservation Value

141 vulnerable or endangered species protected by forest carbon projects

A few examples of those that appear on the IUCN Red List: bearcat, Baird's tapir, giant pangolin, Borneo bay cat, Amazonian manatee, maned wolf, giant armadillo, bearded pig, marbled cat, red-handed howler monkey

Count of Projects and Protected HCVs by Region



HCV 1 = Rare, threatened, or endangered species
HCV 2 = Intact forest landscape and large landscape-level ecosystems that contain viable populations of the majority of a species
HCV 3 = Rare, threatened, or endangered ecosystems, habitats, or refugia
HCV 4 = Basic ecosystem services in critical situations (e.g., water catchments, vulnerable soils)
HCV 5 = Sites and resources fundamental to local communities and indigenous peoples
HCV 6 = Sites, resources, habitats, and landscape of global or national cultural, archaeological, or historical significance

Source: Forest Trends' Ecosystem Marketplace. 2016. *Not So Niche: Co-benefits at the Intersection of Forest Carbon and Sustainable Development.*

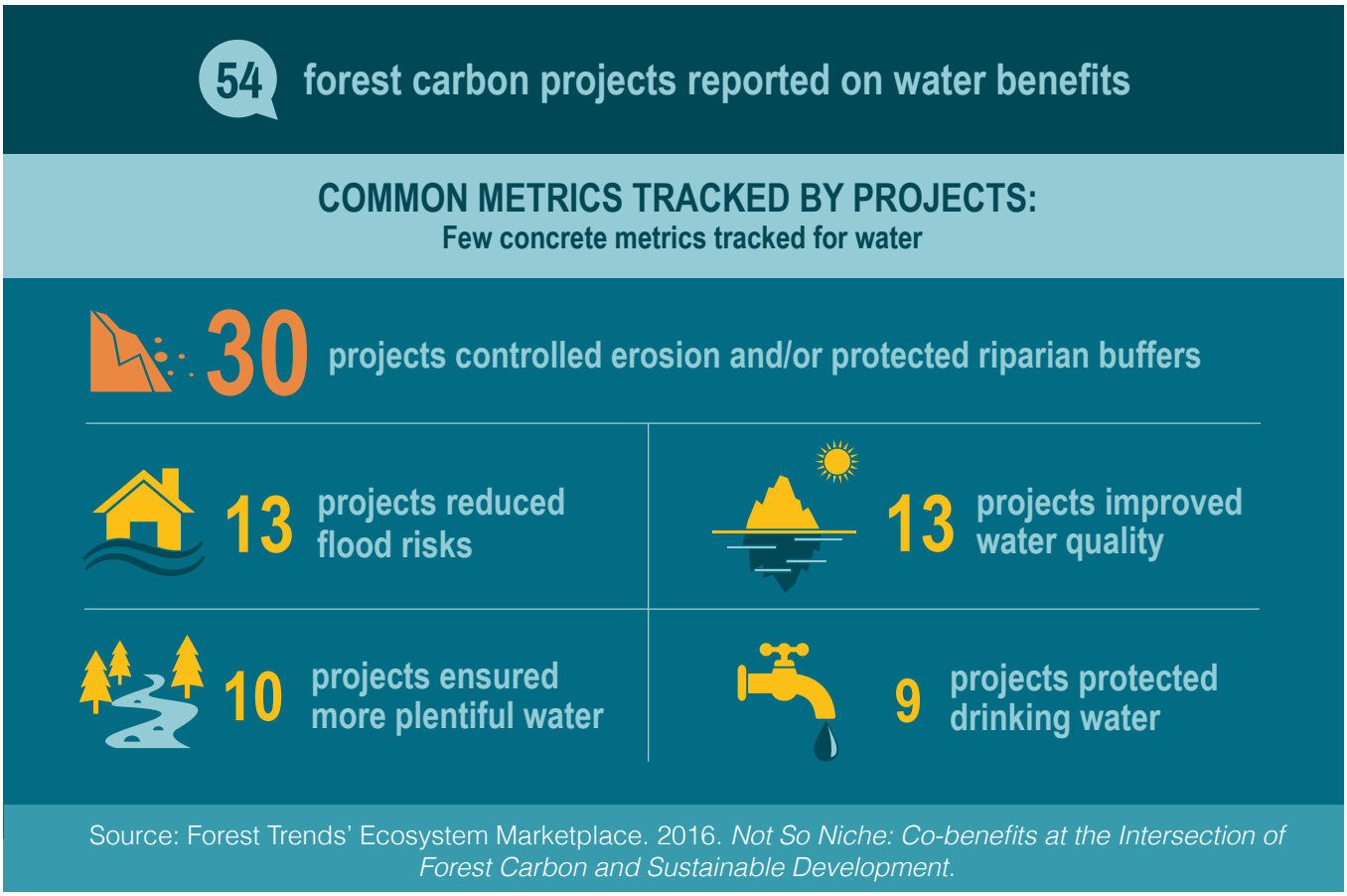
Impact: Water

Like biodiversity impacts, the water benefits of forest carbon projects are in some cases inherent – forests exist within watersheds, after all. Watershed protection is often directly connected to biodiversity benefits: for example, the Katahdin Iron Works project in Maine provided a source of cold water for the endangered Atlantic salmon, whose habitat is downstream of the forest management project. Beyond these "inherent" impacts, some forest carbon projects specifically implement drinking water benefits as a part of project design. In these cases, new water infrastructure may be directly supported by carbon finance.

Overall, 54 forest carbon projects reported provisioning cleaner, or more plentiful water in 2014. The most common water benefits reported were controlled erosion or protected riparian buffers (30 projects), reduced flood risk (13), and improved water quality (13), with other projects reporting recharged groundwater, reduced risk of wildfire, and provisioned drinking water, sometimes through built infrastructure such as boreholes. Water benefits are often strongly connected to climate resilience ones (detailed next in Climate Resilience, p. 17), since forests buffer against extreme weather events. They hold land in place, reducing the risk of landslides during flash floods, and they slow over-ground flows, refilling groundwater and aquifers.

Still, though project developers were keen to cite examples of water benefits, few reported specific metrics. One put it bluntly: "This is very expensive and difficult to measure, thus we don't." One exception was the Sodo Community Managed Reforestation project in Ethiopia, which actually surveyed community members on water availability. Eighty-five percent of survey respondents reported improvements in water availability and indicated that water flow in twelve springs returned as a result of the project. However, this level of rigor in reporting the water benefits of forest carbon projects was relatively rare.

