Green Bonds and Land Conservation: The Evolution of a New Financing Tool

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Abstract

"Green Bonds" emerged as a new form of environmental financing in 2007. While most investors still view them as a niche product in the overall fixed income market, green bonds have grown rapidly to nearly $37 billion in issuance in 2014, with issuers from the World Bank to the State of Massachusetts. This paper examines the current and potential future use of green bonds for financing sustainable land use and conservation projects around the world. The paper draws on interviews with land conservation practitioners, bond issuers, investors, and financial analysts, as well as analysis of two case studies in China and Massachusetts. The paper summarizes the key insights from this community of experts, and lays out a series of steps that will be required before green bonds can develop into a significant and reliable tool in the conservation finance toolkit. Key recommendations for land conservation practitioners and the environmental finance community include: find opportunities to share best practices and success stories from projects and issuances to date in order to build momentum in the market; focus on articulating how land conservation can generate cash flows for bond repayment; and seek opportunities for state-level issuances and projects linked to water and stormwater management, which may be investment "sweet spots" for green bonds and land conservation.

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I. Executive Summary

Since their emergence as a new form of environmental financing in 2007, green bonds have stirred investors and environmentalists alike with the promise of providing a direct means of investing in environmentally-oriented projects. While still viewed by investors as a niche product in the broader fixed income market, green bond issuance has grown rapidly in the past decade, from $807M in total issuance in 2007 to $36.6B in 2014.[1] Issuers from the World Bank to the State of Massachusetts are increasingly incorporating these bonds into their approach to environmental financing.

The land conservation community is in the midst of determining what implications, if any, the growth of green bonds will have for land conservation efforts around the world. To date, only a handful of land conservation projects have been funded by green bonds. Both issuers and investors interviewed for this paper expressed concern about the "additionality" of these projects – in other words, these projects would have been funded regardless of the existence of the green bond mechanism. Investors are currently unwilling to pay a premium for the green bond label, and there is evidence that green bonds are viewed as more risky by some investors.

At this crossroads in the growth of green bonds, a critical question emerges: will green bonds become a powerful new source of capital for sustainable land use and conservation? Or will they fizzle out once the novelty of the "green" label has worn off for investors?

The research for this paper included interviews with land conservation experts, investors, bond issuers and others (see Appendix A for the full list of experts consulted). These interviews revealed a range of opinions on how the future for green bonds and land conservation will unfold. The paper has two primary objectives: first, to summarize the key insights from this community of experts and second, to explore what steps would need to be taken in order for green bonds to become a meaningful and reliable new tool in the conservation finance toolkit.

The paper identifies two main ways in which green bonds can develop into a more powerful financing mechanism for sustainable land use and conservation:

1) **Cooperative agreements on how land conservation generates returns**: To structure a green bond around land conservation, issuers and investors must agree on how land conservation generates financial returns. This paper proposes a framework of five revenue types, including: sustainable commodity production; recreation and ecotourism; tax revenues; credits for ecosystem services; and risk mitigation and avoided costs.
2) **Green bond issuances related to water management**: Green bonds that link sustainable land use and conservation with freshwater and stormwater management may be particularly attractive to investors, given that there is some agreement on the value of water in various markets. State-level issuance in this area may be most appealing, given that many States have strong credit ratings and the ability to fund smaller projects. The paper outlines the success factors for green bonds for land conservation.

[1] '$36.6B In Green Bonds Issued Last Year', *Forbes* <http://www.forbes.com/sites/annefield/2015/01/15/36-6b-in-green-bonds-issued-last-year/> [accessed 27 March 2015]; 'Green Bonds Expected To Top $100 Billion In 2015', *CleanTechnica* <http://cleantechnica.com/2014/10/23/green-bonds-expected-top-100-billion-2015/> [accessed 27 March 2015].

II. Introduction: Green Bonds Overview & Research Approach

What is a Green Bond?

The International Capital Market Association's Green Bond Principles defines a green bond fairly broadly:

> "…any type of bond instrument where the proceeds will be exclusively applied to finance or re-finance in part or in full new and/or existing eligible Green Projects... Green Projects are defined as projects and activities that will promote progress on environmentally sustainable activities as defined by the issuer and in line with the issuer's project process for evaluation and selection. "[2,3]

Green bonds can be used to fund a broad range of environmental projects, including but not limited to categories such as renewable energy, energy efficiency, sustainable waste management, sustainable land use, biodiversity conservation, clean transportation, and clean water and/or drinking water. We focus on the use of green bonds to fund projects related to sustainable land use and conservation, which could include projects such as forestry, agricultural operations, land acquisitions, and conservation easements (see Exhibit 2 below).

The World Bank and the European Investment bank issued the first green bonds in 2007. By the end of the year total green bond issuance amounted to $807M.[4] Since then, green bond issuance has grown rapidly; $36.6B of green bonds was issued in 2014, and in 2015 the total is expected to exceed $100B (see Exhibit 1).[5] By end-2014, a total of $53.2B green bonds were outstanding.[6] While the pace of growth is significant, however, green bonds still constitute a small fraction of the global bond market – equivalent to just 1% of the $1.4 trillion in US corporate bond issuance in 2013.[7]

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[2] For more information on the Green Bond Principles, see: "Green Bond Principles," International Capital Market Association <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/green-bond-principles/> [accessed 24 November 2015].

[3] Green bonds are distinct from "Environmental Impact Bond (EIB)," which are an application of the Social Impact Bond (SIB) model to environmental projects. EIBs are a pay-for-performance mechanism reliant primarily on the monetization of future cost savings, but they do not necessarily entail the issuance of a bond. Fundamentally, EIBs entail a debt issuance in which the government or another stakeholder agrees to pay a return if environmental impact performance targets are met. The most commonly referred-to model of a land conservation-related EIB (though not labeled as an EIB at the time) was New York City's investment in upstream land conservation (forest preservation, restoration, and improved streamside management) to improve drinking water quality for NYC residents while avoiding significant downstream grey infrastructure costs. As of mid-2015, no explicitly-labeled EIBs have been launched in the United States. However, a number of financial firms, including Encourage Capital, and non-profit organizations, such as the Harvard Kennedy School Social Impact Bond Lab, are considering feasibility and optimal structure for such investments. For a deeper analysis of market possibilities related to Environmental Impact Bonds, see: "Environmental Impact Bonds," David Nicola, Duke Center for the Advancement of Social Entrepreneurship, 2013: <http://sites.duke.edu/casei3/files/2013/03/CASEi3_EIB_Report_FINAL-links.pdf>.

