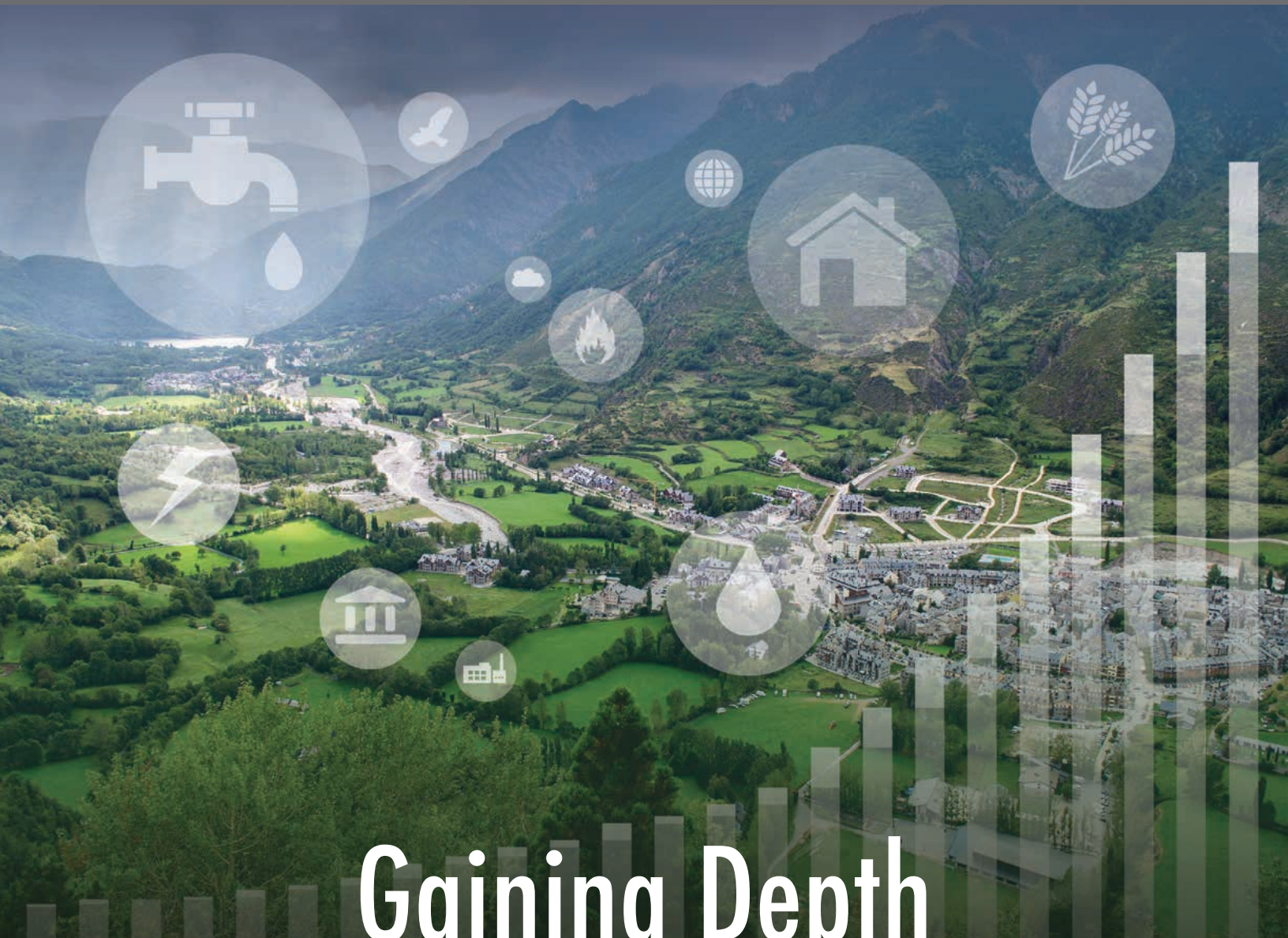




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# Gaining Depth

## State of Watershed Investment 2014

### Executive Summary

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

Ecosystem Marketplace is financially supported by organizations such as the Skoll Foundation, the Swiss Agency for Development and Cooperation, the International Climate Initiative, the Climate and Land Use Alliance, and PROFOR.

**Forest Trends** is a Washington, DC-based international non-profit organization whose mission is to maintain, restore, and enhance forests and connected natural ecosystems, which provide life-sustaining processes, by promoting incentives stemming from a broad range of ecosystem services and products. Specifically, Forest Trends seeks to catalyze the development of integrated carbon, water, and biodiversity incentives that deliver real conservation outcomes and benefits to local communities and other stewards of our natural resources. Forest Trends analyzes strategic market and policy issues, catalyzes connections between producers, communities and investors, and develops new financial tools to help markets work for conservation and people.

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## State of Watershed Investment 2014

### Executive Summary

A Report by Forest Trends' Ecosystem Marketplace

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## Glossary

**Bilateral agreements:** These agreements involve a single water user compensating one or more parties for activities that deliver hydrological benefits to them.

**Collective action funds:** Financial mechanisms that pool resources from multiple water users in a basin (and sometimes from NGOs or governments acting in the public interest) to support coordinated incentive-driven interventions across the landscape. Many collective action funds, especially in Latin America, use a trust fund to manage pooled capital, using the interest for watershed investment.

**Instream buybacks:** These programs buy or lease water use rights in existing water markets. Governments or NGOs acting in the public interest buy credits in order to *not* use the water – instead, dedicating rights to instream use to ensure a minimum level of flows, and protect wildlife and habitats.

**Investment in watershed services** (“IWS”): Transactional arrangements (in cash or in-kind) between two or more parties that compensate a land manager for restoring, maintaining, or enhancing the natural infrastructure that maintains clean water supplies.

**Natural capital:** The natural “stock” of ecological systems that provide ongoing flows of environmental goods and services such as water filtration, crop pollination, or climate regulation.

**Natural capital accounting:** The inclusion of the total “stocks” and “flows” of natural resources and environmental services for a defined region, in physical or financial terms, within a government or corporate accounting framework.

**Natural infrastructure for water:** Natural systems like wetlands, forests, or grasslands that underpin the global water system and perform important functions such as pollution filtration, water storage, or protection against flooding that are often supplemented or replaced by engineered infrastructure.

**Public subsidies:** Large-scale programs that reward land managers for activities enhancing or protecting ecosystem services. The funder does not necessarily benefit personally from activities.

**Trading and offsets:** These mechanisms allow water users facing regulatory obligations to manage their impacts on watersheds by compensating others for activities that improve water quality, availability, or other water-related values. Compensatory activities may be packaged as a credit or some other unit traded in an established “market,” defined by watershed boundaries.

**Voluntary compensation:** Activities funded by companies and other organizations seeking to mitigate for their own impacts voluntarily.

**Water quality trading:** Two or more parties trade water quality credits, usually measured in pounds of pollution reduction to offset impacts and/or meet compliance with clean water standards. Water quality trading may take place through direct contracts or through some type of market exchange, often a clearinghouse or auction mechanism. The most common types of credits are for nitrogen, phosphorus, and thermal load (i.e., temperature) reduction.

**Water stewardship:** Broadly, an approach to business water management and reporting that considers water use and impacts across the value chain and incorporates goals and actions related to watershed management, stakeholder engagement, public policy, and transparency into a company’s strategy on water.

**Watershed:** An area of land drained by a river system or other body of water, also referred to as a “catchment” or “basin.”

**Watershed services:** The benefits to society provided by healthy natural systems (like forests or wetlands); examples of such benefits include aquifer recharge, flow regulation, erosion control, and water purification.

Map 1: Mapping Watershed Investment, 2013

Active and developing programs in 2013.









# Executive Summary

## Introduction and Key Findings

Last year, governments, businesses, and donors channeled \$9.6 billion toward nature-based solutions to the global water crisis. Water users and public funders were paying land managers to repair and protect forests, wetlands, and other natural systems as a flexible, cost-effective strategy to ensure clean

and reliable water supplies, resilience to natural disasters, and sustainable livelihoods. These deals paid for watershed protection and restoration across more than 365 million hectares (ha) worldwide in 2013, an area larger than India.