Figure 8: Impacts of Forest Carbon Projects on Water in 2014



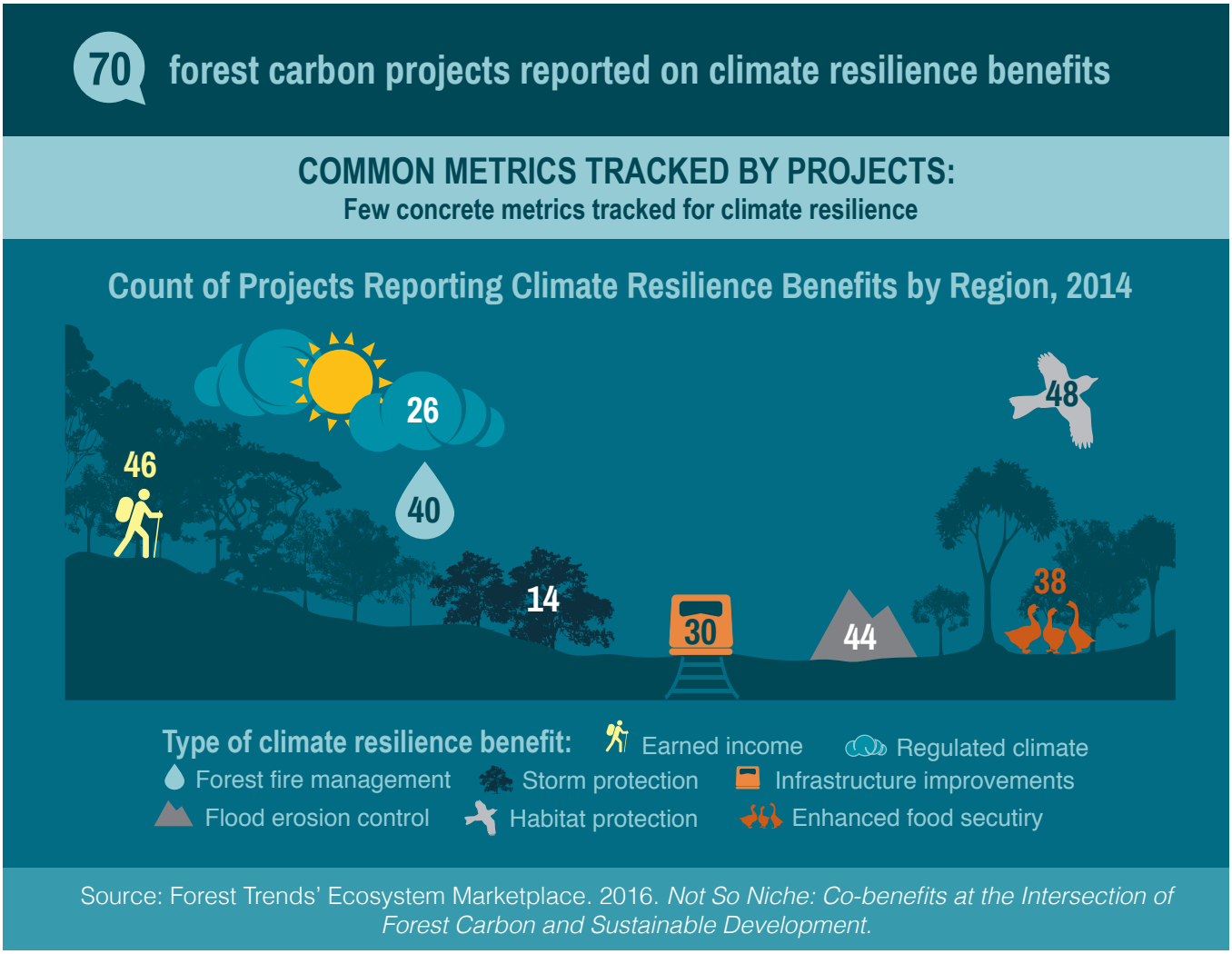
Source: Forest Trends' Ecosystem Marketplace. 2016. *Not So Niche: Co-benefits at the Intersection of Forest Carbon and Sustainable Development.*

Impact: Climate Resilience

Seventy projects responding to Ecosystem Marketplace's survey reported that activities in their project area helped people or ecosystems to build resilience to the effects of climate change, including hotter temperatures, changing precipitation patterns, hotter and more dangerous forest fires, and increased frequency of extreme events such as droughts, floods, and storms. **The most common ways that forest carbon projects reported building resilience were through (1) habitat protection, which gave key species and landscapes a buffer against increased climate risk, and (2) earned income for communities, since so often economic resources are the key to adaptive capacity.**[14]

Many projects also reported on flood erosion control, forest fire management, and enhanced food security as a result of project activities. Kahlil Baker of Taking Root noted that the major resilience impact of their CommuniTree reforestation project in Nicaragua is the ability to decouple income from extreme weather events: farmers involved in the project are paid for tree-planting, and this diversified income gave them an advantage during a recent Central American drought that led to widespread crop failure.

Figure 9: Impacts of Forest Carbon Projects on Climate Resilience in 2014



Source: Forest Trends' Ecosystem Marketplace. 2016. *Not So Niche: Co-benefits at the Intersection of Forest Carbon and Sustainable Development.*

[14] Intergovernmental Panel on Climate Change. "Adaptation Opportunities, Constraints, and Limits." *In Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 899-943. Cambridge, United Kingdom: Cambridge University Press, 2014.

However, **comprehensive metrics for evaluating the effectiveness of climate adaptation efforts do not yet exist,[15] and no project developer reported that offset buyers sought specifics to back up resilience claims.** The CCB Standards' guidance on adaptation requires documentation of a counterfactual "without project" scenario and leaves it up to project developers to define their own indicators. For example, an indicator might be the extent to which new planting and harvesting schedules are adopted to adjust to experienced climate changes or the establishment of new habitat for a species that is losing part of its range elsewhere. One attempt to establish a resilience metric that can be compared apples-to-apples is the Higher Ground Foundation's Vulnerability Reduction Credits,[16] which each represent a unit of avoided risk valued at 50 Euros. However, the concept has yet to be applied in practice.

Farmers taking part in the CommuniTree project in Nicaragua scope a tree-planting spot. Photo courtesy of Taking Root.