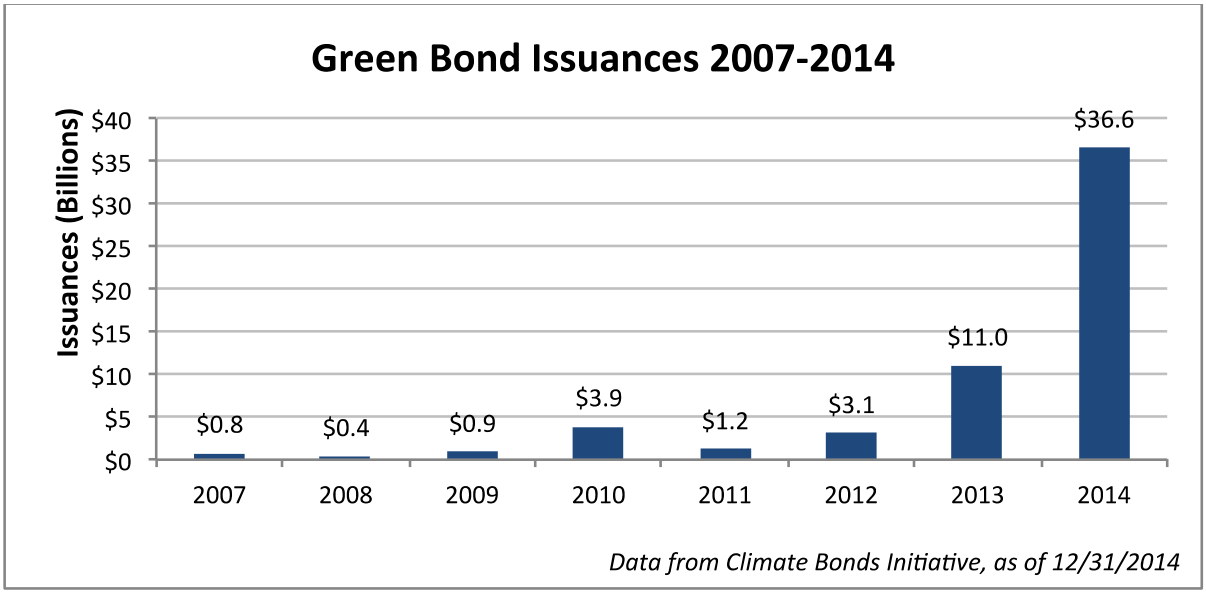
[4] 'History', *Climate Bonds Initiative* <https://www.climatebonds.net/market/history> [accessed 12 November 2015].

[5] '$36.6B In Green Bonds Issued Last Year'; 'Green Bonds Expected To Top $100 Billion In 2015'.

[6] Climate Bonds Initiative, *Bonds and Climate Change: The State of the Market in 2014*, July 2014 <http://www.climatebonds.net/files/post/files/cb-hsbc-15july2014-a3-final.pdf>.

[7] Bloomberg New Energy Finance, *Green Bonds Market Outlook 2014*, 2 June 2014 <http://about.bnef.com/white-papers/green-bonds-market-outlook-2014/content/uploads/sites/4/2014/06/2014-06-02-Green-bonds-market-outlook-2014.pdf>.

Exhibit 1: Green Bond Issuances 2007-2014[8]



There are broadly five types of green bond issuers that can issue bonds to support sustainable land use and conservation: corporate, municipal, state, federal, and supranational. In 2014, 44% of green bonds were issued by development banks, 33% were corporate, and 13% were muni, provincial or city bonds, with the remainder were issued by smaller banks.[9]

Like any bond, green bonds can be issued under the full faith and credit of the issuer, or can be based on the projected cash flows of the project to be funded.[10] The majority of green bond issuances for sustainable land use and conservation to date have been based on the full faith and credit of the issuer. Project-based revenue or "asset-backed" bonds for land conservation are challenging because it can be difficult to project a steady stream of cash flows from these projects. This challenge is discussed further in Section III.

Perspectives of Green Bond Stakeholders

Issuer Perspective

As with all bonds, issuing a green bond requires that a number of parties work together to generate a marketable product: issuers who issue the bond and direct the proceeds toward borrowers with appropriate "green" projects, underwriters who help market and sell the bond to investors, and investors who purchase the bonds. In some cases, the issuer and the borrower can be the same party, such as in the case of the State of Massachusetts issuing green bonds to fund the state's own environmental projects.

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[8] 'History', *Climate Bonds Initiative* <https://www.climatebonds.net/market/history> [accessed 12 November 2015].

[9] Climate Bonds Initiative, *Bonds and Climate Change: The State of the Market in 2014*, July 2014 <http://www.climatebonds.net/files/post/files/cb-hsbc-15july2014-a3-final.pdf>.

[10] These two types constitute a generalized view of green bond types. The Climate Bond Initiative has a taxonomy of four types, including: Green Use of Proceeds Bond, Green Use of Proceeds Revenue Bond, Green Project Bond, and Green Securitized Bond. "Green Bond Principles," International Capital Market Association <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/green-bond-principles/> [accessed 24 November 2015].

Unlike conventional bonds, many green bond issuances incorporate an auditing body that ensures the proceeds are being used appropriately and as advertised. Such an audit function adds to the issuing cost, which is a concern for borrowers who are trying to secure green bond financing at a price competitive with traditional bonds. Finally, outside of the issuances themselves, standard- and principle-setting bodies such as the Climate Bonds Initiative and Green Bonds Principles also play a key role in defining criteria for green bonds. Appendix B outlines the activities of each of these stakeholders, as well as examples of organizations and the benefits to those organizations of engaging in green bond issuance.

Investor Perspective

Green bonds are still viewed by investors and asset managers as a highly niche product given the relatively tiny level of issuance compared to the broader markets for traditional bonds. However, several large asset managers, including BlackRock and Nikko Asset Management, have launched green bond funds to serve interested investors while asset managers such as Breckinridge Capital have developed an expertise in analyzing green bond issuances.

There are some perceived advantages of green bonds for particular investor types. For instance, green bonds can help foundations, pensions, and family offices conduct "mission-related investment," aligning the investment of their core assets with their broader social and environmental objectives. Additionally, investors interested in place-based investment may be drawn to green bond issuances that support projects in specific geographic areas or communities. Several asset managers interviewed noted that clients had varying levels of interest in the use of proceeds for green bond issuances, but that land conservation projects supported by green bonds may be attractive given that the project outcomes are relatively easy to measure (e.g., trees planted, acreage of land preserved) and are also visible within their community. Finally, green muni bond issuances are attractive – like any muni issuance – for tax benefits. For instance, income generated from a green bond in Massachusetts will be tax-exempt for Massachusetts residents.

Nonetheless, such advantages are currently not sufficient to induce investors to accept a lower rate of interest on a green bond versus a comparable conventional government or muni bond. Investors are primarily interested in investing in green bonds whose characteristics match their overall investment objectives (e.g., risk-return profile, duration). Family offices and small foundations have been first movers in buying green bonds, which asset managers interviewed attribute to a stronger willingness to take risks on part of their portfolio, or to accept a lower level of return in exchange for a green bond that is "mission-aligned" with their organization's social or environmental goals. However, investment committees within large institutional investors such as pension funds are concerned with the limited history of green bond projects, and remain wary of investing in a new asset type (especially where bond repayments are based on specific cash flows) without more evidence of investment outcomes. In general, we found there is a sense of "wait and see" among larger investors to see if green bond issuance continues to grow and will develop into a genuinely distinct asset class.

