

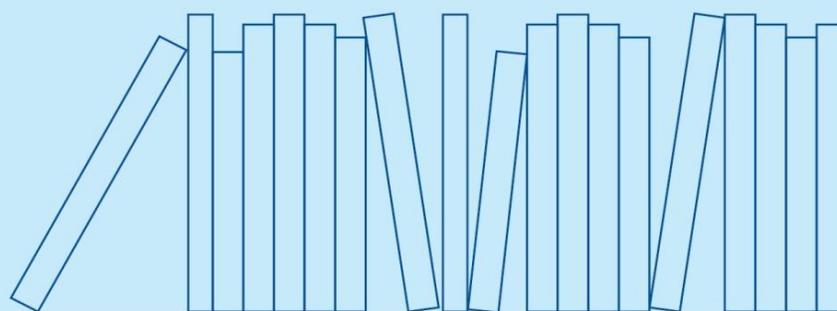
Economic Commission for Latin America and the Caribbean

ECLAC WASHINGTON OFFICE



The rise of green bonds

Financing for development in Latin America and the Caribbean



UNITED NATIONS

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Table of Contents

Abstract	5
List of acronyms.....	7
Introduction.....	9
I. Defining green bonds.....	11
A. Green Bond Principles.....	12
B. Climate Bonds Standard and Certification Scheme	13
II. The growing green bond market.....	17
A. Climate-aligned bond market	17
B. Labeled green bond market	21
III. Green bonds in Latin America and the Caribbean (LAC)	23
A. LAC green bond issuances in the international bond market	30
B. LAC green bond issuances in local bond markets.....	36
IV. Conclusion.....	41
Bibliography	43

Tables

Table 1	GBP List of categories for green bond financing.....	13
Table 2	Climate-aligned bond issuances in LAC, 2014-2017 YTD	24
Table 3	LAC multi-sector climate-aligned bond issuances, 2014-2017 YTD	25
Table 4	LAC climate-aligned bond issuances by country, 2014-2017 YTD	26
Table 5	Annual LAC climate-aligned bond issuances, 2014-2017 YTD.....	29
Table 6	LAC international bond issuances with a green focus, 2014-2017 YTD.....	30
Table 7	LAC green bond issuances in local markets, 2016-2017 YTD.....	36

Boxes

Box 1	China’s Green Bond Market Practices	18
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Figures

Figure 1	Total outstanding climate-aligned bond issuances by country, 2016.....	19
Figure 2	Total outstanding climate-aligned bond issuances by sector, 2016	19
Figure 3	Total outstanding climate-aligned bond issuances by credit rating, 2016.....	20
Figure 4	Total outstanding climate-aligned bond issuances by currency, 2016.....	20
Figure 5	Total outstanding green-labeled bond issuances by year, 2007-2017 YTD.....	21
Figure 6	Total outstanding green-labeled bond issuances by sector, 2016	22
Figure 7	Total outstanding green-labeled bond issuances by credit rating, 2016.....	22
Figure 8	LAC climate-aligned bond issuances by sector, 2014-2017 YTD	25
Figure 9	LAC climate-aligned bond issuances by country, 2014-2017 YTD	26
Figure 10	LAC climate-aligned bond issuances by type of issuer, 2014-2017 YTD	27
Figure 11	LAC annual climate-aligned bond issuances by type of issuer.....	27
Figure 12	LAC climate-aligned bond issuances by credit rating, 2014-2017 YTD	28
Figure 13	LAC climate-aligned bond issuances by maturity, 2014-2017 YTD.....	28
Figure 14	LAC climate-aligned bond issuances by currency, 2014-2017 YTD.....	29
Figure 15	LAC climate-aligned bond issuances by market, 2014-2017 YTD	30
Figure 16	Bonds with a green focus as % of LAC total bond issuance in international markets ...	33
Figure 17	LAC climate-aligned international bond issuances by country, 2014-2017 YTD	33
Figure 18	LAC climate-aligned international bond issuances by type of issuer, 2014-2017 YTD	34
Figure 19	LAC climate-aligned international bond issuances by credit rating, 2014-2017 YTD..	34
Figure 20	LAC climate-aligned international bond issuances by maturity, 2014-2017 YTD.....	35
Figure 21	LAC climate-aligned international bond issuances by sector, 2014-2017 YTD.....	35
Figure 22	LAC climate-aligned local bond issuances by country, 2016-2017 YTD.....	38
Figure 23	LAC climate-aligned local bond issuances by currency, 2016-2017 YTD.....	38
Figure 24	LAC climate-aligned local bond issuances by type of issuer, 2016-2017 YTD	39
Figure 25	LAC climate-aligned local bond issuances by credit rating, 2016-2017 YTD	39
Figure 26	LAC climate-aligned local bond issuances by maturity, 2016-2017 YTD	40
Figure 27	LAC climate-aligned local bond issuances by sector, 2016-2017 YTD	40