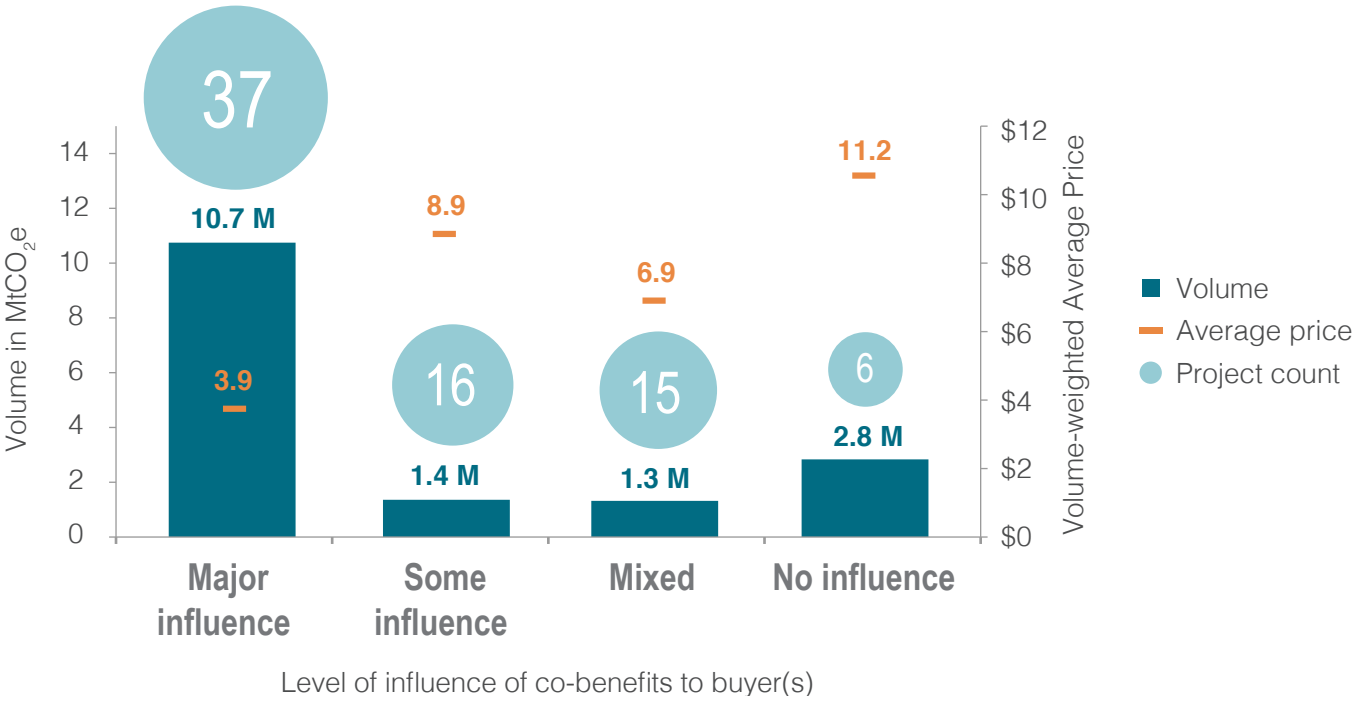
[15] Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds., 2014: *Climate Change Impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2..
[16] See description from the Higher Ground Foundation: http://www.thehighergroundfoundation.org/vulnerability_reduction_credits.html

Many Buyers Engage in Forest Carbon Markets Primarily Because of Projects' Multiple Benefits

Forest carbon project developers often view strong co-benefits as a prerequisite for selling offsets and for operating in the project area. **Sometimes, the beyond-carbon impacts of creating just employment or saving habitat for an endangered species are actually the main motivation of the project, and the verified emissions reductions that result are themselves a "co"-benefit** – and a means of leveraging carbon finance to implement project activities. Other project developers point out that they simply couldn't achieve emissions reductions without also achieving other impacts: e.g., it would be impossible to address the drivers of deforestation without addressing poverty.

Many offset buyers share this understanding of the co-benefits of forest carbon projects and consider them to be as important as, or sometimes more important than, the climate impacts. In this vein, Ecosystem Marketplace's 2015 survey asked suppliers to qualify the extent to which co-benefits motivated their buyer(s) to complete the transaction.[17] **Nearly half of all respondents (37) claimed that co-benefits had a "major influence" on their buyer(s), saying their buyer(s) engaged in the forest carbon market primarily because of the beyond-carbon impact of their dollars.** In other words, at least 10.7 $MtCO_2e$ transacted in 2014 found a buyer primarily because of their co-benefits.

Figure 10: Extent to Which Co-benefits Motivated the Buyer to Complete a Transaction in 2014 by Volume, Average Price, and Project Count



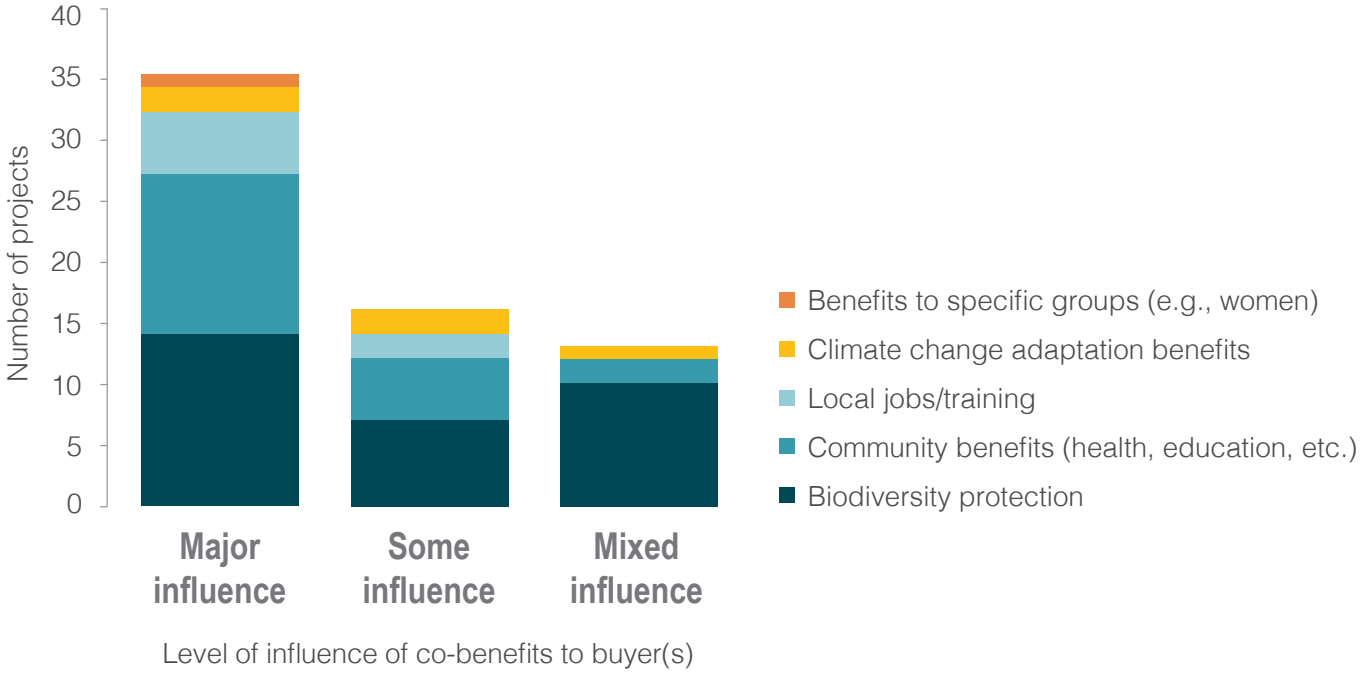
Notes: Based on responses associated with 16.3 $MtCO_2e$ in transaction volume.