Research Approach

Green bonds have the potential to be a significant addition to the conservation finance toolkit. However, there has been limited research to date regarding the benefits, drawbacks, and potential for expansion of these bonds – particularly for their application to sustainable land use and conservation.[11] Our study approached this topic in three stages: first, identifying and analyzing cases where green bonds are being used successfully for sustainable land use and conservation; second, examining the potential for expanding green bonds as a vehicle for financing land conservation, focusing on green bonds' strengths and weaknesses as a funding mechanism, as well as barriers to growth; and finally, exploring possible scenarios for the evolution of green bonds for land conservation over the next several years.

The research was conducted using a combination of case studies, analysis of existing literature, and semi-structured in-depth interviews with 24 experts. Because the field is evolving rapidly, the interviews provided valuable current perspectives on the subject.

[11] For the context of this paper, "sustainable land use and conservation" encompasses a broad range of activities and investments that help protect natural resources. This could include sustainable resource extraction on "working lands" such as through sustainable forestry or agriculture, restoration of habitat for species and for human benefit (e.g., wetland restoration to protect against coastal flooding), or traditional preservation of land to limit human use.

III. Current Uses of Green Bonds in Land Conservation Finance

There is a high projected need for conservation financing in the coming decade, and a significant shortfall in supply of that funding. As a result, green bonds have attracted attention in the environmental community as part of a larger conversation about sources of necessary conservation funding.

Projected Conservation Funding Shortfall

Funding for conservation has long been supported primarily by governments, development finance institutions, and philanthropies. Annual spending is estimated to be around $50B, according to a 2014 report by Credit Suisse, the World Wildlife Fund, and McKinsey.[12] According to The Nature Conservancy, funding from governments and philanthropies has stayed relatively flat since the late 1990s.[13] The amount falls far short of the estimated $300-400B required annually to meet conservation priorities across the world.[14,15]

In addition, traditional government sources of conservation funding are in jeopardy. For instance, in the United States, the Land and Water Conservation Fund – a critical source of funding for land conservation – did not receive reauthorization from Congress in 2015.[16] The Fund, originally authorized by Congress in 1964, channels $900M annually from federal offshore oil and gas leases into conservation activities.[17]

The Role of Investment and Private Capital in Conservation Funding

Given that traditional philanthropic grants and government funding will be insufficient for land conservation, there has been an increasing focus on what role conservation investments could play in addressing the shortfall. A 2014 report by The Nature Conservancy's NatureVest and EKO Asset Management Partners (now Encourage Capital) estimated global investment in conservation to be $23.4B in the period 2009-2013. Over 90% of this amount ($21.5B) came from development finance institutions such as the World Bank. Private conservation investments constitute a small portion, totaling under $2B.[18] However, such investments are growing rapidly: between 2009-2013, private sector conservation investment grew at a rate of 26% annually. Private investors expect to deploy $1.5B of already-raised capital between 2014-2018, and to

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[12] Credit Suisse, World Wildlife Fund, McKinsey & Company, *Conservation Finance: Moving beyond Donor Funding toward an Investor-Driven Approach*, 2014 <https://www.credit-suisse.com/media/cc/docs/responsibility/conservation-finance-en.pdf>.
[13] "Investing in Conservation," NatureVest and EKO Asset Management Partners, November 2014: <http://www.naturevesttnc.org/reports>.
[14] New research is examining this $300-400B estimate and may suggest a lower estimate of required conservation spending. Spencer Meyer, Yale School of Forestry, personal communication, September 4, 2015.
[15] Credit Suisse, World Wildlife Fund, McKinsey & Company, *Conservation Finance: Moving beyond Donor Funding toward an Investor-Driven Approach*, 2014 <https://www.credit-suisse.com/media/cc/docs/responsibility/conservation-finance-en.pdf>.
[16] Joby Warrick, 'Interior Secretary: Hill Funding Divide Could Threaten National Parks', *The Washington Post*, 23 May 2015 <http://www.washingtonpost.com/national/health-science/threat-to-nations-parks-seen-as-congress-stalls-on-renewing-fund/2015/05/23/3ede32c4-015e-11e5-8b6c-0dcce21e223d_story.html> [accessed 6 July 2015].
[17] Land and Water Conservation Fund Coalition, *Land and Water Conservation Fund: 50 Years of Conserving America the Beautiful.*, 2014 <http://www.lwcfcoalition.org/files/LWCF_50thAnniversaryReport_FINAL.pdf>.
[18] "Investing in Conservation," NatureVest and EKO Asset Management Partners, November 2014: <http://www.naturevesttnc.org/reports>.

raise and invest an additional $4.1B. The average target IRR across these investments falls between 5-9%, with the target IRR for private equity investments slightly higher at 10-14.9%.[19] Sustainable food and fiber production, which includes forestry and agriculture and therefore ties closely to sustainable land use investment, accounts for two-thirds of such investments.[20]

While there is promise for the increasing role of private investment in land conservation, the market is still experiencing growing pains. Investors frequently note that there is a shortage of investable conservation deals that have appropriate risk-return profiles. Additionally, many land conservation projects in particular require small investments, resulting in a scale mismatch between the projects that need funding and the pools of capital available for such funding. In this sense, there is not enough deal flow to meet investor demand.

In addition to the challenges of finding attractive projects to finance, investment groups structuring conservation deals are generally newer organizations with limited track record, which makes it hard to attract investor funding.[21] To date, investment groups have addressed this hesitation through "stacking" different forms of capital with varying levels of risk tolerance, such as by including layers of equity and debt, or through program-related investments from philanthropies and family offices who are willing to accept a lower return on a portion of their investments given an investment's social or environmental benefits.

Current State of Affairs: Green Bonds and Land Conservation

Given the projected shortfall in conservation funding and the growing interest among private investors in supporting conservation, green bonds have the potential to be a powerful tool for land conservation organizations seeking funding. For land conservation in particular (with the exception of timber and forestry operations), debt is frequently used to support land acquisitions and other conservation efforts, and so relevant stakeholders – both issuers and investors – are familiar with the processes for structuring and investing in green bonds in this area. Additionally, as noted above, green bonds that support land conservation may be attractive to family offices or small foundations that have a geographic focus, since the use of proceeds provides a compelling story for their organization and their stakeholders about community investment in a geography of interest.

Reporting challenges and the relatively recent emergence of green bonds makes it difficult to determine exact numbers of investment into sustainable land use and conservation. However it is safe to conclude that just a small fraction of green bonds have been allocated to land conservation projects to date. In considering the multilateral development banks, for instance, a Bloomberg Energy Finance analysis in 2014 showed that of green bond issuances by the European Investment Bank, the World Bank, and the African Development Bank, $3.6B in proceeds went to renewable energy, while just ~$0.1B went to forestry projects, which can be

[19] "Investing in Conservation," NatureVest and EKO Asset Management Partners, November 2014: <http://www.naturevesttnc.org/reports>.
[20] Ibid.
[21] Ibid.

seen as a proxy for sustainable land use investments.[22] The Climate Bonds Initiative also found that only 1% of total bond issuances related to climate change have supported agriculture and forestry projects – an indicator of how sustainable land use and conservation is not as common a project type as others that have used bond financing.[23]

A central question is how can green bonds be used – and in some cases how have they been used – for sustainable land use and conservation finance? Green bonds have the potential to finance a broad range of sustainable land use and conservation efforts, including activities such as those outlined in Exhibit 2.