The value of *investment in watershed services*<sup>1</sup> (IWS) – referring to funding for *watershed* restoration or

### BOX 1: Key Findings

- In 2013, governments, businesses, and donors channeled **\$9.6B** toward nature-based solutions to the global water crisis that rehabilitated and/or protected more than **365M** ha of water-critical ecosystems worldwide.
- At least \$6 billion or 63% of this value flowed to programs compensating landowners for sustainably managing their farms, forests, and other productive lands. IWS delivered important income support for an estimated **7 million households** that received payments and co-benefits (such as increased harvest revenues) in 2013.
- The number of projects reporting environmental outcomes **nearly tripled** (from 77 in 2011 to 219 in 2013), as developers worked to demonstrate their projects' utility and return on investment. Altogether 54% of projects reported on monitoring and evaluation practices for hydrological and other biophysical outcomes in 2013, up from 40% in 2011.
- By value, the field was still dominated by national public subsidy programs, which account for more than 90% of funding – and which came primarily from Chinese government agencies. Investment by water users with significant dependencies on healthy watersheds was still relatively low. Water utilities' engagement with IWS grew considerably in recent years (to \$8.9M in 2013) but remained small relative to the sector's risk exposure. The energy and agriculture sectors similarly had very low participation rates as buyers, collectively investing around \$18.2M in 2013 – or less than 1% of global transactions. This under-investment suggests that **nexus risks and dependencies** (i.e., vulnerabilities related to shared resource dependencies between our water, energy, and food systems) are not being fully managed. One third of buyers report using nature-based solutions either to manage agricultural water use and pollution, or to build resilience against storms, flooding, and wildfire. But other nexus challenges that often hinge on watershed health, like food security and water-related energy risks, have attracted little investment.
- Meanwhile, companies in the **food and beverage** industry contributed nearly one-quarter of all private sector investments (\$8.8M). Driven primarily by concerns for water quality and future supply, 88% of food & beverage industry buyers acted voluntarily, compared to the private sector average of 31%.
- Leaders in the field **refined program design** in 2012-2013, aiming to better demonstrate return on investment to buyers and investors, and to deliver new tools like standards and natural capital accounting approaches. National governments also revamped public subsidy programs, linking payments to performance (as in Mexico) and leveraging millions in private sector contributions (in South Africa).

<sup>1</sup> Terms in *blue italics* are defined in the Glossary on page i.

## BOX 2: Scope – Investigating Demand for Natural Infrastructure for Water

This report tracks a range of financial mechanisms utilized by buyers and suppliers of *watershed services*, which are the water-related benefits that healthy landscapes provide to society. Water resource managers often find that it is more cost-effective to manage problems like pollution or floods at their source – on the natural landscape – rather than only through built infrastructure such as storm walls or treatment plants. Forests or wetlands, for example, naturally filter out pollutants, regulate river flows, recharge groundwater, and absorb flooding.

By tracking funding flows between buyers and sellers, we can estimate the scale of demand for watershed services worldwide and their perceived value.

Throughout this report, we distinguish between buyers – who make payments to operational programs for watershed services – and program investors, who contribute initial capital to develop programs.

protection that delivers benefits to society like aquifer recharge or erosion control – has been growing at an average rate of 8% per year. The number of operational programs grew by two thirds between 2011 and 2013, expanding in both scale and sophistication as program developers introduced new tools to track returns on watershed investment, coordinated efforts across political boundaries, and delivered additional benefits like sustainable livelihoods and biodiversity protection.

## Outcomes: Watershed Investment in 2013

In 2013, \$9.6B invested in *natural infrastructure for water*, led by Chinese government spending

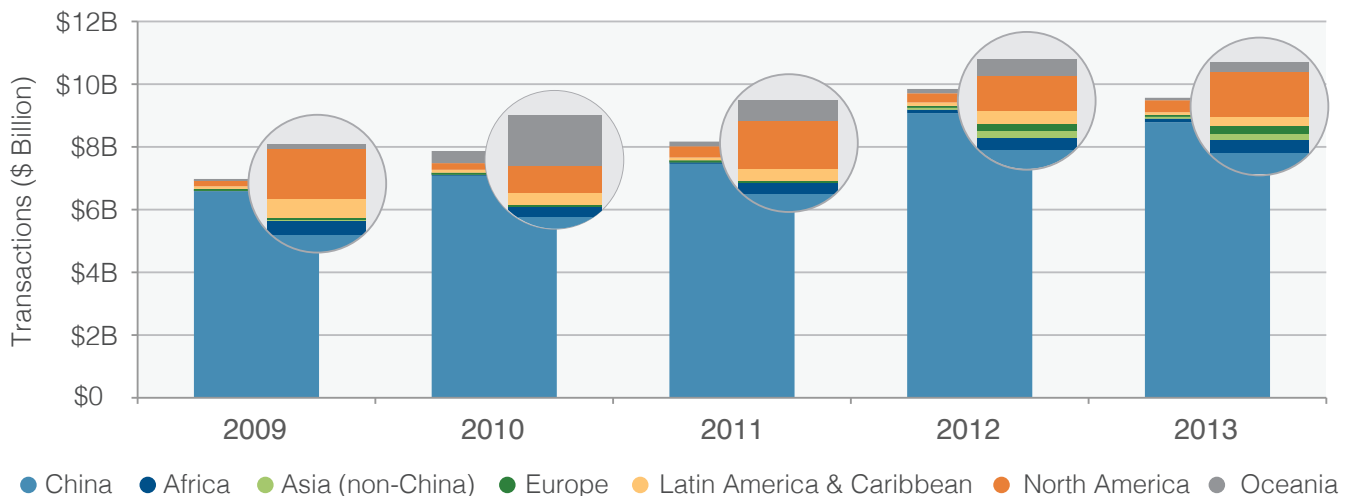
Total watershed investment reached \$9.6B in 2013, up from \$8.2B tracked in this report series' 2011

edition – but slightly less than 2012's \$9.8B. At least 84% of 2013's market value (or \$8B) was the result of national government actions, ranging from direct national government funding for IWS programs to the implementation of high-level policies that direct funds toward IWS, such as Vietnam's Payment for Forest Environmental Services program.

As in previous years, China continued to pour billions of dollars into compensation for watershed restoration and management (Figure 1). Like China, South Africa and Ecuador also steadily ramped up program budgets for national-scale IWS initiatives. By contrast, large national programs in Australia, Costa Rica, Mexico, and the United States saw funding fall slightly in 2013, resulting in a dip in

Figure 1: Value of Global IWS by Region, 2009-2013

(\$ Value of Transactions)

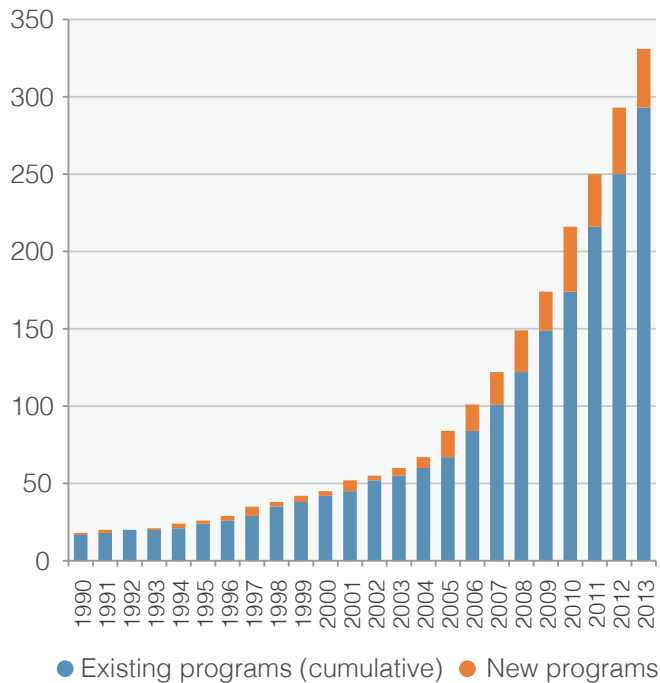


Note: Based on 456 programs tracked, valued at \$9.6B in 2013.

Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

Figure 2: Count of Newly Operational Programs, 1990-2013

(# of Programs)



Notes: Start dates were not reported for all 405 active/pilot programs in our dataset.

Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

global aggregate transactions from an all-time high of \$9.8B in 2012.<sup>2</sup>

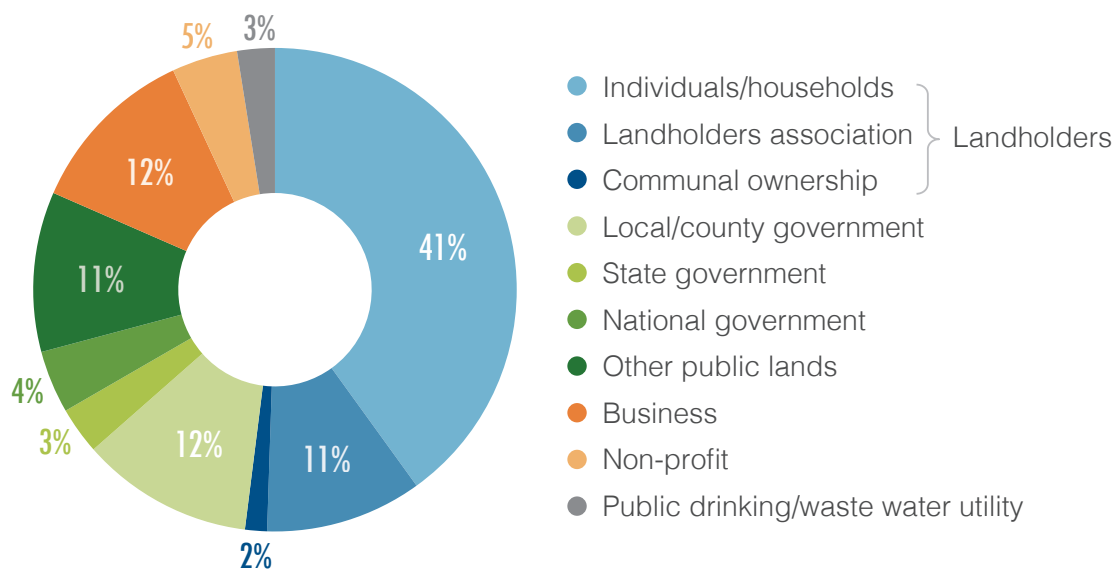
### Program development: Surge in new programs, with private landowners the main supplier and beneficiary

This report tracked 347 active programs worldwide in 2013, seeing operational program numbers grow by two-thirds from those tracked in the 2011 report edition (Figure 2). Overall, this represents a 14% annual growth rate in the number of new programs financed and reported since 2008 (the earliest year for which transaction data is available).

Landholders remained the biggest beneficiary of IWS worldwide (Figure 3), seeing at least \$6B transacted to more than 7 million households in exchange for sustainable land management that protects watershed health. The significant value of investment on privately held lands points to the fact that IWS, especially when administered by the public sector, is often structured to deliver both conservation and livelihood benefits. One in every four programs active in 2013 provided suppliers with technical training, inputs (such as seedlings or tools), or tenure security as a reward for participation. The public sector was the second largest supplier, with public lands comprising 30% of total ha managed for watershed values.

Figure 3: Proportion of Suppliers by Type, 2013






(% Share of Suppliers)



Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

<sup>2</sup> Ecosystem Marketplace collected data on 2012-2013 via a 2014 survey effort; data was last collected in 2012 for 2010-2011.

Table 1: Land Area Funded and Managed for Watershed Services, 2013

Total area in 2013	Sustainably managed productive lands	Multifunctional landscapes	Restoration/ protection of natural areas	Urban green infrastructure
365M ha	176M ha	142M ha	46M ha	98,800 ha
An area roughly equal to...				
India 	Libya 	Peru 	Sweden 	Berlin 

Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

### Land area impact: Programs impacted more than 365M ha worldwide

IWS delivered finance for watersheds spanning more than 365M ha worldwide, an area larger than India. Program developers favored activities supporting sustainable management on 176M ha of “productive lands” (i.e., agricultural lands and forests responsibly managed for wood and non-timber products) (Table 1), pointing both to landholders’ mutual interest in reliable, clean water supplies and buyers’ attraction to productive lands’ potential for multiple, stable revenue streams. Other program developers combined multiple strategies – restoration and protection as well as sustainable agriculture and forest management – on 142M ha.

### Regions: High-level leadership wobbles, while programs on the ground seek scale

#### Global investments still dominated by Asia

In **Asia**, China’s leadership continues to embrace eco-compensation programs to mitigate environmental damages and build local capacity for natural resource management. Chinese government spending (\$8.8B) accounted for 92% of IWS reported in 2013; since 1999, the country has spent an estimated \$40B. Recent years also saw Vietnam’s new national Payment for Forest Environmental Services program accelerate from 0 to 60 mph. In 2013, water users like hydropower operators and utilities collectively paid \$54 million to Vietnamese forest-based communities for watershed services.

### South Africa leads in Africa, with a new focus on leveraging private funds in 2013

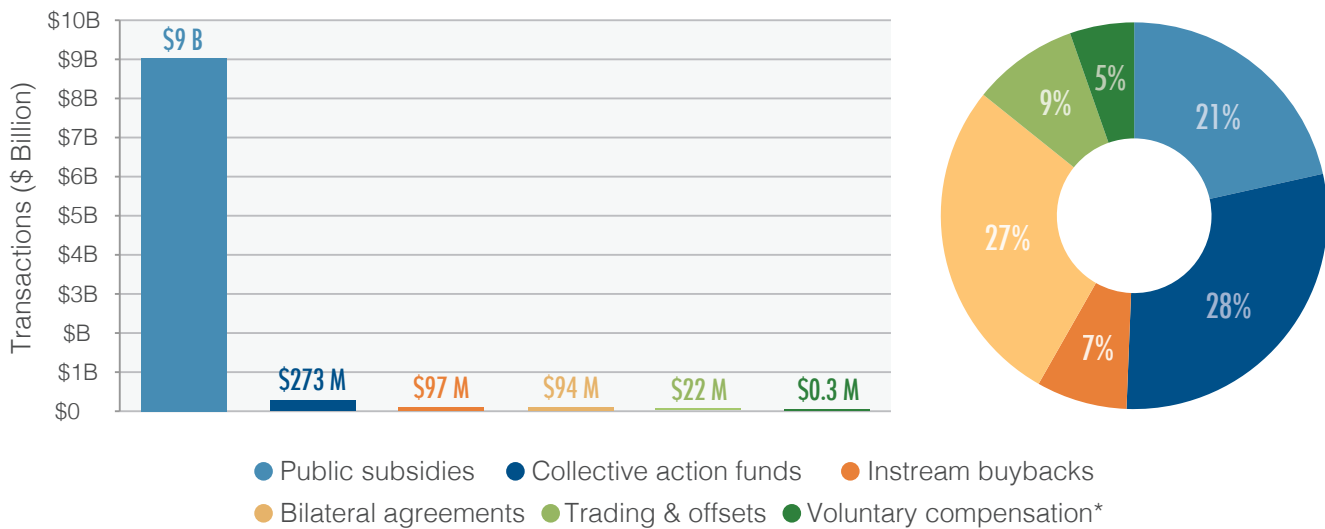
In **Africa**, South Africa’s “Working for Water” program continued to scale up, leveraging more than \$10 million from private sector partners in 2013 alone. But elsewhere on the continent, progress in launching stable IWS mechanisms remained elusive due to difficulty securing buyers and a frequent lack of policy support for natural infrastructure investment. Recent interest in *natural capital accounting* (NCA) among African national governments, including the ten country signatories to 2012’s Gaborone Declaration – which committed countries to integrating natural capital assets into their national accounting systems – may change that calculus, however.

### Water Framework Directive drives investment in Europe

In **Europe**, 2013 saw tightening standards under the EU Water Framework Directive drive strong interest in natural infrastructure, especially among UK-based private water utilities seeking cost-savings. EU decision-makers also passed an array of IWS-friendly policies including a new Green Infrastructure Strategy integrating natural infrastructure into existing agricultural and regional funding mechanisms, and a new EU financing facility for publicly and privately led natural infrastructure projects. However, political uncertainty and country-level commitment to implementation could limit the reach of these initiatives.

Figure 4: Comparison of Program Types by Value and Prevalence, 2013

(Value: \$ Transacted in 2013, and Prevalence: # of Active/Pilot Programs)



\*Note: 'Voluntary compensation' refers to payments made by companies for activities symbolically offsetting their impacts – such as volume of water use.

Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

### Water funds show strength in Latin America

In **Latin American and the Caribbean**, virtually all growth in transactions in 2012-2013 was driven by mid-sized programs (defined as transacting between \$500,000-\$1M/year), led by ever-multiplying water funds. Peru and Colombia both passed groundbreaking legislation supporting watershed investment in 2013, the effects of which will be felt in the coming years.