Source: Forest Trends' Ecosystem Marketplace. 2016. *Not So Niche: Co-benefits at the Intersection of Forest Carbon and Sustainable Development.*

[17] The data in this section looks at demand for co-benefits from the perspective of our target survey group, offset suppliers, and is thus second-hand. However, in interviews with both offset suppliers and buyers over the years, Ecosystem Marketplace has found that the suppliers – who actively market the offsets and communicate about project impacts – usually have a thorough and nuanced understanding of buyers' motivations.

Another 16 projects reported that co-benefits had "some influence," meaning the buyer(s) chose their project over another because of its biodiversity, community, or other benefits. The 15 projects that reported "mixed" influence sold to more than one buyer, and those buyers had varying motivations. Only six projects – all of them located in developed countries – reported that co-benefits had no influence on their buyers, in some cases because those buyers were purchasing tonnes for compliance purposes.

Figure 11: Primary Co-benefits That Motivated Buyers, by Project Count and Level of Motivation



Notes: Based on 63 projects reporting which co-benefit primarily influenced their buyers' decision to purchase offsets.

Source: Forest Trends' Ecosystem Marketplace. 2016. *Not So Niche: Co-benefits at the Intersection of Forest Carbon and Sustainable Development.*

When asked about the "primary" co-benefit that motivated a buyer to complete the transaction, biodiversity was by far the most common answer, selected by 31 projects out of a total of 63 that answered the question. Of these, slightly fewer than half (14) said that biodiversity had a "major" influence on the buyers' decision-making. Nineteen projects developers named community benefits such as health or education as the "primary" influence on their buyer(s), and many named it as the "major" influence for buyers purchasing an associated 6.3 $MtCO_2e$. Thirteen projects identified other co-benefits – e.g., local jobs and training, climate change adaptation – as their buyer(s)' main interest.

However, the narrative about buyers' demand for co-benefits in terms of their willingness to pay more for multiple impacts is less neat. **While we might expect buyers to pay higher prices for offsets associated with co-benefits, we were not able to detect any kind of price premium in the data.** This may be because co-benefits' effect on price was obscured by other factors – such as project type, project location, or market type (voluntary versus compliance) – but additional data are needed to conduct a robust statistical analysis. (See Box 2 for more detail on what we know about pricing by third-party standard.)

Carbon and Co-benefits Standards Provide Frameworks for Measuring Results – But Often Leave the Specifics up to Project Developers

Third-party carbon standards offer frameworks for designing emissions reductions projects and for measuring, reporting, and verifying project emissions reductions over time. Over the years, co-benefits standards have also emerged to measure and verify benefits to people and ecosystems. In the cases of the Gold Standard and Plan Vivo standards (described in more detail below), co-benefits methodologies are wrapped into the climate requirements. For projects using the Verified Carbon Standard (VCS), a carbon offset may be optionally "labeled" with an additional certification – usually the Climate, Community & Biodiversity (CCB) Standards. Over the years, demand for co-benefits verified by third-party standards has been relatively consistent and strong. For the last three years, at least 80% of transacted VCS forestry and land-use offsets have also used the CCB Standards.

Box 1: How Does Verifying Co-benefits Differ from Verifying Emissions Reductions?

Overall, the concept of co-benefits being either tagged onto or wrapped into a carbon offset standard is an interesting and sometimes tricky one. The unit of exchange for carbon offsets is straightforward – one tonne of carbon dioxide equivalent (tCO_2e). However, as is apparent from the high variability in the metrics used by the standards detailed below and in the myriad ways in which projects reported on impacts, co-benefits are not as easily quantified. Because of this, certain tenets of carbon offset verification are less readily applied to co-benefits impacts.

For instance, whereas carbon offsets are assigned serial numbers and cannot be retired by more than one buyer, thereby preventing double-counting of emissions reductions, it is common to see more than one buyer claiming that they enable the biodiversity or community impacts from the same project. In some cases, assigning co-benefits to specific buyers may be impractical (how many bonobos did company A protect versus company B?) or immoral (should a beverage company be able to "buy" a portion of the women's empowerment a project enables?). But as buyers become more sophisticated in their claims, some may want to ensure that their dollars are leading to particular impacts.

Relatedly, while carbon offsets are delineated in vintages, or the year in which the emissions reduction occurred, tracking the year-on-year impacts of other project impacts is sometimes a challenge. Though co-benefits certification does cover defined accounting periods and is thus time-bound (e.g., a certain animal was observed in the project area during a certain time period), neither project developers nor buyers tend to think of co-benefits impacts in "vintages" – and yet they're tied to offsets that are defined in that way.

Finally, the concept of additionality, or the assurance that emissions reductions are a result of the carbon project and would not have occurred otherwise, is important but perhaps underutilized when it comes to co-benefits. Establishing "without-project" scenarios for co-benefits metrics requires additional data. What is the prospect for a specific endangered species without intervention? What would the opportunities for indigenous people be without the project? And, once these counterfactual scenarios are established, how much of the change can be attributed to project activities?

The standards outlined below are actively thinking about these issues. For instance, VCS's assumption of the day-to-day management of the CCB Standards in 2014 has served to align verification periods so that the timing of the co-benefits impacts overlaps more exactly with the verified emissions reductions – this also incentivizes more frequent co-benefits verifications. Currently, Gold Standard 3.0 is being developed in part to manage the claims that can be made around the different impacts of a project in a move they say will help to increase transparency and rigor around buyer reporting.

Because standards are by definition *standard* across projects and because they require third-party verification of whatever they're measuring, they are the best place to start in terms of looking at how co-benefits are measured. They are also a good place to start when considering the evolving thinking about co-benefits metrics. Standards bodies often have a finger on the pulse of both buyer preferences and project developer capabilities, and their standards reflect the level of sophistication (or lack thereof) of current reporting. This section walks through the major standards that either inherently incorporate co-benefits or act as an add-on to an existing carbon standard, with detailed information on their current market status.

Box 2: Do Buyers Pay More for Verified Co-benefits?