Exhibit 2: Sustainable Land Use and Conservation Activities Funded by Green Bonds

Project Type	Examples – Use of Proceeds
Conservation easement purchase	Extinguishment of development rights to increase natural wetland buffering; control of agricultural land use rights in upstream land holdings to increase sustainable practices and reduce run-off
Land purchase	Purchase of land holding to convert into land conservation (e.g., grassland conservation), or to establish more sustainable land use operation (e.g., transition from conventional to sustainable agriculture)
Establishment of a forestry or agricultural production operation	Construction of a timber mill for certified sustainable wood or set up of a plantation of sustainably produced and certified agriculture product (e.g., cocoa) – though equity is more commonly-used than debt to finance forestry investments
Establishment of a recreation or ecotourism operation	Construction of the physical structures and infrastructure required to operate a recreation area or an ecotourism operation
Payments for ecosystem services	Establishment of carbon finance projects to protect standing forests, or establishment of a framework for payment for watershed services
Mitigation banking	Development of biodiversity offsets (e.g., under the EPA Clean Water Act) to compensate for the residual biodiversity impacts of project development[24]

Case Studies

Given the relatively recent emergence of green bonds as a financing mechanism, examples of sustainable land use and conservation green bonds are relatively few in number and insufficient for a broad survey analysis of outcomes and best practices. However, the following two case studies provide an illustration of the form green bonds for sustainable land use can take. We highlight select lessons learned based on these issuances and the insights of the experts interviewed.

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[22] Bloomberg New Energy Finance, *Green Bonds Market Outlook 2014*, 2 June 2014 <http://about.bnef.com/white-papers/green-bonds-market-outlook-2014/content/uploads/sites/4/2014/06/2014-06-02-Green-bonds-market-outlook-2014.pdf>.
[23] Climate Bonds Initiative, *Bonds and Climate Change: The State of the Market in 2014*, July 2014 <http://www.climatebonds.net/files/post/files/cb-hsbc-15july2014-a3-final.pdf>.
[24] Personal communication, Fabian Huwyler, 7 May 2015.

World Bank: China Integrated Forestry Development Project

Background: The World Bank and Green Bonds

The World Bank issued the first green bond in 2008 as part of the Bank's Strategic Framework for Development and Climate Change, and has since that time has issued a total of $8.5B in green bonds.[25] The bonds are issued under the full faith and credit of the World Bank, meaning that repayment is not tied to the performance of a specific project. As a result, the bonds receive the World Bank's Aaa/AAA credit rating. The Bank has partnered with a number of underwriting banks for to market and sell the bonds to investors, including SEB, JP Morgan, and TD Securities.[26] The World Bank sources the "green" projects from its broader pool of screened possible investments, meaning that the projects would likely have been financed anyway through traditional World Bank debt issuance. [27]

The World Bank issues green bonds across five categories:

(i) Renewable Energy and Energy Efficiency
(ii) Transport
(iii) Water, Wastewater, and Solid Waste Management
(iv) Agriculture, Land Use, and Forestry
(v) Resilient Infrastructure, Built Environment, and other

The Bank funds sustainable land use and conservation through the fourth category above: Agriculture, Land Use, and Forestry. It has funded projects in Armenia, China, Mexico, the Philippines, the Russian Federation, Tunisia, and Uruguay. Under the sub-category of Forest Management, the Bank has invested in numerous projects in China as well as in Tunisia. [28]

Case Study: The Integrated Forestry Development Project, China

In China, the Bank partnered with the Chinese Government to fund the Integrated Forestry Development Project. The project aims to address two objectives across five Chinese provinces: (1) improving the ecological conditions of degraded forests through plantation of new native trees and (2) strengthening the capacity of the Chinese government to reform land use rights in collective forests. Criteria for success include rates of re-afforestation, which is tracked on an annual basis, as well as the expansion of 93,000ha of sustainably managed forestland and forest management training for 216,000 farmers.[29]

The World Bank's green bond is providing $100M in funding between 2010-2016, matched by $100M from the Chinese government. The bond was backed by the full faith and credit of the World Bank.

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[25] 'World Bank Green Bonds' <http://treasury.worldbank.org/cmd/htm/WorldBankGreenBonds.html> [accessed 20 June 2015].
[26] World Bank, 'Green Bond Issuances to Date' <http://treasury.worldbank.org/cmd/htm/GreenBondIssuancesToDate.html> [accessed 20 June 2015].
[27] Ibid.
[28] Other World Bank green bond funding in this category includes $41.6M in 2010 to a project in Tunisia that aims to improve watershed management through improved agricultural practices and forest management.
[29] World Bank, *Integrated Forestry Development Project*, 2010 <http://www.worldbank.org/projects/P105872/integrated-forestry-development-project?lang=en>.

Case Study Insights

The project provides lessons for larger-scale projects funded at the supranational level.

- *Scale*: The project demonstrates that collaboration between national governments and large development banks such as the World Bank can support large-scale sustainable land use and conservation projects. The World Bank chose this project from its existing pipeline of projects, meaning that the scope had to be appropriate for the general size of a World Bank bond issuance.
- *Government engagement and investment:* The World Bank's partnership with the Chinese government was critical to funding the project. The World Bank has a long history of working with the Chinese government, which demonstrated its buy-in to the project through a matching investment of $100M. Additionally, supranational green bond financing for land conservation may be most effective in countries where it is possible to assemble land rights for larger land holdings – whether because the land is currently owned by the government or because there is a regulatory environment that allows access to easements on privately-owned property.
- *Supportive regulatory environment:* The project takes advantage of land tenure reforms in the regions where the project is taking place, and also includes provisions for supporting and bolstering the implementation of those reforms at the village and province level.[30]

State of Massachusetts: Great Marsh Conservation Project

Background: The State of Massachusetts and Green Bonds

In 2013, Massachusetts became the first U.S. state to issue green bonds, with a $100M green bond issue as part of the $475M general obligation issuance.[31] The projects funded by the green bonds fall into four categories:

(i) Land Acquisition, Open Space Protection, & Environmental Remediation (20% of funds)
(ii) River Revitalization and Preservation & Habitat Restoration (4%)
(iii) Energy Efficiency & Conservation (48%)
(iv) Clean & Drinking Water (28%)[32]

Case Study: Great Marsh Conservation Project

Under the first category, the State funded the acquisition of conservation rights on 70 acres of coastal habitat in Ipswich, MA, within the Great Marsh "Area of Critical Environmental Concern." The project leveraged $750K in U.S. Fish and Wildlife Service Coastal Wetlands Conservation Grant Funding. The conserved property includes upland, coastal wetlands, a pond, and a trail easement for hiking access. The bond was issued under the full faith and credit of the State of Massachusetts.

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[30] World Bank, *Integrated Forestry Development Project*, 2010 <http://www.worldbank.org/projects/P105872/integrated-forestry-development-project?lang=en>.