### Funding flowed to forests and water quality markets in North America

In **North America**, *water quality trading* hit a \$10.7 million high last year, as markets gained scale and new actors entered the scene, including private entrepreneurs developing credits for the market. Cost-share agreements to manage wildfire risk on the United States' forested public lands also flourished, though the country still faces an enormous backlog of restoration needs on public lands, covering as much as 48 million hectares.<sup>3</sup>

### In Oceania, Australia steps back from public watershed investment

**Oceania** saw the value of domestic watershed investment slip, as a change in Australia's government

hastened budget cuts for programs to restore water to the Murray-Darling Basin. But at a smaller scale, water quality trading and nascent municipal stormwater offset programs reported transacting nearly \$1M in their first two years of operation.

### Watershed Finance: Who's investing and why?

Programs pursue financial stability through buyer diversity, collaboration

IWS still relies mainly on *public subsidies* for watershed protection, which in 2013 accounted for over 90% of funding globally (Figure 4). But programs have diversified their financing structures over the last two years, seeking a broader funding base in light of financing challenges encountered in other environmental markets (like the cash-strapped global carbon offset market) and taking advantage of a growing body of experience with water fund models. Notably, *collective action funds* – which pool multiple program investor contributions – made up one of every three new programs, a departure from past years when simpler *bilateral deals* were the norm. Such funds were particularly active in Latin America, where water trust funds attracted more than \$65M in long-term watershed project finance.

<sup>3</sup> The Nature Conservancy, 2013. *Restoring America's Forests*. Accessed at <http://www.nature.org/ourinitiatives/habitats/forests/restoring-americas-forests.xml>.

Figure 5: Business Activity by Region

(Value of Transaction by Driver and # of Active/Pilot Programs with a Business Buyer, by Region)

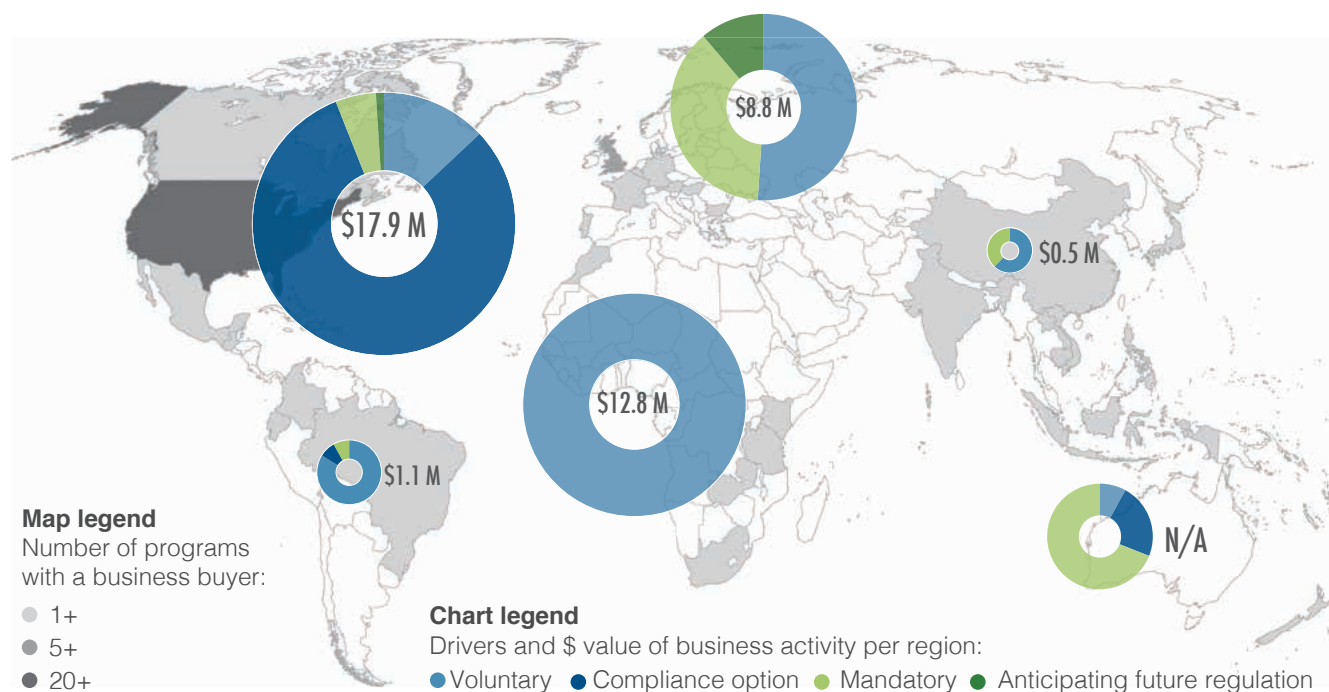
Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

Table 2: Top Investment Motivations by Buyer Sector, 2013

	Business	Local government	State/Provincial government	National government	NGOs / Donors	Drinking water utilities	Waste water utilities
1.							
2.							
3.							
4.							
5.							

Regulatory compliance   
 CSR / Reputational risk   
 Wildfire risk   
 Cost abatement  
 Water availability risks   
 Biodiversity protection   
 Climate change risk   
 Weather-related risks  
 Water quality risks   
 Local livelihoods   
 Protection of existing or planned infrastructure

Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.



## Private sector: Watershed investment by business totaled \$41M in 2013

Meanwhile, business demand for watershed services picked up last year, as the private sector spent \$41 million on IWS activities, up from an estimated \$19-26M in 2011.<sup>4</sup> The bulk of business investment – over 95% – was in North America, Africa, and Europe, driven in large part by regulatory frameworks facilitating IWS (in North America and Europe) and governments successfully leveraging private-sector contributions (in South Africa) (Figure 5).

As in previous years, the beverage industry and private water utilities were leaders in the field, with at least \$8.8 million in transactions reported by beverage companies and \$8.9M by water companies. The Coca-Cola Company and its partner bottling companies stood out in 2012-2013, involved in 20 IWS programs around the world as both initial program investors and ultimately buyers of at least \$2.2 million in watershed services to date. Beer giant SABMiller and its subsidiaries also invested in *water stewardship*, valued at \$1.3M at five sites in Africa, Asia, and South America. The food and beverage industry is unique in that the majority of buyers (88%) pay for watershed protection voluntarily – compared to the private sector average of 31%.

Private-sector energy companies (here referring to the extraction, processing, generation, and distribution industries as a whole) spent \$9.3M on IWS in 2013, mainly spurred by regulatory requirements (which drove 93% of this sector's spending last year).<sup>5</sup> Despite relatively high spending compared to other private sector buyers, the energy industry accounted for only 4% of buyers overall.

Other sectors – often despite significant risk exposure<sup>6</sup> – appear to be less engaged in IWS strategies. The agricultural/forestry/fisheries sector reported even lower participation than the energy sector, with <1% of buyers and only an estimated \$35,000 reported in transactions in 2013.

## Motivations: Water quality and availability remain primary drivers for 94% of buyers

Watershed investments are driven by a host of interests and concerns related to water quality and availability,

corporate reputation, cost savings, and biodiversity protection – among others. In 2013, the desire to ensure water quality and address availability risks drove the largest volume of watershed investment (Table 2).

Other investment motivations varied by sector. Natural infrastructure solutions are typically attractive to buyers because of their holistic potential to deliver multiple benefits beyond water security – including supporting water, energy, and food systems at an integrated, landscape scale. Utilities and cities reported using natural infrastructure to extend the life of built infrastructure by slowing sedimentation rates in hydropower reservoirs or reducing water treatment systems' workload. Businesses, in contrast, were driven to comply with or prepare for regulatory requirements, as well as by corporate social responsibility (CSR) motives, while NGOs were especially attracted to IWS' additional social and environmental benefits (i.e., "co-benefits") like supporting sustainable local livelihoods and bolstering climate change resilience.

Experts acknowledge that energy, food, and water systems will require tremendous investment to keep pace with growing demand and climate pressures in the coming decades. Even more importantly, all of these systems are deeply interdependent, a relationship known as the water-energy-food-climate "nexus." What is often missing from discussions about this "nexus" is the recognition that natural infrastructure plays an important role in addressing water, energy, and food security challenges in an integrated way, allowing societies to manage and minimize trade-offs, maximize resilience in the face of changing conditions including climate change, and create sustainable solutions that are "wins" for water, energy, and food security.