Despite a 2013 study in which buyers said they were willing to pay 33% more per offset for projects with verified social, economic, and environmental co-benefits, actual market data shows no clear price premium for certified tonnes. While in 2012, VCS forestry and land-use projects using CCB certification did indeed earn a slight price premium – they sold for $7.7/tonne, on average, compared to $7.5/tonne for VCS-only forestry – the narrative flipped in 2013 and 2014, when VCS-only offsets were actually transacted at a slightly higher average price than VCS+CCB ones. While one might expect buyers to pay more for offsets with an additional co-benefits certification, the explanation for the counterintuitive pricing is fairly straightforward: Whereas all but one VCS+CCB forestry project were located in a developing country in 2014,12% of VCS-only forestry offsets originated from developed countries, where offset prices were generally higher for other reasons.

Similarly, though Gold Standard and Plan Vivo forestry offsets are consistently priced higher than VCS offsets (whether or not they are labeled with CCB), co-benefits certification is not the primary driver of price. Rather, project type and size are. VCS was the first and is still the major standard for REDD+ projects, some of which avoid deforestation over thousands of hectares and prevent hundreds of thousands of emissions annually. The majority (93%) of VCS tonnes transacted in 2014 originated from REDD+ projects, whereas all transacting Gold Standard projects and all but one transacting Plan Vivo project reporting to Ecosystem Marketplace in 2014 were classified as afforestation/reforestation. This explains most of the price differential: REDD+ tonnes sold at an average of $4.3/tonne in 2014, compared to $8.9/tonne for tree-planting.

Forest engineer Sara Camacho explains forest carbon measurements to students in Calakmul, Mexico. Photo by Carlos Herrera.

Climate, Community & Biodiversity (CCB) Standards				
Description and Recent Developments: The CCB Standards seek to "simultaneously address climate change, support local communities and smallholders, and conserve biodiversity." In November 2014, the VCS took over the day-to-day management of CCB in a move they hoped would make it easier for project developers to use both together.				
Launch Date & Most Recent Update	**General Requirements**	**Consistency of Metrics across Projects**	**Reporting Requirements and Accessibility**	**Cost***
Launched in 2005; 3rd edition released in 2013.	"Net-positive" impacts across climate, community, and biodiversity as compared to a "without-project" scenario. The CCB label can only be added to units from projects that have been verified to the CCB Standards and for which the verification period fully covers the issuance period.	Monitored indicators determined on project-by-project basis but all projects must meet baseline requirements (e.g., compliance with local laws, FPIC) and monitor impacts across each of the climate, community, and biodiversity categories.	Verification requires in-person, third-party audit; verification reports are publically available and newer ones include a summary page, though specific metrics are often embedded within long documents.	$2,500 in direct fees for CCB validation and $5,000 for each verification event; verification fee is credited towards the CCB labeling fee of $0.05/tonne. (For VCS+CCB projects, additional VCS fees apply.) Fee schedule is available here.
Number of Land-Use Projects	**Land-Use Project Types Supported**	**2014 Offset Volume Transacted (EM)**	**2014 Average Offset Price (EM)**	**2014 Market Share (EM)**
35 verified projects; 59 more in the pipeline (validated)		12.3 $MtCO_2e$ (all as an add-on to VCS)	$4.2	50% (for VCS+CCB offsets; another 13% used VCS alone)

Plan Vivo				
Description and Recent Developments: Plan Vivo is designed for smallholders and communities dependent on natural resources. Project developers work with producer groups that write "plan vivos," or land management plans that focus on payments for ecosystem services. When the standard was revised in 2013, it required new projects to set clear baselines for social and biodiversity benefits at the outset in order to better measure impact over time.				
Launch Date & Most Recent Update	**General Requirements**	**Consistency of Metrics across Projects**	**Reporting Requirements and Accessibility**	**Cost**
First project dates back to 1994, first certificate to 1997. Most recent standard update was in December 2013.	Projects must be located on smallholder-owned land and 60% of carbon revenues must go back to communities; any planted species must be native and women must be given equal opportunity for employment.	Indicators determined on project-by-project basis and are mostly qualitative.	Verification requires in-person, third-party audit; accessible summary information (e.g., land area impacted, number of smallholders) is available; publically available annual reports include actual payments to community groups and a list of buyers.	Estimated total cost of $7,650-$13,850 for project development, with the majority of the expense going towards third-party validation. The full breakdown of expected costs is available here.
Number of Land-Use Projects	**Land-Use Project Types Supported**	**2014 Offset Volume Transacted (EM)**	**2014 Average Offset Price (EM)**	**2014 Market Share (EM)**
12 active projects; 40 more in the pipeline		0.6 $MtCO_2e$	$7.5	2%

Gold Standard				
Description and Recent Developments: Gold Standard debuted its forestry methodology in 2013 (when it acquired the CarbonFix standard) and launched its agricultural standard in 2014, so only a few Gold Standard land-use projects completed transactions in 2014. The forthcoming Gold Standard 3.0 is designed to quantify impacts such as provisioning of clean water not as co-benefits but as other investable outputs, on par with the emissions reductions.				
Launch Date & Most Recent Update	**General Requirements**	**Consistency of Metrics across Projects**	**Reporting Requirements and Accessibility**	**Cost**
Gold Standard launched in 2003 but its forestry methodology was developed in 2013.	Required do-no-harm assessment for a set of minimum social (e.g., right for workers to organize) and environmental (e.g., at least 10% of project area managed for biodiversity) safeguards. Required local stakeholder consultation.	All projects must account for all safeguards, though specific metrics vary project-to-project. Projects must either prove that they do no harm against a specific safeguard or explain why the metric is irrelevant in their situation. The local stakeholder consultation includes 12 common indicators.	Verification requires in-person, third-party audit. Projects are required to report on local stakeholder consultation results with indications of negative, neutral, or positive impact across environment, social development, and economic & technical development indicators; any negative impacts must be accompanied with a mitigation plan. Certification and/or validation reports available on Markit; no verification reports available yet.	$3,500 for pre-feasibility assessment; $1,500 for Gold Standard review; $0.3/tonne issuance fee; in addition, third-party certification usually runs about $20,000 for the first audit and $10,000 for subsequent audits. Gold Standard fees are explained here.
Number of Land-Use Projects	**Land-Use Project Types Supported**	**2014 Offset Volume Transacted (EM)**	**2014 Average Offset Price (EM)**	**2014 Market Share (EM)**
12		0.1 $MtCO_2e$	$11.1	<1%