Abstract

The 2030 Agenda and the Sustainable Development Goals present a unique opportunity to promote new instruments and innovative mechanisms for financing social and production development in Latin America and the Caribbean. “Green bonds” are an example of alternative financial instruments becoming increasingly available to investors.

This report examines the growing green bond market, with emphasis on Latin America and the Caribbean. It shows that between 2014 and 2017 (as of August 31), the region issued US\$ 8.4 billion in bonds with a green focus in local and international markets. The bulk of the region’s green-focused bonds – US\$ 7.1 billion (84%) – were issued in international markets. On average, these bonds represented only 1.6% of the total Latin American and Caribbean bond issuance in international markets in the period. In the first half of 2017, however, they accounted for 3.7% of the region’s total international debt issuance. If this share continues on an upward trend, green bonds could play a more significant role in the mobilization of resources for the implementation of the 2030 Agenda in Latin American and the Caribbean.

Bond financing is a tool available to only a set of countries, however. In the case of smaller economies with less developed domestic capital markets and limited access to international capital markets, the role of regional and multilateral banks is of vital importance in providing direct financing.

List of acronyms

BANCÓLDEX	Banco de Comercio Exterior de Colombia S.A.
BANOBRAS	Mexico's National Bank of Public Works
BNDES	Brazil's Development Bank (Banco Nacional de Desenvolvimento Econômico e Social)
BRL	Brazilian Real
BVC	Bolsa de Valores de Colombia
CABEI	Central American Bank for Economic Integration
CBI	Climate Bonds Initiative
COP	Colombian Peso
COP21	Conference of the Parties in Paris, the 2015 United Nations Climate Conference
CSRC	China's Securities Regulatory Commission
ECLAC	United Nations Economic Commission for Latin America and the Caribbean
EIB	European Investment Bank
EUR	Euro
EUROFIMA	European Company for the Financing of Railroad Rolling Stock
GBP	Green Bond Principles
GFC	China's Green Finance Committee
GW	Gigawatts
IDB	Inter-American Development Bank
ICMA	International Capital Market Association
IFC	International Finance Corporation, World Bank Group
IIC	Inter-American Investment Corporation, IDB Group
INDC	Intended Nationally Determined Contributions
LAC	Latin America and the Caribbean
MW	Megawatts
MXN	Mexican Peso

NAFIN	Mexico's Development Bank (Nacional Financiera)
NDRC	China's National Development and Reform Commission
PBoC	People's Bank of China
SDGs	Sustainable Development Goals
SECO	Secretariat of State for Economic Affairs of Switzerland
SNCF	France's national state-owned railway company
TWGs	Technical Working Groups
UNCTAD	United Nations Conference on Trade and Development
UNFCCC	U.N. Framework Convention on Climate Change
ZAR	South African Rand

Introduction

The international consensus on the Sustainable Development Goals (SDGs) and the 2030 Agenda has underscored the need to find ways of supporting long-term solutions to current development challenges. According to UNCTAD's 2014 World Investment Report, an estimated investment of US\$ 5 trillion to US\$ 7 trillion a year is needed to realize the SDGs, including infrastructure, clean energy, water and sanitation, and agriculture. Estimates for investment needs in developing countries alone range from US\$ 3.3 trillion to US\$ 4.5 trillion per year, mainly for basic infrastructure (roads, rail and ports; power stations; water and sanitation), food security (agriculture and rural development), climate change mitigation and adaptation, health, and education (UNCTAD 2014).