We find evidence of buyers already managing these interrelated issues with IWS strategies – 21% of buyers in 2013 aimed to reduce agricultural water use and pollution, and 12% said they planned to use nature-based solutions to increase resilience to flooding, wildfires, and other natural disasters (Figure 6). But other nexus challenges, including ensuring sufficient agricultural production for growing populations,

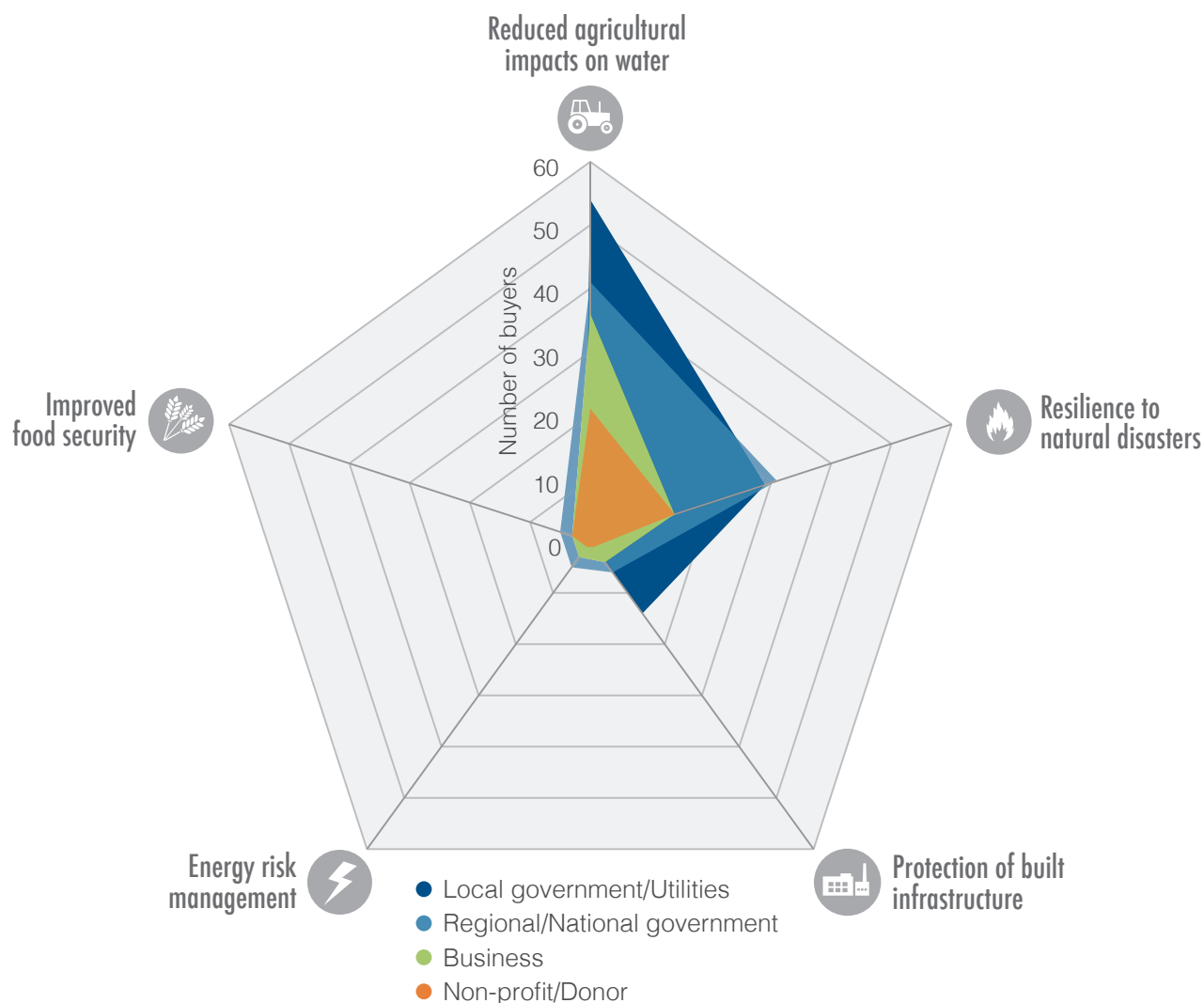
<sup>4</sup> Forest Trends' Ecosystem Marketplace, 2013. *State of Watershed Payments: Executive Summary for Business*. Available online: [http://www.forest-trends.org/publication\\_details.php?publicationID=4159](http://www.forest-trends.org/publication_details.php?publicationID=4159).

<sup>5</sup> Altogether, public and private energy sector spending amounted to \$59M in 2013, mainly driven by Vietnam's national policy requiring major water users like hydropower operators to compensate landholders for forest management.

<sup>6</sup> Carbon Disclosure Project, 2013. *CDP Global Water Report 2013*. Available online: <https://www.cdproject.net/cdpreresults/cdp-global-water-report-2013.pdf>.

Figure 6: Water-Energy-Food Drivers for IWS, by Buyer Type and Motivation

(# of Buyers by Profit Status)

Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

managing water-related energy risk, or complementing built infrastructure with resilient “green” elements, received little attention from buyers in 2013. Overall, survey results indicate less activity from private sector buyers than from public sector buyers, who have shown more interest in using natural infrastructure strategies to manage agricultural impacts and increase disaster resilience.

#### Co-finance: Enthusiasm for environmental co-benefits, but little additional funding

Both buyers and project developers expressed enthusiasm about the potential of IWS to deliver “co-benefits” like wildlife habitat protection and carbon sequestration. A full 128 programs manage their lands

for increased biodiversity values – predominantly in North America where cities’ protection of forested watersheds and *instream buybacks* initiatives have strong habitat benefits. Another 51 programs say they manage their lands for carbon storage performance (Figure 8). Altogether, programs with biodiversity and/or greenhouse gas targets accounted for more than \$6.1B in transactions in 2013, spanning 242M ha.

Multiple benefits are a frequently cited reason for choosing watershed protection over (or in tandem with) built water infrastructure. Some program developers report that the presence of co-benefits tips the balance (sheet) in favor of nature-based strategies in a cost-benefit analysis.

Figure 7: Count of Programs Tracking and Reporting Co-Benefits by Benefit Type and Region, 2013  
(# of Programs)



Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

## Emerging Trends: Issues and Challenges

### Natural infrastructure investment for energy and food security low, relative to risk exposure

While water systems managers are increasingly supportive of nature-based strategies and nearly a third of watershed investment flows to sustainable agriculture, the energy and agriculture sectors' investment doesn't reflect their actual dependence on healthy watersheds and tremendous water risk exposure.<sup>7</sup> Climate risk also appears to be on most programs' back burner, with relatively few programs or buyers driven by or considering climate change in their design (only 16% of active/pilot programs). These imbalances mean that energy and food systems' reliance on watershed health may not be matched with sufficient awareness and investment flowing back into natural infrastructure assets (Figure 8).

### Forty-two percent of buyers already committed future funding, but finance gap persists

Survey respondents on the demand side reported committing an additional \$6B to support program