Social Carbon				
Description and Recent Developments: Social Carbon is a co-benefits standard developed by the Brazilian NGO Ecologíca Institute and used primarily for renewable energy projects. Only one forestry project – the Ecomapuá Amazon REDD project – uses the standard currently.				
Launch Date & Most Recent Update	**General Requirements**	**Consistency of Metrics across Projects**	**Reporting Requirements and Accessibility**	**Cost**
Began verifying REDD+ projects in 2014.	Projects must choose or develop three indicators to track for each of six categories within the "sustainability hexagon" of carbon, biodiversity, social, financial, human, and natural impacts.	Unknown, since there is only one project. However, in theory indicators can vary widely from project to project.	Verification requires in-person, third-party audit. Projects must evaluate each chosen indicator on a scale of 1 to 6 (6 being the ideal scenario). No separate verification report for Social Carbon is available on Markit.	$0.2/tonne issuance fee; Social Carbon does not estimate validation or verification costs by the third-party auditor.
Number of Land-Use Projects	**Land-Use Project Types Supported**	**2014 Offset Volume Transacted (EM)**	**2014 Average Offset Price (EM)**	**2014 Market Share (EM)**
1		Not enough data to report.	Not enough data to report.	Not enough data to report.

Fairtrade Climate Standard				
Description and Recent Developments: Officially launched at the Paris climate talks in December 2015, the Fairtrade Climate Standard is intended to be used in conjunction with the Gold Standard to support smallholder and rural communities. Its most unique tenets are minimum price (just like cocoa or sugar, Fairtrade has assigned a minimum fair price for offsets) and the inclusion of requirements for the buyers of the offsets.				
Launch Date & Most Recent Update	**General Requirements**	**Consistency of Metrics across Projects**	**Reporting Requirements and Accessibility**	**Cost**
Launched December 2015.	Current Fairtrade minimum price is 13 euros/tonne; additional Fairtrade premium of €1.5/tonne is paid directly to farmers; offset buyers are required to have an established emissions reductions plan and commit to increasing offset purchases over time.	Fairtrade minimum price and price premium are consistent across projects; other requirements (e.g., an official gender policy, wages set according to collective bargaining agreements) may create different metrics from project to project.	Verification requires in-person, third-party audit. Data accessibility is unknown, since no project documentation is available yet.	The cost of using the standard is not published.
Number of Land-Use Projects	**Land-Use Project Types Supported**	**2014 Offset Volume Transacted (EM)**	**2014 Average Offset Price (EM)**	**2014 Market Share (EM)**
4 current pilots, 4 more in the pipeline.		No transactions yet.	No transactions yet.	No transactions yet.

* Note that all monetary values reported in this section are in USD. Also the cost of using the standard noted here does not include the costs of third-party audits, which project developers note can be tens of thousands of dollars, unless auditing costs are specifically noted. They are simply the direct fees or costs reported on the standard's website.

 Tree-planting  Improved Forest Management

 Reducing Emissions from Deforestation and Degradation of forests (REDD)

(EM) Ecosystem Marketplace data

Few Offset Buyers Require Projects to Track Specific Metrics, Though Project Developers See Value in Doing So Anyway

Third-party standards provide extensive frameworks for measuring co-benefits, and all require independent auditing. Several standards are based on a safeguards approach that establishes minimum requirements or "checks" that give a project the license to operate within a community and landscape. Overall, though, the metrics tracked and reported within a single co-benefits standard may vary significantly from project to project.

This is partly by design. Gold Standard's "relevant versus not relevant" model allows projects to target data collection according to a specific project's risks. Social Carbon's offerings of dozens of possible indicators – and the ability for project developers to create their own – allow projects to adapt to a community's needs over time.

But the variability is also because, **though many buyers specifically look for co-benefits standards to ensure verified beyond-carbon impacts and mitigate risk, few of them demand specific co-benefits metrics.** As part of our 2015 survey, Ecosystem Marketplace asked forest carbon offset suppliers if their contracts with buyers specified any metrics other than carbon – in other words, if buyers contractually required evidence that co-benefits were being delivered. Only 13 respondents answered in the affirmative. Of those, five contracts specified that the offsets must be labeled with the CCB certification. A few contracts with buyers required a specific outcome, for instance the planting of endangered tree varieties or the participation of indigenous peoples. Others simply required that a specific metric, such as the number of jobs created or household incomes, be reported.

For many buyers motivated by co-benefits, anecdotal evidence about a project's impacts through a description or photographs is sufficient. Julian Ekelhof of CO2OL, which developed the Tropical Mix project in Panama, says that his organization tries to provide buyers with the information they want about the impact of their offset purchases but that too many detailed metrics can overwhelm them.

"Even though we can show more details, for some buyers, the idea that the contribution leads to employment in Panama, that is enough," he said.

Still, a few project developers noted that buyers are increasingly looking to improve the accuracy and detail of their claims. According to Leslie Durschinger of Terra Global Capital, before 2015 she would have said that buyer interest is generally but not contractually connected to co-benefits, but as of 2015 that began to shift, and she's now seen offset contracts that tie the purchases to specific co-benefits activities.

A few recent demand-side efforts have also begun to raise the bar on co-benefits reporting. Code REDD is one example of an effort to rally buyers around a common set of criteria. The organization's corporate partners (companies such as Eneco and Kering) agree to a Code of Conduct that includes buying only VCS+CCB-verified tonnes with Forest Stewardship Council (or similar) land-area certification. Major investors in forest carbon projects such as the Althelia Climate Fund have also publically advertised their commitment to co-benefits.[18]

Yet even without strong demand signals, project developers see several benefits to measuring and verifying co-benefits. Perhaps the most obvious advantage is that the standards detailed above provide useful frameworks for successful and impactful project design. They also establish a clear process for risk reduction. Projects that violate labor laws or destroy HCV areas are unlikely to find buyers – and a failure to involve community members or protect biodiversity could impact a project's ability to actually sequester carbon and successfully avoid leakage – the shifting of deforestation outside of the project area. In this regard, carbon market actors say that the critical eye that measuring and verification invites can be really useful.

[18] See: https://althelia.com/our-approach/esg-commitments/

"What gets measured gets managed," said Pieter van Midwoud of the Gold Standard. "By increasing the rigor around measurement and verification of development benefits, we continue to build the case for a results-based approach to funding these impacts most effectively."

In the same vein, forest carbon projects are typically designed on decades-long time scales – for instance, with emissions reductions estimated across an initial 30-year project lifetime, and a verification audit required every five years. Tracking co-benefits impacts regularly, alongside the emissions reductions audits, may ensure that projects are consistently delivering positive results.

Porfirio Garate Uscachi poses in front of a cocoa nursery in the Tambopata REDD+ project in Peru. Photo courtesy of Ecotierra Inc.