[31] 'Massachusetts Goes Greener With Latest "Green Bond" Sale', *WSJ Blogs - MoneyBeat*, 2014 <http://blogs.wsj.com/moneybeat/2014/09/17/massachusetts-goes-greener-with-latest-green-bond-sale/> [accessed 4 May 2015].

[32] *MassGreenBonds: 2013 Series D First Quarterly Investor Impact Report*, 2013 <http://www.massbondholder.com/sites/default/files/files/QE%20August%202014%20Green%20Report(1).pdf>.

According to Colin MacNaught, the former Assistant Treasurer for Debt Management in the Office of the State Treasurer who led the issuance, this project and the other land use projects funded through this green bond issuance likely would have been funded through a normal state bond issuance. However, the issuance did attract new investors such as TIAA-CREF, and investor demand for green bonds may allow for an increasing number and diversity of sustainable land use projects in the state in the years to come.[33]

Case Study Insights

The case study highlights a number of factors that make state-level issuances a good match for land conservation efforts in the United States:

- *Scale match*: The bond issuance financed a range of land conservation related projects, ranging from the hundreds of thousands to several million dollars. This flexibility in size may make state issuances a better match for land conservation projects than larger supranational issuances.
- *Government engagement*: In this issuance, the borrower is the same as the issuer, demonstrating a deep level of buy-in from government stakeholders toward ensuring the success of the projects.
- *Credit rating*: Massachusetts, like many states, has a strong credit rating, making it possible to issue general obligation bonds that are attractive to a broad range of institutional investors.[34]

State issuers like Massachusetts may also be willing to provide some kind of risk mitigation or assurance for investors. For example, it might be possible to explore a Pay for Performance or Environmental Impact Bond (EIB) model, in which repayment to investors would rely upon the success of the project in generating avoided costs to the state government.[35] This allows governments to pursue projects that might otherwise be deemed too risky, transferring risk to private investors and possibly to philanthropies or other organizations that may choose to provide low-cost capital or risk mitigation for other investors.

While there has been ad hoc sharing of advice and resources between states on the topic of green bonds, there is currently no organized forum for a structured and regular sharing of best practices among states that are either currently issuing or interested in issuing green bonds. Such a forum may help accelerate issuances and allow other states to learn from the early experiences of Massachusetts and other green bond pioneers.

[33] Colin MacNaught, Personal interview, 21 April 2015.

[34] 'Infographic: S&P State Credit Ratings, 2001–2014' <http://bit.ly/1CsAmrz> [accessed 28 August 2015].

[35] For a deeper analysis of market possibilities related to Environmental Impact Bonds (EIB), see: "Environmental Impact Bonds," David Nicola, Duke Center for the Advancement of Social Entrepreneurship, 2013: <http://sites.duke.edu/casei3/files/2013/03/CASEi3_EIB_Report_FINAL-links.pdf>.

Project-Level Findings and Insights

Beyond existing case studies, the research for this paper entailed interviews with experts across land conservation and conservation finance. These interviews focused on what the experts viewed as opportunities related to green bonds for land conservation, as well as key barriers to adoption. Taken together with the lessons learned from the case study analysis, these interviews surfaced a set of eight success factors for when a green bond might be an attractive financing tool.

The success factors may be helpful to both investors as well as potential borrowers and/or issuers, such as land conservation organizations or others seeking to finance sustainable land use projects. For investors, these success factors may help broaden thinking about when it is appropriate or attractive to invest in sustainable land use projects as part of a broader green bond issuance. For land conservation organizations, consideration of these success factors may serve as a decision tool for when to pursue green bond financing for a specific project.[36]

The eight success factors are described below and summarized in Appendix C. In some cases, these factors are unique to green bonds and in others they are relevant to the broader decision about whether bond financing is appropriate.

1) *Issuer Credit Rating*: A good credit rating for the issuing organization is critical to investors who perceive green bonds as risky. Issuers can reduce perceived risk by involving a philanthropy, family office, or other funder who is willing to "backstop" repayment on the loan in case the project does not meet its objectives, similar to the approach that has been taken with Social Impact Bonds.
2) *Green Bond Criteria Match*: Though currently there is not a set of universally agreed-upon green bond standards, sustainable land use and land conservation generally qualify as "green" use of proceeds under most issuer green bond criteria. Some investors – such as philanthropies and family offices – are particularly interested in use of proceeds when they buy green bonds.
3) *Appropriateness of Debt*: Land conservation organizations should consider whether debt financing makes sense for the given project based on its relative cost versus other forms of financing, alignment of the time horizon for the bond, and whether the borrower is comfortable taking on the repayment risk.
4) *Scale Match*: The project must match the size of the issuance if it is to be appealing to investors. In many cases, land conservation projects are too small for large-scale bond issuances, though pooling or securitizing projects multiple projects may address this issue.
5) *Articulated Returns*: Investors may struggle to see how land conservation generates returns that can repay the bond. Categories of revenue may include sustainable commodity production (e.g., agriculture or forest products), recreation or ecotourism (e.g., park entry fees), tax revenues (e.g., real estate transfer taxes), credits for ecosystem services (e.g., stormwater credits) and/or risk mitigation & avoided costs (e.g., the price

[36] Some of these success factors are relevant to the decision to use bond financing in general for land conservation projects, while others – such as #2 related to the green bond criteria – are specific to green bonds.

differential between grey infrastructure versus green infrastructure development). Such revenue sources are described in greater depth in Exhibit 3 below.

6) *Impact Measurement*: If repayment of the bond is tied to the success of the project in terms of conservation outcomes, both the issuer and investors must agree on appropriate success measurements as well as the means of measuring impact.
7) *Conducive Regulatory Environment*: Regulation related to environmental management and impacts can result in a price on ecosystem services at the local, state, national, or international level.
8) *Stakeholder Buy-in*: Buy-in from key government, industry, and financial stakeholders can support the success of a project. In the case of government, the government's willingness to support the project through risk-bridging activities such as credit enhancements, domestic market support, or regulatory interventions may help create a framework for new revenue streams.[37]

Market-Level Findings & Insights

Broadening out from project-level insights, case study analysis and interviews for this paper revealed wider market-level insights about the challenges and opportunities related to using green bonds for sustainable land use and conservation projects.

1) Articulating cash flows is the biggest challenge for land conservation

The biggest challenge for investors, issuers, and underwriters is articulating and agreeing upon the revenues that can be generated through sustainable land use and conservation projects. In many conversations about the potential for green bonds to fund sustainable land use and conservation projects, the first question investors ask is: how does the land generate a cash flow that can repay the bond coupon and principal? For a renewable energy project funded by a green bond, cash flow projections are more straightforward, as cash flows from electricity contracts are expected to repay the lump sum and the interest payments – although even such projects with physical assets and contracted revenues may not be able to borrow against Renewable Energy Credits more than a few years into the future in part due to political uncertainty around the credit systems. Articulating cash flows from a sustainable land use and conservation project can be considerably more difficult unless there is a commodity being produced that has a clear and relatively stable market value (e.g., agricultural or forest products).

Currently, green bonds for sustainable land use and conservation are still being issued on the full faith and credit of issuers such as in the World Bank and Massachusetts case studies above. In such cases project-specific revenue projections may be less important. However, where land conservation organizations can articulate the financial benefits of sustainable land use and conservation projects, this may bring new types of investors and new sources of capital to the table.