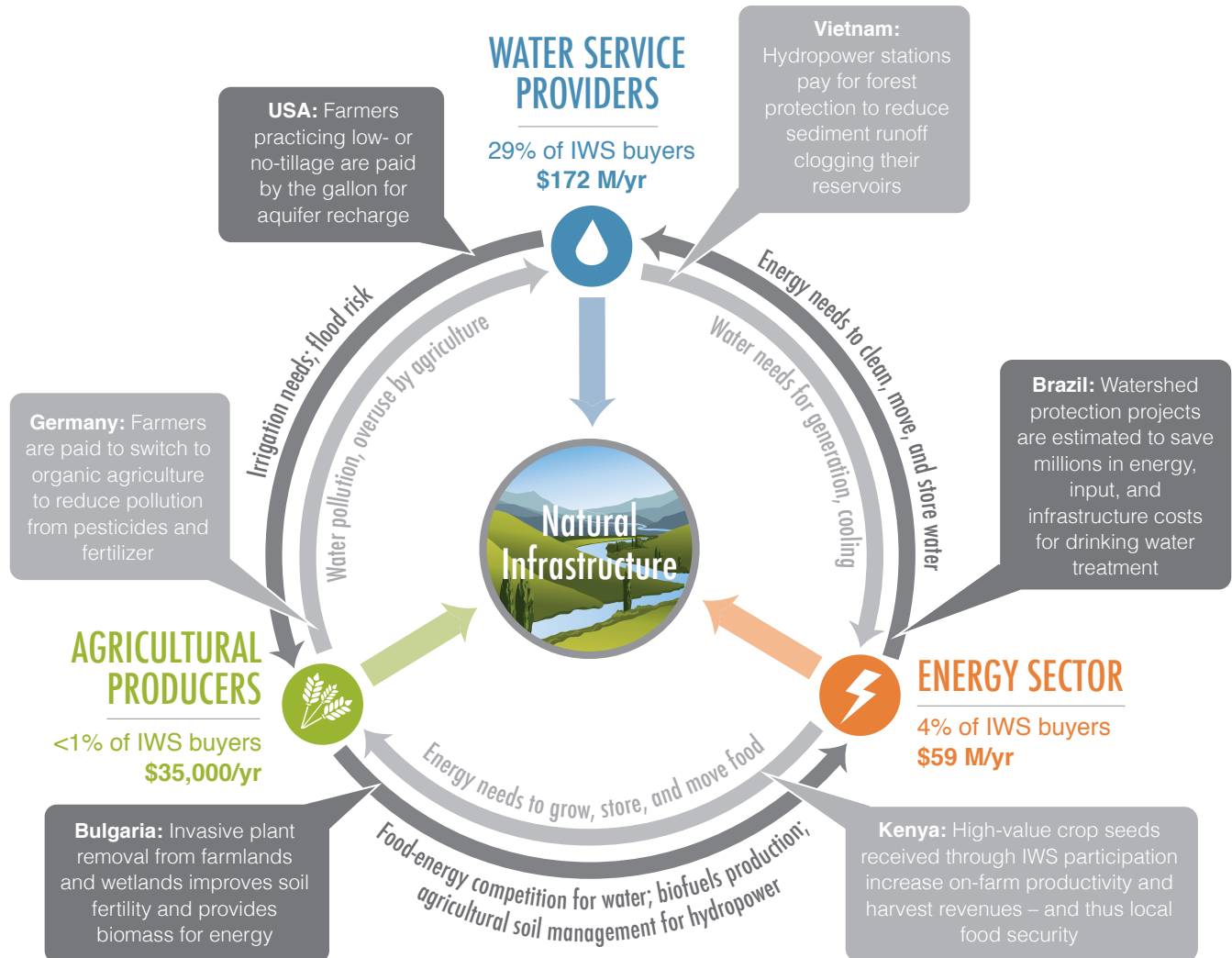
activities in future years (Figure 9) – mostly via government budgets in China, Australia, and South Africa – including \$904M that buyers reported committing to programs in 2014 alone. This “future finance” figure is likely an underestimation, as 42% of buyers say they have committed to additional transactions, but only 18% reported specific figures.

### Unstable finance and legal barriers slow program growth

Despite what appears to be a strong showing among buyers to commit to future funding, program developers routinely cited a lack of buyers and early-stage capital for project development as their greatest challenges. Indeed, early-stage financing of programs predominantly remains dependent on government and foundation grants to get programs off the ground. In only one-third (58) of reporting programs did watershed service buyers fund the program's initial design. Market participants suggest that under-investment may be linked to uncertainty around long-term regulatory drivers for IWS, as well as a lack of clear information generated by programs about return on investment (ROI). Reflecting this, survey

<sup>7</sup> Ibid.

Figure 8: Nexus Investments in Natural Infrastructure for Energy, Agriculture, and Water



Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

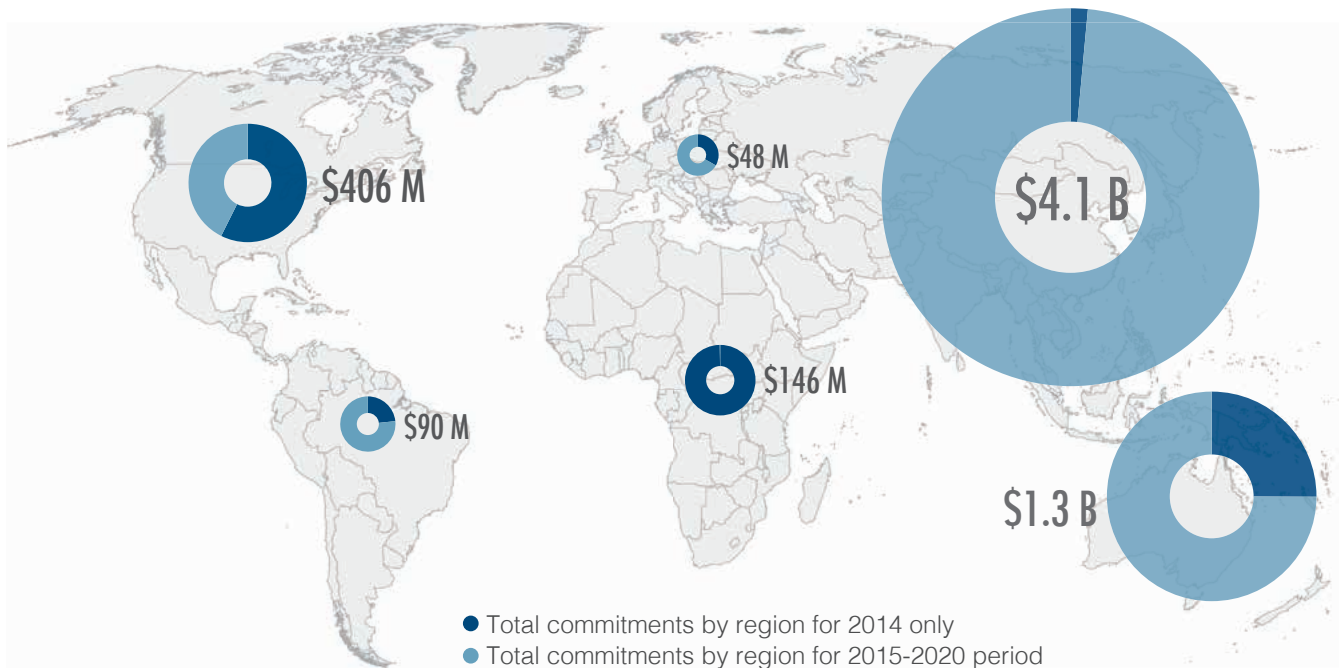
respondents ranked difficulties in getting policy and regulatory support close behind obtaining access to early finance in their ranking of key market challenges (Figure 10).

Even when money is flowing, program administrators report challenges in managing funds. Several respondents cited difficulties ensuring that money is actually being disbursed to suppliers by local intermediaries (such as a community board). Some respondents noted cash flow challenges typically associated with unpredictable financing for ecosystem service provision. In rare cases, respondents pointed to issues with safekeeping funds: one program found it necessary to house their money in the local police station.

### Monitoring and Evaluation improves, but not yet the norm

Monitoring and Evaluation (M&E) showed signs of improved rigor in 2012 and 2013, with 54% of programs reporting some form of environmental monitoring in 2013 as IWS increased its focus on demonstrating outcomes (Figure 11). Altogether the number of programs reporting environmental outcomes nearly tripled, from 77 in 2011 to 219 in 2013. This occurred despite the fact that watershed services like instream flow regulation can be difficult to measure over time or link to specific activities. Programs also report lagging M&E resources and capacity, particularly in rural and developing areas.