The 2030 Agenda poses great challenges in terms of mobilizing resources. The amounts necessary to meet the seventeen SDGs far exceed the scope of traditional financing for development. In the case of Latin America and the Caribbean (LAC), public financing falls short of what is needed for this task and must be complemented with private flows, which in fact make up the bulk of the region's external financing. The challenge is to combine public and private resources and identify innovative financing sources that will provide the leverage needed to maximize the impact of financing for the 2030 Agenda (ECLAC 2017a).

The 2030 Agenda and the SDGs present a unique opportunity to promote new instruments and innovative mechanisms for financing social and production development in Latin America and the Caribbean. They also present an opportunity for nontraditional institutional investors, such as insurance companies and pension funds, to increase their investment in sustainable projects in the region. Alternative financial instruments are becoming increasingly available to investors. New innovative securities are helping accomplish two goals: a) allocate funds to bridge the development gap and b) encourage investment in sustainable development projects that support environmental or ecologically-friendly causes. "Green bonds" are an example of these instruments, and they are the focus of this report. The drive towards green finance has been supported by two other underlying forces as well, one of a political and regulatory nature: the efforts unleashed by the 2015 Paris Climate Agreement and the need to finance US\$ 1 trillion a year in investments for renewable energy and other initiatives to limit global warming; and another market-driven: the increasing financial appeal of green investment, as clean technology matures and costs of installing solar and wind energy come down, erasing the need for subsidies.

This report is structured as follows. In the first section, the voluntary criteria currently being used to define which bonds qualify as green are discussed. The growing global green bond market is examined in section II, while section III examines the Latin American and Caribbean green bond market, looking more closely at the region's recent green bond issuances in local and international markets. In section IV we conclude with some final thoughts on the role that bond markets may play in providing financing for the development challenges of the region.

The report shows that between 2014 and 2017 (as of August 31), the region issued US\$ 8.4 billion in bonds with a green focus in local and international markets. The bulk of the region's green-focused bonds – US\$ 7.1 billion (84%) – were issued in international markets. On average, these bonds represented only 1.6% of the total Latin American and Caribbean bond issuance in international markets in the period. In the first half of 2017, however, they accounted for 3.7% of the region's total international debt issuance. If this share continues on an upward trend, green bonds could play a more significant role in the mobilization of resources for the implementation of the 2030 Agenda in Latin America and the Caribbean.

I. Defining green bonds

A “climate bond” or a “green bond”, as its name suggests, is a fixed-income debt security that raises funds from investors willing to invest in projects that generate environmental benefits (World Bank Treasury and PPIAF 2015). Green bonds possess the same standard financial characteristics of any other regular bond – a face value, yield, maturity date, and issuer. They differ from regular bonds in that they are labeled as “green” by the bond’s issuer. This label entails a commitment from the issuer to use the proceeds of the bond to finance or re-finance climate-sensitive projects.

Although green bonds and regular bonds share similar financial characteristics, there are benefits of issuing climate-sensitive bonds. In general, the prices of green bonds are virtually the same as any standard bond. Issuers benefit as they have access to alternative sources of financing and a greater pool of investors. The issuance of green bonds also helps generate awareness and bring attention to sustainable development projects.