[37] Personal communication, Fabian Huwyler, 27 April 2015.

Exhibit 3: Revenue Categories - Sustainable Land Use and Conservation

Revenue Type	Description	Examples
1) **Sustainable Commodity Production**	Commodities produced on the land that have an existing value in the market, such as sustainable forest or agricultural products	Agricultural products, timber, non-timber forest products
2) **Recreation and Ecotourism**	Revenue generated from land use by recreational users or tourists, generated by visitor fees or concessions	Recreation fees, ecotourism concession
3) **Tax Revenues**	Tax and regulatory frameworks that associate sustainable land use and conservation projects with quantifiable tax benefits	Tax Increment Financing (TIFs), Real Estate Transfer Taxes, Payments in Lieu of Taxes (PILOTs), linkage fees
4) **Credits for Ecosystem Services**	Value of environmental services or resources in markets where these services or resources have agreed-upon prices	Water credits, stormwater management credits, carbon credits, river quality credits
5) **Risk Mitigation & Avoided Costs**	Projects whose environmental benefits help the borrower avoid costs that would otherwise be incurred	Municipality or corporation weighing costs of green vs. grey infrastructure investment, e.g., upstream riverside land conservation to reduce the need for downstream water filtration infrastructure investments

Exhibit 3 outlines five categories of potential revenues from sustainable land use and conservation projects. Valuing projected cash flows from the first two categories, "Sustainable Commodity Production" and "Recreation and Ecotourism," may be relatively straightforward assuming investors can forecast the prices of these commodities or services over time and determine whether the returns will justify the investment – though investors may still perceive uncertainty in these cash flows due to vulnerability to macroeconomic shifts and market dynamics. Further, in these categories a tension may also develop between increasing revenue through increasing production and achieving the sustainability goals of the project.

Valuing cash flows for the latter three categories is much more difficult. The challenge lies in translating the value of ecosystem services into financial terms – not only in putting a financial amount on the environmental benefit, but also in convincing relevant stakeholders (such as the borrowers) to accept that valuation and be willing to pay for those services accordingly.[38] Lack of history and political uncertainty around pricing mechanisms may lead investors to discount the future value of these project cash flows. A strong regulatory environment and enforcement can

[38] Many conservation organizations have produced work that can help articulate financial returns from conservation. For instance, The Trust for Public Land has produced reports on a number of U.S. states articulating a Return on Investment for investment in parks and open space, which may serve as a resource for stakeholders attempting to agree upon articulation of benefits and avoided costs. Similarly, the World Wildlife Fund's *Guide to Conservation Finance* outlines many case studies across these categories that can serve as a reference or source of ideas for land conservation organizations. World Wildlife Fund, *Guide to Conservation Finance: Sustainable Financing for the Planet*, 2009 <http://awsassets.panda.org/downloads/wwf_guide_to_conservation_finance.pdf> [accessed 12 May 2015].

help create the foundation for markets that value these ecosystem services, such as is seen in the case of EPA Clean Water Act regulation of stormwater management in the United States.

2) Investors are not ready for project-revenue backed bonds for land conservation

Given the difficulty in articulating stable cash flows from sustainable land use, green bond issuances that have funded land conservation to date have been backed by the full faith and credit of the issuing body, thereby benefiting from the strong credit rating of the issuer. Even where a project may clearly generate revenue, such as with the World Bank's investment in forest product and timber projects, investors may perceive bonds based on this revenue as more risky than other projects more traditionally financed through bonds (e.g., infrastructure projects). Further, cash flows from commodities may simply be insufficient to cover the full repayment of the bond coupon and principal if produced at a sustainable rate – or the higher perceived risk may mean that the bond requires higher yields than the cash flows can service.

3) Currently, concerns about "additionality" are justified

Of the sustainable land use projects that have been funded to date, most if not all would have been funded regardless. As noted above, the World Bank designates green bonds among projects it has already decided to fund, and the State of Massachusetts also planned to fund its land conservation projects regardless of whether the bond was labeled "green" or not. In this vein, many experts consulted for this project were concerned that such green bonds were not providing any new financing for land conservation, but rather the same investment just under a different label. This generates skepticism among many market practitioners who see green bond labeling as just a convenient marketing tool for the issuer for projects they would have funded regardless.

A possible benefit seen by some experts, however, is that the marketing tool may attract new investors. Institutional investors, family offices, and other impact-oriented investors are seeking new opportunities to allocate funds to socially- and environmentally-responsible investment vehicles. In the case of the State of Massachusetts' issuance, the state attracted TIAA-CREF and other new investors to their bond issuance because of the green label. While these projects may have been funded regardless, the State benefited from tapping into a new investor base, and over a longer time horizon, the State may be encouraged to issue more green bonds for new projects after seeing the high demand for the issuances to date.

4) Green bonds do not currently offer a better cost of capital for sustainable land use projects – but that may be changing

One way for green bonds to become more attractive to land conservation organizations than traditional bond financing is if green bonds can allow borrowers to access a lower cost of capital. Conversations with issuers and borrowers highlighted that the green bond label does not yet allow borrowers to access capital at a lower cost – that is, investors are not yet willing to pay a premium for the green label that would in turn lower the interest rate for borrowers. At the same time, green bond issuances have been consistently and significantly oversubscribed, and many experts consulted for this project predicted that such high levels of demand could over time result in an increased willingness to pay a premium for green bonds. In some cases, such as

DC Water's green bond issuance, issuers have observed a slightly lower cost of capital than they would expect with a normal bond issuance, though it is difficult to infer a clear market trend at this point with so few data points.[39]

5) Matching scales is an ongoing challenge

One of the key challenges for funding land conservation through green bonds is the scale mismatch between the project and the minimum size of bond issuance. Large investors are seeking large projects to fund, but finding land conservation opportunities at this scale can be challenging. The average bond issuance for forestry and agriculture projects is estimated to be $106M, which is significantly larger than would be required for many smaller-scale land conservation efforts.[40] The World Bank's issuance, for example, went to a large agro-forestry project in China and another in Tunisia – but as noted above these projects required coordination with the national government and access to broad swaths of land. Many land conservation initiatives, particularly in the United States, may be too small to appeal to investors. Opportunities to assemble a portfolio of such projects into a larger issuance may be the best avenue for accessing green bond financing, such as under the Massachusetts green bond issuance.

6) Efforts to define "green" may hinder the growth of the market

Many conservation organizations are skeptical about green bonds because of the lack of an agreed-upon standard definition for what constitutes "green." Interviews conducted for this paper revealed a spectrum of opinions: some argued that the lack of definition had to be resolved in order for green bonds to become a legitimate environmental finance tool, while others argued that as long as the criteria for a given bond issuance were clear, it was up to investors to decide whether or not to invest based on their own individual criteria for "green" investments. This conversation is unresolved, but for the moment remains a concern for land conservation organizations who do not want to be seen as taking part in perceived "greenwashing" efforts.

[39] James N. Levitt, Personal interview, May 2015.