Higher Offset Prices and More Sophisticated Demand Signals Could Support Impacts and More Robust Reporting

Though project developers see the value in delivering and verifying co-benefits even without a clear price premium for beyond-carbon impacts, they also say that their **ability to deliver co-benefits – not to mention measure and report on them – is constrained by low offset prices and stunted demand.** Although voluntary demand for forest carbon offsets increased 18% last year, suppliers still noted challenging market conditions in which supply exceeds demand. For every tonne sold in 2014, suppliers reported that at least one additional tonne remained unsold in their portfolio. The current $5.4/tonne average price for forest carbon offsets among voluntary buyers is higher than in 2013 but represents a drop from 2012 and 2011, when global averages were $7.8/tonne and $9.2/tonne, respectively.

Mariama Vendramini of Brazilian project developer Biofílica described a sliding scale of project activities that very much depends on carbon offset prices: "We've been able to run core activities, but the prices are too low to implement some of the [co-benefits] activities," she said. "When we plan ahead five to 10 years for many more activities, we project a higher price."

When asked whether their project was sufficiently financed to sustain project activities for the next five years, 40% of projects (35 out of 88 respondents) said "no." To supplement dwindling budgets, several dozen project developers accessed sources of finance in 2014 aside from the revenue from carbon offset sales. These included domestic government loans or grants ($26.9 M), carbon fund investments ($4.5 M), and private equity investments ($2.7 M). Many REDD+ projects also include revenue-generating activities such as ecotourism (14 projects) and sustainable commercial agricultural (9 projects) as ways to create alternative livelihoods that in turn mitigate the drivers of deforestation. Still, REDD+ developers say that the implementation of these and other activities that reduce pressure on forests directly depend on the flow of carbon finance year-on-year.

"REDD+ projects start off with a plan with a lot of things they can do, and they don't start implementing them immediately – they do so as the money comes in," said Zubair Zakir of Natural Capital Partners, an offset supplier.

Though many buyers view co-benefits as "inherent" to forest carbon projects, the reality is that activities such as engaging meaningfully with communities, actively managing for biodiversity, creating jobs, and figuring out the legal issues surrounding land tenure all require financing. Monitoring and reporting on co-benefits also adds costs (see Carbon and Co-benefits Standards, p. 21-25), either in terms of offset issuance fees or paying for auditors or both. **Carbon pricing that incorporated these costs could both incentivize greater co-benefits and the development of more robust metrics for measuring them.**

The Fairtrade Climate Standard is the most recent and most straightforward experiment in sending a clear price signal about the value of co-benefits (in this case, income to smallholders and guaranteed labor standards). The standard launched with support from major offset buyers Marks & Spencer and Deutsche Post DHL Group, but only time will tell whether voluntary corporate buyers will be receptive to the idea of a price floor for emissions reductions tied with beyond-carbon benefits.

Key Opportunities

The next couple of years present several key opportunities for improving the measurement of co-benefits and for leveraging finance to deliver benefits to people and ecosystems as an integral part of climate finance. Here are a few of the key opportunities on the horizon:

More specific and standardized reporting on verified co-benefits. The co-benefits standards and co-benefits inclusive carbon standards outlined in this report have evolved over the years to more robustly track the beyond-carbon benefits of forest carbon projects. Still, information on verified co-benefits remains relatively difficult to find and is often buried in long technical auditor reports. The survey instrument used to collect the data that appears in this report was in part an attempt to distill the key information otherwise obscured in these documents. CCB's benefits summaries, which appear in paragraph form at the beginning of newer verification reports, are a step in the right direction. Still, translating verification documentation into clear data points that are consistent across as well as within standards could allow offset buyers and investors to more easily understand projects' impacts – and more readily connect them with their own Key Performance Indicators.

Methodologies to "stack" multiple benefits. The lack of a clear price premium for offsets with strong co-benefits may be partly due to the fact that additional impacts are inherently "bundled" with the climate ones. In designing the third iteration of its methodologies, Gold Standard is planning to remedy this by quantifying impacts such as provisioning of clean water not as co-benefits but as other investable outputs. These other metrics will no longer be "tagged" onto carbon offsets but will be quantified and in many cases monetized in their own right. Gold Standard 3.0 is planning its road-testing for the end of 2016, and its flexibility in stacking multiple benefits from a single project could nudge to maturity the idea of paying (separately) for beyond-carbon results.

Defining carbon rights. A 2014 review by the Rights and Resources Initiative assessed the laws of 23 countries implementing REDD+ readiness and found that only two – Mexico and Guatemala – had national laws addressing carbon rights.[19] This legal black hole creates risk for traditional forest users and also complicates matters for forest carbon project developers, who sometimes use ad-hoc arrangements such as conservation easements or logging concessions as a proxy for carbon rights. Too often, it is traditional forest users who lose out when carbon rights are not clearly defined. Defining carbon rights legally would allow for a clearer understanding of benefits-sharing with indigenous peoples and local communities – or, in cases where indigenous peoples and local communities directly own the carbon asset, it would give them control over carbon-related income streams.

Blue carbon and emerging metrics for climate adaptation. With the Green Climate Fund giving equal weight to adaptation and mitigation, and with businesses reporting more immediate and urgent climate change risks, both governments and companies are looking for ways to invest in climate resilience. One category of land-use carbon projects, blue carbon, is emerging as a potential way to address mitigation and adaptation simultaneously. Blue carbon includes the protection or creation of coastal ecosystems such as wetlands, tidal salt marshes, mangroves, and peatlands – ecosystems that not only have rich carbon content but also often prevent erosion, absorb storm energy, protect fish habitat, and more. Already, companies with important coastal infrastructure such as Entergy and ConocoPhillips have financially supported the development of blue carbon methodologies, in large part because their internal analyses have shown natural infrastructure investments to be more cost-effective than "hard" solutions.

Growth in non-market payments for performance. Though carbon markets have channeled close to $1.3 billion (B) to forest protection and management to date, the real scale in terms of results-based finance may come from wealthy countries paying tropical forest nations to reduce deforestation. A total of $1.1 B in non-market but results-based payments for emissions reductions have been committed to date, and – boosted by Norway, Germany and the UK's recent $5 B pledge at the Paris climate talks – an estimated $6.2 B in additional results-based finance is

[19] Fernanda Almeida, Alexadre Corrivea-Bourque, and Annie Thompson. 2014. "Status of Forest Carbon Rights and Implications for Communities, the Carbon Trade, and REDD+ Investments." Rights and Resources Initiative. Accessed February 10, 2016. http://www.rightsandresources.org/documents/files/doc_6594.pdf

"on the table." Currently, "performance" is defined in terms of emissions reductions, but given the strong language about both climate adaptation and sustainable development in the Paris Agreement, there could be opportunity to pair REDD+ finance with other verified outcomes.