At the moment, there are no universal formally-accepted guidelines that govern the green bond market. The International Capital Market Association (ICMA) established the Green Bond Principles (GBP), to promote transparency and integrity in the market. Green bond market participants for the most part adhere to the four core components of the GBP. The four principles dictate best-practices for the use of proceeds, the process for project evaluation and selection, the management of proceeds, and reporting (ICMA 2017).

The Climate Bonds Standard and Certification Board of the Climate Bonds Initiative oversees the criteria needed for a bond to be qualified as “green.” The board groups scientists, investors, and experts in the field to develop benchmarks for projects that are to be financed with green bonds. The standards chosen are in line with those of the Green Bond Principles.

Any entity is eligible to participate in the market. Since the green bond label is placed on the project itself, issuers do not need any special credentials to issue green bonds. According to the Climate Bonds Initiative, in 2007 the green bond market kicked off with AAA investment grade issuance from the European Investment Bank (EIB) and the World Bank, two multilateral institutions. The first investors of this new class of bonds were European and Japanese. Greater interest in green-financing and the growth of the market itself has attracted other investors such as private companies, foundations, development banks, and international institutions.

A. Green Bond Principles

Growth in the green bond market has spurred the attention of investors willing to invest in alternative financial instruments that provide environmentally-friendly results. Increased demand for green bonds has called for greater regulation in the market. Despite impressive growth, the absence of universally-accepted institutions, norms, and guidelines to govern, regulate, and certify green bonds has limited the market's potential. Without proper regulatory oversight, capital will remain inefficiently allocated as investors continue to be burdened with high due diligence costs.

In recent years, strides have been made to bring greater transparency and integrity to the green bond market. Different organizations and institutions have worked, independently and collectively, to develop their standards that outline best practices for green bond issuances. While many project bonds that benefit environmental purposes remain unlabeled and uncertified as “green,” there is reason to believe that greater structure and uniformity is settling in the market.

The International Capital Market Association publishes, on a yearly basis, procedural guidelines that “recommend transparency and disclosure and promote integrity”¹ of the green bond market known as the Green Bond Principles (GBP). These set of recommendations outline a suggested approach for issuers to launch a “credible” green bond. The guidelines serve a far-reaching purpose and target all participants in the market. Investors benefit from greater visibility and transparency as it allows them to make better informed decisions on their investments. More available information helps move the market closer to expected disclosures, which also helps facilitate transactions and reduce costs.

It is important to note that project managers do not have to specifically comply with the GBP in order to issue a green bond. The guidelines set out in the GBP are merely suggestions for issuers to consider in order to successfully manage the security, and following them is completely voluntary. No certification or label is issued by the GBP to place on bonds that follow their recommendations.

The GBP propose a set of processes for issuers to follow that covers the complete timeline of a green bond. The four core components of the GBP assist any interested parties understand the dynamics and features of a green bond by stressing “transparency, accuracy, and integrity.”² They are as follows:

1. Use of Proceeds
2. Process for Project Evaluation and Selection
3. Management of Proceeds
4. Reporting

1. Use of Proceeds

The trademark and appeal of the green bond is that proceeds from the issuance of the security will be directed to finance or re-finance green initiatives. The GBP state that all green projects financed by green bonds should have clear environmental benefits that should be properly assessed and quantified, when possible, by the issuer. If proceeds of the green bond are used to fully or partially refinance projects, it is recommended that issuers should precise the estimate of financing versus refinancing and clarify which investments may be refinanced.

The GBP proposes a list of categories that highlight some of the main types of projects financed by green bonds (Table 1). It is not intended to be fully comprehensive but rather gives investors an overview of sectors to consider.

¹ ICMA (2017).

² Ibid.