[40] Climate Bonds Initiative, *Bonds and Climate Change: The State of the Market in 2014*, July 2014 <http://www.climatebonds.net/files/post/files/cb-hsbc-15july2014-a3-final.pdf>.

IV. Conclusion and Recommendations

The Way Forward for Land Conservation Organizations and Investors

As this paper has outlined, there are two possible directions for the future of green bonds and land conservation. In one scenario, the market fizzles out as investors and issuers lose interest and the green label fails to emerge as a meaningful investment category. In the other, green bonds will bring new capital and new investors to finance a growing number of additional land conservation projects.

To take advantage of green bonds and develop their applicability to land conservation, land conservation organizations and investors should work together to promote and capitalize on the momentum in the market by doing the following:

1. **Sharing best practices**: All relevant stakeholders – from issuers to borrowers – should focus on sharing best practices related to green bonds for sustainable land use and conservation. States or municipalities considering their own issuance can learn from the experience of Massachusetts, California, and other states to understand the challenges and benefits of funding land conservation through this mechanism. To date, this learning process has been ad hoc.
2. **Articulating new revenue sources from land conservation**: The land conservation community should continue to frame sustainable land use and conservation projects in terms of revenue streams, in order to help investors and issuers see possible returns from projects. Where there are credible models for generating returns from these projects, new financing streams related to asset-backed green bonds may become available and foster the growth of the market.
3. **Increasing land conservation related issuances and sharing success stories:** Currently there are few "success stories" to point to in terms of land conservation projects financed with green bonds, which contributes to investors' concern that the model is untested and therefore risky. Land conservation organizations and issuers should work to issue more pilot green bond projects in partnership with philanthropies and government partners who can provide backstopping and other means of reducing perceived risk. They should also encourage greater transparency in the use of bond proceeds. As the bonds come to maturity, the land conservation community should come together to share success stories both among themselves as well as with the broader investment community in order to spur further investment.

Potential Investment Sweet Spots

In order to address the second and third points above, our research revealed two potential "sweet spots" for green bond issuances and land conservation projects: state-level issuances and connections to water management.

State-Level Issuances

Green bond issuances by states and municipalities are growing, from $100M in 2013 up to $2.5B in 2014.[41] As illustrated by the Massachusetts case study, green bond issuance at the state level represents a good opportunity for financing land conservation projects.

First, state-level issuances are at an appropriate scale to fund smaller land conservation projects, from hundreds of thousands of dollars to several million dollars. Second, state issuances necessarily have government buy-in as the issuer is the state itself, which can translate into political support for the land conservation projects funded by the issuance. Third, green bond issuance at the state level can take advantage of the solid credit rating of the issuing state, providing confidence to potential investors in the bond, while also generating tax advantages for investors who are residents of that state. Finally, state-level issuances can attract place-based investors such as foundations or family offices who have a particular interest in community development within a given geography.

Links to Watershed and Water/Stormwater Management

Land conservation investments that support water and stormwater management make sense because land and water management are closely linked ecologically, and because water regulations (especially in the United States) create the basis for an ecosystem service market.

Land conservation can directly impact water treatment and water supply objectives, through mechanisms such as the protection of wetlands that provide storm effect mitigation, wastewater treatment and water supply filtration. As a result, land conservation organizations continue to work closely with water management organizations to achieve land conservation, as well as water treatment and water supply objectives. The protection of water resources, especially drinking water supplies, consistently ranks at the top of voter priorities when it comes to supporting public ballot initiatives that provide taxpayer funds for land conservation.[42] As a result, land conservation initiatives can benefit from links to water management priorities for both ecological and political reasons.

Green bonds provide a new investment opportunity where land conservation can be linked to water management. Regulation at the federal, state, and local level around watershed management and stormwater management can lead to the establishment of credit markets and pay-for-performance structures. With a price on water conservation or management, a green bond can be structured with cash flows generated from user fees, from the value of tradable

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[41] Elizabeth Campbell, 'Record Green Bond Issuance Bolsters Chicago Sewers: Muni Credit', *Bloomberg.com* <http://www.bloomberg.com/news/articles/2015-01-26/record-green-bond-issuance-bolsters-chicago-sewers-muni-credit> [accessed 31 July 2015].

[42] Personal communication, Matt Zieper, May 2015.

permits, or even in some manner leveraging capital sources such as low-interest loans from the State Water State Revolving Funds.[43]

Stormwater management in particular is an increasing area of focus for many cities as they grapple with the effects of climate change, growing populations, and ageing infrastructure. Clean Water Act regulation is creating investment opportunities across the United States, as municipalities are required to upgrade stormwater management systems. Currently, 72 municipalities are under consent decree by the EPA to address illegal stormwater discharges and overflow events, with an average of approximately $664M in committed investment in the coming decades.[44] Investment in green infrastructure can help avoid costlier 'grey' infrastructure investments. For instance, in Washington, D.C. conservation organizations are seeking opportunities related to stormwater management in terms of upstream land conservation or land-based downstream green infrastructure projects (e.g., financing the installation of green roofs and bioswales).[45,46] Green bond financing could play a role in funding green infrastructure projects for stormwater retention related to public spaces, conservation easements and conversion from impermeable to permeable surfaces.

Proceeds from these bonds could finance land conservation in the form of upstream conservation easements to provide filtration and other ecosystem services, or in the form of downstream green infrastructure investments in cities and urban areas, particularly where stormwater management is a concern. Land conservation experts frequently cite several examples as potential models for how land conservation can tie to green bond issuances related to watershed management. First is the case of the New York City watershed protection program, in which land conservation generated a "return" in the avoided costs of downstream grey infrastructure investment. Another example is The Freshwater Trust's Water Quality Trading Program, in which riverside land conservation efforts such as tree-planting produce water quality benefits that are quantified and traded in the form of credits. Such models illuminate the types of projects and approaches that could be utilized to apply green bonds to stormwater and water management initiatives around the country and the world.

Conclusion

The next few years will prove critical in determining whether or not green bonds will become a significant new tool for land conservation organizations. Land conservation organizations and issuers need to generate success stories and continue to build market momentum for this financing approach. In doing so, they can help build a meaningful new capital market that will be able to provide financial support for land conservation initiatives around the world.

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[43] Matt Zieper and others, *Financing Land Conservation with the Clean Water State Revolving Fund System* (The Trust for Public Land, 2012) <http://morgan-robertson.com/wp-content/uploads/2012/06/TPL_CWSRF_REPORT-11.pdf>.

[44] Data analysis from database: 'Department of Justice, 'Proposed Consent Decrees - EPA', accessed August 2015: <http://www.justice.gov/enrd/consent-decrees>.

[45] OW US EPA, 'Green Infrastructure' <http://water.epa.gov/infrastructure/greeninfrastructure/index.cfm> [accessed 15 May 2015].

[46] David Nicola, *"Environmental Impact Bonds"* (Duke Center for the Advancement of Social Entrepreneurship, 2013) <http://sites.duke.edu/casei3/files/2013/03/CASEi3_EIB_Report_FINAL-links.pdf>.