Figure 9: Funding Commitments, 2014 and 2015-2020, by Region



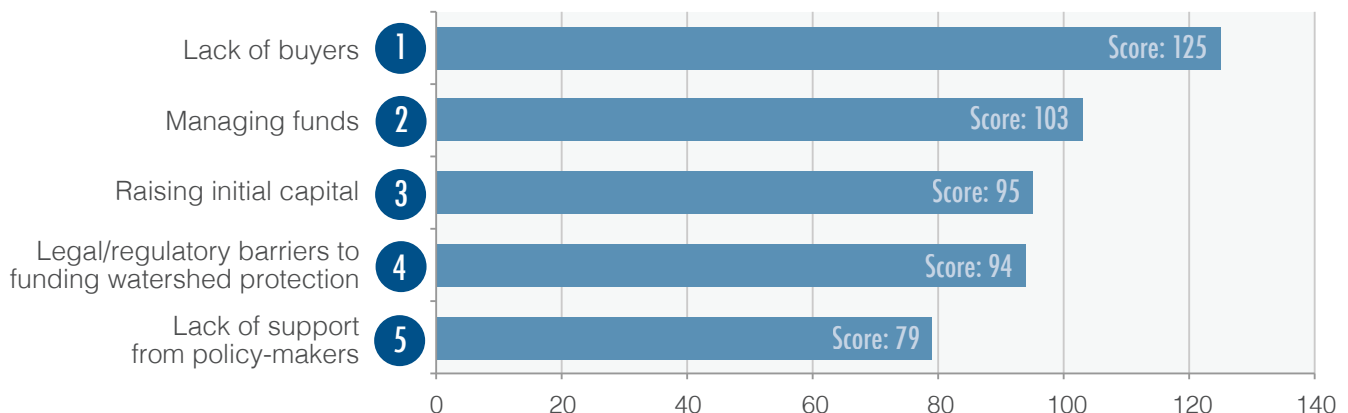
Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

Programs typically track implementation in terms of behavior or practice change (e.g., number of hectares sustainably managed) instead of more targeted metrics like “gallons of water” or “pounds of pollution avoided,” which can be very expensive to monitor (comprising as much as 40% of program costs in water quality trading markets, for example). But recent tracking suggests a definite shift toward performance-based finance that links payments to specific outcomes – such as \$0.03

paid to farmers for every ten gallons of groundwater supplies stored, recovered, or otherwise enhanced (i.e., groundwater “recharge”) for improved irrigation practices. Outcome-based programs accounted for 31% of active/pilot programs in 2013, up from 20% in 2011.

Progress in demonstrating program performance appeared to be at least partly driven by private

Figure 10: Top Five Challenges Reported by Program Developers

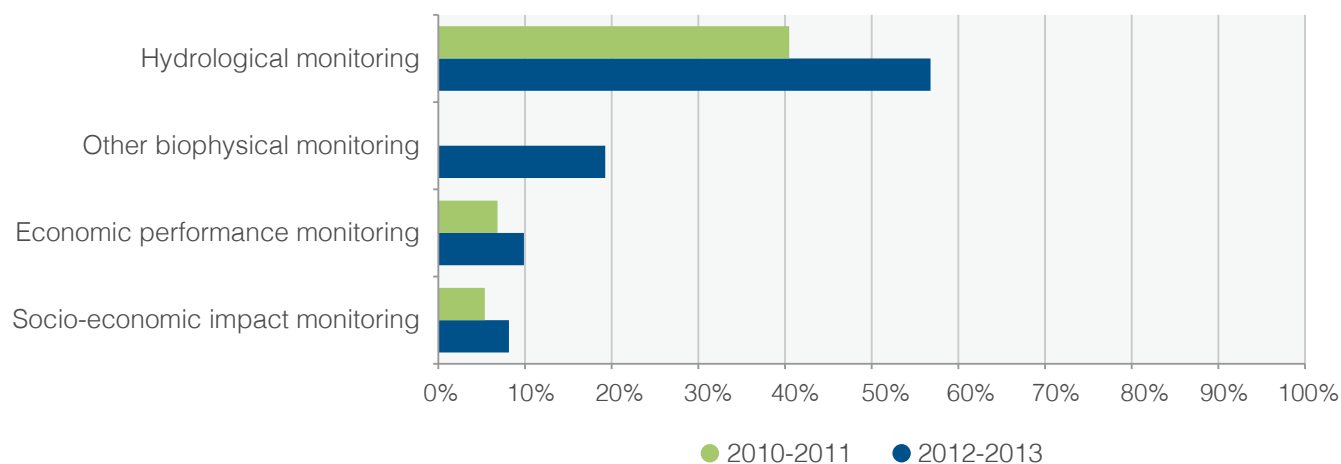


Notes: Scores for program challenges were calculated based on number of programs reporting that challenge, multiplied by the rank (1-5) assigned by the respondent. For this group of survey respondents, theoretically the highest score possible was 415.

Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.



Figure 11: Program Monitoring Rates, 2010-2013  
(% Share of Programs)



Notes: "Other biophysical monitoring" data is not available for 2010-2011.

Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

buyers and program investors desiring typical decision-support metrics like ROI – which program developers have not historically provided – and public sector entities seeking to justify their deployment of taxpayer/ratepayer funds. In response to these demands, programs cite significant interest in demonstrating performance in both ecological and economic terms.

## Outlook: Scaling up Watershed Investment

### In pursuit of financial and environmental ROI

Leaders in the field are looking to the private sector, climate finance, and the re-allocation of infrastructure spending as promising avenues for securing new finance and greater market stability. The first is already in early stages, with efforts underway to develop tools to understand ROI and design projects that are more attractive to business buyers and investors. Recently, high-level conversations have taken place, mainly in

the United States, about how to better connect private and institutional capital with conservation. Reports released in 2013-2014 – including from Credit Suisse/WWF/McKinsey & Co., the Conservation Finance Alliance, and Imprint Capital – all noted a lack of investable conservation projects and called for project developers to better quantify performance and demonstrate projects' ROI.<sup>8,9,10</sup>

An understanding of buyer ROI (e.g., the quantifiable ecological benefits received for every dollar invested, as opposed to purely financial returns for program investors) may be even closer. In 2013, a number of programs reported testing new methodologies for quantifying economic, hydrological, and other biophysical outcomes, particularly in the UK, USA, and Latin America.<sup>11</sup> Last year also saw cross-fertilization of successful approaches between industry leaders. For example, a methodology for estimating groundwater replenishment originally developed for The Coca-Cola Company is now being harnessed by The Nature

<sup>8</sup> WWF, Credit Suisse Group AG and McKinsey & Company. 2014. *Conservation Finance: Moving beyond donor funding toward an investor-driven approach*. Available online at: <https://www.credit-suisse.com/media/cc/docs/responsibility/conservation-finance-en.pdf>.

<sup>9</sup> Conservation Finance Alliance. 2014. *Supporting biodiversity conservation ventures: Assessing the Impact Investing sector for an investment strategy to support environmental entrepreneurship*. Available online at: <http://conservationfinance.org/upload/library/arquivo20140521115214.pdf>.

<sup>10</sup> Imprint Capital. 2013. *The Conservation Investment Landscape*. [Presentation.] Available online at: <http://conservationfinance.org/upload/library/arquivo20130321085507.pdf>.

<sup>11</sup> Forest Trends' Ecosystem Marketplace. [Forthcoming]. *Gaining Depth: State of Watershed Investment 2014*. Washington, DC: Forest Trends



Conservancy to estimate the hydrological performance of a water fund in Monterrey, Mexico, and for restoration work on public forest lands in the United States.

In pursuit of more economic appeals to buyers, 14 programs in 2012-2013 carried out cost-savings analyses and reported that IWS saves buyers and society more broadly at least \$3.8B/year, collectively – significantly more than the \$159.9M invested into those same programs in 2013. This finding suggests that actual net benefits for all 405 operational IWS programs are also quite significant. But hard numbers remain unavailable, since currently there is little consistency in methods to estimate cost-savings or benefits of watershed investment – not to mention that hydrological monitoring data is not always available, as discussed above. Most program developers who carried out such an analysis focused on relatively simple calculations of avoided *costs*. Fewer programs attempted to explicitly quantify *benefits*, like additional hydropower generation made possible by the program or tons of carbon sequestered by tree planting.

Standardized approaches for implementation and monitoring may also smooth the path for private sector funding. One such offering last year was the Alliance for Water Stewardship's newly launched Water

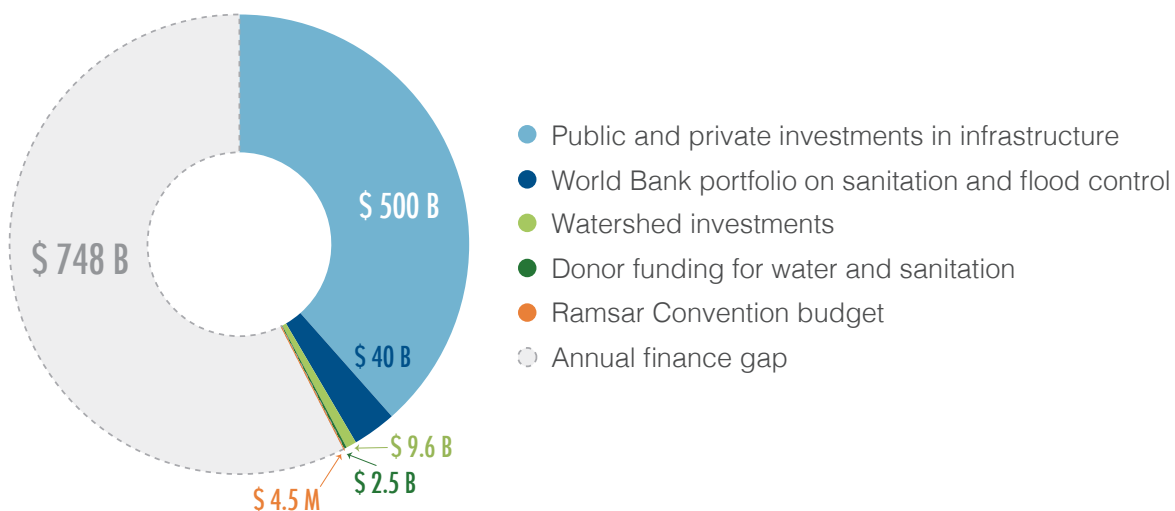
Stewardship Standard, designed for businesses and other water users interested in collective action models for managing water risks and dependencies. Nestlé and General Mills have already signed on as partners to support the standard's roll-out.