Table 1
GBP List of categories for green bond financing

Category	Examples
Renewable Energy	Production, transmission, appliances, and products
Energy Efficiency	Buildings, energy storage, heating, smart grids, appliances and products
Pollution Prevention & Control	Wastewater treatment, greenhouse gas controls, reduction of air emissions, waste prevention/reduction/recycling
Environmental Sustainability	Sustainable agriculture, climate smart farms, sustainable fishery/aquaculture/forestry, preservation/restoration of natural lands
Terrestrial/aquatic biodiversity conservation	Protection of coastal/marine/watershed environments
Transportation	Electric/hybrid/public/rail/non-modal transportation, infrastructure for clean energy vehicles
Water and wastewater management	Sustainable infrastructure for clean water, wastewater treatment, urban drainage systems, flooding mitigation
Climate change	Information support systems, climate observation
Eco-friendly production/technology	Research of eco-friendly products, resource-efficient packaging/transportation
Green buildings	Infrastructure that meets sustainable recognized standards

Source: ICMA, The Green Bond Principles 2017.

2. Process for Project Evaluation and Selection

During this stage, the GBP emphasize that issuers should clearly communicate to investors: a. the environmental objectives of the project; b. the way in which the project fits into one of the categories established by the GBP; and c. the eligibility criteria or any process that applies to the project with environmental effects.

This information should be presented under an overarching framework of the issuer's main objectives and strategy for environmental sustainability. Any green standards or certificates should also be specified. The GBP recommend an external review of the project evaluation prior to the bond's issuance.

3. Management of Proceeds

The proceeds of the bond should be placed in an account or portfolio where the bond can be tracked and attested to by the issuer in an appropriate way. While the bond remains outstanding, the proceeds should be scrutinized periodically to ensure the proceeds match the corresponding beneficiaries. The GBP encourage issuers to hire independent auditors in order to verify the authenticity of the allocation of funds' process.

4. Reporting

Clear and up-to-date reporting is necessary to comply with the GBP. Issuers must maintain a full list of all projects that have received proceeds from the issuance of the green bond with a description and intended results of the project. Qualitative and quantitative performance metrics and their methodology are necessary in the reporting process for investors to see the impact of their investments.

The GBP maintain regularly updated templates and guides on their website for project managers to use, which direct them through the issuance, management, and reporting process of a green bond.

B. Climate Bonds Standard and Certification Scheme

The Climate Bonds Initiative is a non-profit organization that aims at promoting large-scale investments in projects that generate environmentally-friendly benefits. At the core of their initiative is the Climate Bonds Standard and Certification Scheme, simply known as the Certification Scheme. This Scheme allows investors, governments, and other relevant stakeholders to identify projects that guarantee

proceeds will finance sustainable environmental initiatives that comply with rigorous monitoring and reporting requirements.

Trust in the green market is essential for its growth and development. Investors need to be reassured that their capital will be conducive to creating a more low carbon and climate resilient economy. This has not been the case in the past and investors have been limited in their ability to assess environmental projects. The Climate Bonds Initiative through its Climate Bonds Standard and Certification Scheme attempts to bridge this knowledge gap by establishing a clear set of criteria that testify to a bond's green credentials.

Described as a “Fair Trade-like” label, the certification scheme builds on the guidelines established in the GBP. To issue certified green bonds by the Climate Bonds Initiative, issuers must comply with a series of criteria that span the complete lifecycle of the security. Key aspects of it include: a. complete alignment with the GBP; b. compliance with eligibility criteria for environmentally-friendly projects; c. transparent and obligatory requirements for use of proceeds, monitoring, and reporting; d. external auditing and independent outside controls; and e. certification by an independent Climate Bonds Standard.

The benefits of green bond certification are twofold: it facilitates green financing activity and establishes an industry standard for the proper use of proceeds. Issuers, through the green bond label, show their commitment to transparency for the management of the security's disbursements. This in turn enlarges their investor pool, deepens their relationship with investors, and strengthens their reputation on debt markets for future issuances. Alternatively, investors benefit from reduced due diligence costs and increased visibility throughout the investment process. Investors can be confident that their investments will be appropriately managed.