Appendix A: Experts Consulted

Much of the content for this paper was synthesized from interviews with experts across the fields of environmental finance, land conservation, and sustainable land use. Several experts also reviewed paper drafts of our report. Many thanks to those listed below who provided their time and insight.

Alex Markham	Associate	Encourage Capital
Brian Shillnglaw	Director, US Investment	New Forests
Charlotte Kaiser	Deputy Managing Director	NatureVest - The Nature Conservancy
Colin MacNaught	Assistant Treasurer for Debt Management	Commonwealth of Massachusetts 2007-2015
David Nicola	Advisor	Agricultural and Environmental Consultant
Elizabeth Adams	Director of External Relations	The Lyme Timber Company
Elizabeth Teague	Senior Associate for Environmental Performance	Root Capital
Fabian Huwyler	Vice President, Sustainability Affairs	Credit Suisse
Joe Whitworth	President	The Freshwater Trust
Josue Tanaka	Managing Director, Operational Strategy and Planning for Energy Efficiency and Climate Change	European Bank for Reconstruction and Development
Julius Tapper	Manager, Social Finance	TD Bank Group 2009-2014
Kevin Lehman	ESG Analyst	Breckinridge Capital
Laurie Wayburn	President	Pacific Forest Trust
Lindsey Brace Martinez	Investment Services Executive and Non-Executive Director	Impax Asset Management
Lisa Genasci	CEO	The ADM Capital Foundation
MaryKate Hanlon	Associate Director	New Forests
Matthew Zieper	National Research Director	The Trust for Public Land
Noelle Laing	Research Specialist, Mission-Related Investing	Cambridge Associates
Patrick Coady	Former Executive Director	World Bank
Peter Stein	Managing Director	The Lyme Timber Company
Ralph Earle	Managing Director	Clean Energy Venture Group
Ray Victurine	Director, Conservation Finance	The Wildlife Conservation Society
Sean Kidney	CEO and Co-Founder	Climate Bonds Initiative
Steve Lydenberg	Founding Director, Initiative for Responsible Investment	Harvard Kennedy School of Government
Tanja Havemann	Founder and Director	Clarmondial
Tom Melton	Associate	Encourage Capital

Appendix B: Green Bond Stakeholders

	Issuers	Underwriters	Investors	Borrowers	Auditors
Responsibility/Activity	• Use $bond proceeds to make loans • Make decision with underwriter on bond proceed allocation	• Serve as intermediary between issuers and investors • Identify interested investors • Make decision with issuer on bond proceed allocation	• Buy bonds • Earn returns (structure dependent on bond type)	• Use bond proceeds to implement a green project • Repay investors via issuers/underwriters with return generated from project	• Evaluate issuer/ underwriter criteria for a green bond • Conduct auditing of projects
Organization Type	• Government (Federal, State, Municipalities) • Multi-national Banks (e.g., EBRD, WB/IFC) • Corporations (e.g., Toyota)	• Banks (e.g., Credit Suisse, TD Bank)	• Mainstream Institutional Investors (e.g., CalPERS, BlackRock, State Street) • Specialist ESG and Responsible Investors • Corporate Treasury (e.g., Barclays, Apple) • Sovereign & municipal governments • Retail investors (e.g., Merrill Lynch wealth managers)	• Environmental organizations • Corporations • Developers • Municipalities • States	• CICERO • Bureau Veritas • KPMG • DNVL-GL • EthiFinance • Oekom Research AG • Trucost
Benefits to Stakeholder	• New/diversified client base • Marketing benefits • Achievement of social/ environmental impact goals	• New/diversified client base • Underwriting fees • Earn profit when selling bonds to investors (though also take on sales risk)	• Returns on bond • Reduced risk approach to investing in sustainability projects/ enterprises • Transparency on use of proceeds for reporting purposes	• Financing for projects • Relationships with new stakeholders (e.g., banks) • Achievement of social/ environmental impact goals	• Auditing fees

Appendix C: Success Factors for Green Bonds and Land Conservation

Success Factor	Additional notes and considerations
Stakeholder Characteristics	
1. Issuer Credit Rating *Does the issuer have a strong credit rating to make the bond palatable to investors? And/or is another party willing to backstop the bond?*	For General Obligation bonds, a good credit rating is critical to investors who perceive green bonds as risky. Another way to reduce perceived risk is to include a philanthropy or government who is willing to backstop the bond in some manner. In some cases, a foundation with a Program-Related Investment (PRI) fund may be willing to provide assurances on repayment of the loan. This model of capital stacking has been used in Social Impact Bonds and may be particularly helpful for asset-backed green bonds.
2. Green Bond Criteria Match *Does the issuer include land conservation in its green bond criteria?*	In the absence of universally agreed upon green bond standards, investors and issuers can check the issuing body's stated criteria for green bonds to determine whether a land conservation project qualifies. Further, bond buyers may be interested in the use of proceeds and to be able to share the certification of their bonds with particular interested clients (e.g., family offices) for whom the green label is important.
Project Dimensions	
3. Appropriateness of Debt *Is debt the appropriate form of financing for all or part of the investment?*	Land conservation organizations can consider issues such as the relative cost of capital versus other forms of financing, alignment of the time horizon for the bond, and whether the borrower is comfortable taking on asset risk.
4. Scale Match *Does the scale of the bond issuance match the scale of the project?*	The project should match the size of the bond issuance in order to be appealing to investors. The bond type may be important in this consideration – supranational bonds will likely be better for funding large-scale projects, where state or municipal bonds may be best for smaller-scale projects. Additionally, the possibility of pooling or securitizing multiple projects to reach scale may make green bond financing a more attractive option for investors.
5. Articulated Returns *Can returns from land conservation be clearly articulated and agreed upon in the market?*	Articulating returns is particularly important for project revenue bonds. Five categories of revenue should be considered: i. Sustainable commodity production (e.g., agriculture or forest products) ii. Recreation or ecotourism (e.g., park entry fees) iii. Tax revenues (e.g., real estate transfer taxes) iv. Credits for ecosystem services (where the price is agreed upon and relatively stable over time) v. Risk Mitigation & avoided costs (where they are quantifiable and where a stakeholder is willing to pay for these avoided costs)
6. Impact Measurement *Is it possible to measure the project's impact, particularly if payments are tied to impact (e.g., EIB structure)?*	If repayment is tied to success in a "Pay for Performance" model, then it is important to choose environmental indicators that demonstrate the success of the project.
Context	
7. Conducive Regulatory Environment *Is the policy and regulatory environment conducive?*	Regulation related to environmental management and impacts can result in a price on ecosystem services, whether at the local, state, national, or international level. For instance, compliance with Clean Water Act regulations can provide incentive to create markets around green infrastructure or stormwater management, thereby creating a means of articulating a return on the investment.
8. Stakeholder Buy-in *Are the government and key stakeholders engaged and willing to collaborate?*	Projects may require stakeholders willing to recognize the value of avoided costs from land conservation, and who are willing to pay out bond interest or principal payments based on this valuation. Policymaker participation can shape the structure of the bond. Policymakers or government stakeholders may choose to engage by providing risk-bridging activities such as credit enhancements, domestic market support, or planning and regulatory interventions that create a framework for new revenue streams.[1]

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