Scaling up avoided deforestation. The rise of results-based payments for REDD+ outside of the voluntary carbon market also indicates a shift from the project to the jurisdictional level, and many projects are grappling with how to "nest" their on-the-ground experience within regional or national efforts to avoid deforestation at scale. Marks & Spencer and Unilever, the co-chairs of the Consumer Good Forum, announced in December 2015 that they would prioritize commodity sourcing from countries and jurisdictions with strong no deforestation policies – an indication that the private sector is also thinking about avoiding deforestation across larger geographic areas. The anticipated increase in scale could bring significant opportunities for investing in co-benefits as well.

Alignment with the Sustainable Development Goals (SDGs). The SDGs finalized by the United Nations in 2015 set the global development priorities for the next 15 years; however the specific indicators used to track them are still under discussion by a working group created by the United Nations Statistical Commission. Forest carbon projects could align their metrics with SDG indicators in order to leverage investment. For example, suggested SDG indicators include net emissions from the land-use sector (Goal 13, Climate), area of forest under sustainable management (Goal 15, Life on Land), and the share of women among agricultural landowners (Goal 5, Gender Equality) – metrics that some forest carbon projects already track. See the Annex for examples of how metrics that forest carbon projects are currently tracking could align with the SDGs.

Two Yawanawa girls in Acre, Brazil, where a state-wide effort to reduce deforestation in partnership with indigenous peoples is underway. Photo courtesy of Forest Trends.

Annex: Examples of Forest Carbon Co-benefits Metrics as They Relate to the Sustainable Development Goals

Select Sustainable Development Goals & Targets	Proposed Indicators (by UN Statistical Commission working group on SDGs)	How Forest Carbon Initiatives Could Contribute	Examples of Metrics Currently Tracked by Forest Carbon Initiatives
Goal 13: Take urgent action to combat climate change and its impacts			
Target: Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 B annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation, and fully operationalize the Green Climate Fund through its capitalization as soon as possible.	Mobilized amount of United States dollars per year starting in 2020 accountable towards the $100 B commitment.	Forest carbon projects represent "meaningful mitigation actions" in developing countries. REDD+ is eligible under the Green Climate Fund but is not among the eight investments approved as of February 2016.	$ value flowing to forest carbon initiatives/year, tonnes of carbon dioxide equivalent (tCO_2e) in sequestered or avoided emissions.
Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss			
Target: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests, and substantially increase afforestation and reforestation globally.	Forest cover under sustainable forest management; net permanent forest loss.	Forest carbon initiatives span tropical, temperate, and boreal forests and implement a wide range of activities – restoration, tree-planting, agroforestry – to sustainably manage forests and their carbon.	Number of hectares under carbon-inclusive sustainable forest management; number of hectares of avoided deforestation (against historical baselines); number of hectares of restored degraded forests or reforestation.
Target: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.	Number of national development plans and processes integrating biodiversity and ecosystem services values.	Because they translate otherwise un-valued ecosystem services – specifically, carbon sequestration – into economic terms, forest carbon initiatives could be a straightforward way to incorporate ecosystem values into national and local planning.	$ value flowing to forest carbon initiatives by country; $ amount of carbon income flowing to poor people.

Select Sustainable Development Goals & Targets	Proposed Indicators (by UN Statistical Commission working group on SDGs)	How Forest Carbon Initiatives Could Contribute	Examples of Metrics Currently Tracked by Forest Carbon Initiatives
Goal 1: End poverty in all its forms everywhere			
Target: By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology, and financial services, including microfinance.	Proportion of the population living in households with access to basic services.	Poverty reduction is inextricably connected to land ownership in many places, and as carbon is increasingly treated as a form of property, forest carbon initiatives could be at the forefront of ensuring equal access to the economic resources associated with carbon ownership.	Land ownership status; carbon rights status; documentation of decision-making process around how to spend carbon revenue; number of people trained in new technology (such as forest carbon measurements); number of people participating in microfinance groups.
Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture			
Target: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.	Volume of production per labor unit by classes of farming/pastoral/forestry enterprise size.	Increasing agricultural productivity among small-scale food producers is a key strategy for REDD+, since inefficient farming practices are sometimes a very avoidable driver of deforestation.	Average income of producers in project area (before and after); land ownership status; number of people trained in agroforestry or improved agricultural practices.
Goal 5: Achieve gender equality and empower all women and girls			
Target: Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources in accordance with national laws.	Percentage of people with ownership or secure rights over agricultural land (out of total agricultural population) by sex; share of women among owners or rights-bearers of agricultural land by type of tenure; percentage of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control.	Forest carbon initiatives can work to give women equal access to economic resources by including gender in their design and by securing clear land and carbon rights for local people with special consideration for women.	Land tenure and carbon ownership status; number of agricultural jobs held by women versus men; number of women participating in initiative's activities (such as tree-planting groups related to carbon finance flows); number of women in leadership positions.

Select Sustainable Development Goals & Targets	Proposed Indicators (by UN Statistical Commission working group on SDGs)	How Forest Carbon Initiatives Could Contribute	Examples of Metrics Currently Tracked by Forest Carbon Initiatives
Goal 6: Ensure access to water and sanitation for all			
Target: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes.	Percentage of change in the extent of water-related ecosystems over time.	Forest carbon initiatives directly work to restore critical watersheds, both by protecting the water-related ecosystem services of forests (e.g., pollution filtration, erosion control, cloud formation) and through specific activities (e.g., drilling community wells, implementing fire management practices) funded by carbon finance.	Number of hectares under forest carbon management; number of people benefitting from improved water resources; number of forest hectares sustainably managed (e.g., for wildfire risk, which affects water quality).

FOREST TRENDS

The Family of Forest Trends Initiatives

Biodiversity Initiative

Promoting development of sound, science-based, and economically sustainable mitigation and no net loss of biodiversity impacts

Coastal and Marine Initiative

Demonstrating the value of coastal and marine ecosystem services

Communities Initiative

Strengthening local communities' capacity to secure their rights, manage and conserve their forests, and improve their livelihoods

Ecosystem Marketplace

A global platform for transparent information on environmental finance and markets, and payments for ecosystem services

Forest Policy, Trade, and Finance Initiative

Supporting the transformation toward legal and sustainable markets for timber and agricultural commodities

Public-Private Finance Initiative

Creating mechanisms that increase the amount of public and pirvate capital for practices that reduce emissions from forests, agriculture, and other land uses

Water Initiative

Promoting the use of incentives and market-based instruments to protect and sustainably manage watershed services

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