### The field eyes new sources of finance

Climate finance rarely seeps into the watershed investment space, despite IWS' strong potential as an adaptation strategy and the severe threats posed to water supplies by climate change. The Climate Investment Funds supported by a number of donor countries and administered by multilateral development banks do currently fund forest conservation and sustainable agriculture, which theoretically also support watershed values. But to date, no dedicated climate facility exists focusing specifically on financing or evaluating watershed protection. Most adaptation finance for water is instead related to sanitation and flood control.

Beyond the adaptation realm, Organisation for Economic Co-operation and Development (OECD) estimates that simply meeting basic water needs, including access to water, sanitation, and flood control will require over \$1 trillion in annual spending on water infrastructure by 2025 – leaving an annual gap of over \$700B.<sup>12</sup> Currently, most estimates – and

Figure 12: Annual Water Infrastructure Spending versus Global Need, 2013



Notes: Annual water infrastructure investment need based on OECD, 2007 (see Footnote 12). "Ramsar Convention budget" refers to funds designated for wetlands protection under the Ramsar Convention on Wetlands.

Source: Forest Trends' Ecosystem Marketplace. *State of Watershed Investment 2014*.

<sup>12</sup> Organisation for Economic Co-operation and Development (OECD). 2007. *Infrastructure to 2030 (Volume 2): Mapping Policy for Electricity, Water and Transport*. Available online: <http://www.oecd.org/futures/infrastructureto2030/infrastructureto2030volume2mappingpolicyforelectricitywaterandtransport.htm>.

most investments, in practice – focus on engineered solutions (Figure 12). Examples of successful IWS approaches suggest, however, that integrating natural infrastructure solutions into drinking water and wastewater management, and disaster risk mitigation can deliver cost-effective results and require less capital up front. Where this is the case, putting more natural infrastructure into the mix can make existing funding go further and help address the water infrastructure funding gap.

### Getting natural asset values on the books

Securing finance that is sized in equal measure to watersheds' contributions to society ultimately depends in part on recognizing natural capital's value as an economic asset. Doing so has the potential to drive new investments in natural infrastructure, not to mention illuminate clearly the risks natural capital degradation poses to society's access to sustainable water, energy, food – and ultimately to a healthy planet.

One potential solution, natural capital accounting (NCA), made great strides in 2012 and 2013. For example, the World Bank-led WAVES (Wealth Accounting and Valuation of Ecosystem Services) Partnership piloted ecosystem services integration into national accounts in multiple countries and will soon release global guidance on implementing ecosystem accounting pilots. Other critical developments include new regional commitments like Africa's 2012 Gaborone Declaration. The Natural Capital

Declaration, which launched at Rio +20 in 2012 with backing from 39 major financial institutions, entered its second phase in 2013 with a roadmap for implementing commitments to employ and regularly report on NCA by 2020.

Still, NCA is an enormous undertaking, requiring decision-makers to consider the values of assets long implicitly understood as having no value. Thus it may take some time to fully implement new accounting approaches, and most importantly, integrate these values into public and private investment priorities.

In the interim, dozens of governments and companies and countless other water users aren't hesitating to act, as this report demonstrates. IWS program developers and program investors are already connecting the dots between water, climate, energy, and food security challenges – and looking to nature for solutions.

But getting IWS to the needed scale will require that it be understood not just as a conservation issue, but also as a strategic investment in meeting future global demand for water, food, and energy. In the *State of Watershed Investment 2014* report, we document efforts to mainstream natural infrastructure approaches – from demonstrating their role in managing “nexus” trade-offs, to innovative financing structures attracting new buyers, to programs generating the data on outcomes and ROI that make it possible for decision-makers and investors to back IWS programs. These activities set the stage for significant future investment in our planet's natural assets in 2014 and beyond.

# Donors



Schweizerische Eidgenossenschaft  
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**Swiss Agency for Development  
and Cooperation SDC**

**The Swiss Agency for Development and Cooperation (SDC)** is Switzerland's international cooperation agency within the Federal Department of Foreign Affairs (FDFA). In operating with other federal offices concerned, SDC is responsible for the overall coordination of development activities and cooperation with Eastern Europe, as well as for the humanitarian aid delivered by the Swiss Confederation. The goal of development cooperation is that of reducing poverty. It is meant to foster economic self-reliance and state autonomy, to contribute to the improvement of production conditions, to help in finding solutions to environmental problems, and to provide better access to education and basic healthcare services.



**The Program on Forests (PROFOR)** ([www.profor.info](http://www.profor.info)) is a multi-donor partnership managed by a core team at the World Bank. PROFOR finances forest-related analysis and processes that support the following goals: improving people's livelihoods through better management of forests and trees; enhancing forest governance and law enforcement; financing sustainable forest management; and coordinating forest policy across sectors. In 2013, PROFOR's donors included the European Commission, Finland, Germany, Italy, Japan, the Netherlands, Switzerland, the United Kingdom, and the World Bank.



**The Grantham Foundation** for the Protection of the Environment is dedicated to protecting and improving the health of the global environment. The Foundation seeks to raise awareness of urgent environmental issues and supports individuals and organizations working to find solutions. To achieve these goals it supports communication and collaboration in environmental protection, with an emphasis on climate change.

## Collaborators



**The China Eco-compensation Policy Research Center (CEPRC)**, established in May 2013, is a joint effort between China Agricultural University and the National Development and Reform Commission, with seed funding provided by the Asian Development Bank. The purpose of the center is to better link ecosystem services providers with beneficiaries via “eco-compensation” policies and programs (a Chinese environmental policy innovation with characteristics similar to Payments for Ecosystem Services), and to promote environmentally sustainable and regionally balanced and inclusive economic development in China. The center is fundamentally a research institute and network, committed both to theoretical research on eco-compensation and the development of case studies and policy research to better capture lessons learned, as well as to help bring together environmental experts, policy makers and practitioners to share knowledge and environmental policy innovations.



**The Department of Forest and Rangeland Stewardship at Colorado State University** consists of individuals representing a diverse range of expertise and interests in the sustainable management of forests and rangelands and their associated resources. We engage in cutting-edge research and active knowledge exchange with professional managers, stakeholders, and communities. The Department offers comprehensive undergraduate and graduate programs in a wide variety of disciplines within forestry, natural resources management, and rangeland ecology.” Participation in the State of Watershed Investment data collection research was supported by the Agricultural Experiment Station at Colorado State University.



**EcoDecisión**, established in 1995, is a socially-oriented company dedicated to developing new ways to finance conservation. EcoDecision is a pioneer in the emerging ecosystem services markets of climate change mitigation, water source protection and biodiversity conservation. By developing creative mechanisms to realize tangible value for stakeholders the company seeks to mobilize investment to conserve invaluable, functioning natural ecosystems in the tropics. These efforts draw on emerging markets for ecosystem services and help put appropriate mechanisms in place to catalyze new finance, providing benefits for nature and its stewards.



**ETIFOR** is an independent spin-off of Padova University and works to turn scientific knowledge into practical solutions in four areas of intervention: forest certification and supply chain, climate change and ecosystem services, rural development, and international cooperation. We apply ethics and environmental economics to multi-disciplinary natural resource consultancy and project management.





## The Family of Forest Trends Initiatives

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### Water Initiative

Protecting watershed services through markets and incentives that complement conventional management

### Forest Trade & Finance

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

### BBOP

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

### the katoomba group

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

### Communities and Markets

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



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

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

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