The Climate Bonds Standard Version 2.1 and sector-specific eligibility criteria constitute the Certification Scheme. In order to obtain certification, issuers must comply with a series of pre and post-issuance requirements. It should be clearly noted that the Certification Scheme is strictly an environmental standard. This means that it should not be used as a substitute for financial due diligence that investors should conduct prior to committing their capital to a project.

The Climate Bonds Initiative currently certifies green projects in nine industries in six sectors (industry, natural resources, buildings, utilities, transport, and energy). Criteria and guidelines are still in development in eight other industries. Technical working groups (TWGs) are being established in a further seven industries.

Issuers must comply with a rigorous set of requirements in order to receive certification. According to the Climate Board Initiative, five steps are essential to the completion process:

1. *Prepare the bond*: project managers should identify initiatives that fulfill the sector-specific criteria laid out by the Certification Scheme. Once a project that requires funding is identified, a Green Bond Framework must be created to indicate how the proceeds will be used.

2. *Contract a verifier*: issuers must contact a pre-approved verifier for pre- and post-issuance certification. All relevant documentation and information must be shared with the verifier. If all requirements are met, the verifier will certify the initiative and notify the Climate Bonds Standard Board.

3. *Obtain certification and issue green bond*: the Climate Bonds Standard Board, which is comprised of the Climate Science Advisory Group and of Assurance Roundtables, will then review the verifier's report. Jointly, they will decide if the pre-issuance requirements have been met. If so, they will certify the bond and provide the “green” label.

4. *Receive certification confirmation*: within the first year of issuance, the issuer must engage a verifier again to verify that all post-issuance requirements have been followed. The verifier's report gets sent to the Standard Board and post-issuance certification is authorized.

5. *Report*: issuers must report annually on the status of the bond to its creditors and the Climate Bonds Initiative.

The Climate Bonds Standards are developed by TWGs that group scientists, engineers, and technical specialists to create best practice policies for green bond issuance. The criteria and guidelines are revised and reviewed annually in line with changes to the green bond market.

In 2016, approximately 20% of all green bond issuance was certified by the Climate Bonds Initiative. This represents a total of US\$ 9 billion; some markets such as the Australian and Indian green bond markets have made certification virtually the norm (CBI, 2017b).

Green bonds are poised to move into mainstream investing as a safe and effective way to fund sustainable growth, protect portfolios from climate risk, while also earning a return. However, before green bonds can fulfill their role as enablers of broad economic growth, work still need to be done to create the infrastructure and standardization necessary for participation by a wide spectrum of the investment community.

II. The growing green bond market

Green bonds currently do not qualify as mainstream investment vehicles because they lack the benchmarks and evaluation instruments, as well as the standardized processes that make high-volume investing possible (S&P Global Ratings 2017). Despite the absence of the kind of reliable market tools needed to progress into mainstream investing, the green bond market continues to grow. The environmental commitments made by countries at the United Nations Climate Change Conference in Paris in 2015 are one of the factors driving this growth, as well as the need for investments associated with the 2030 Agenda and the sustainable development goals.

The goal of the Paris Agreement is to reduce greenhouse gas emissions to a level at which global warming can be kept below 2 degrees Celsius and preferable at 1.5 degrees Celsius. It is estimated that meeting this goal will require countries to spend roughly US\$ 1 trillion a year from now through the end of 2035. This kind of large-scale infrastructure spending would generate a massive increase in green finance, with green bond issuance potentially reaching between US\$ 620 billion to US\$ 720 billion a year, according to estimates by the Organization for Economic Cooperation and Development (OECD 2017).

With growing market appetite for green bonds, the range of issuers and investors participating in the green bond market has expanded significantly. These green bonds are issued into a broader market of US\$ 694 billion in outstanding bonds (those bonds that have not yet reached maturity or been redeemed), comprising US\$ 576 billion of “unlabeled climate-aligned” bonds as designed by the Climate Bonds Initiative, and US\$ 118 billion of labeled green bonds (CBI/HSBC 2016).

A. Climate-aligned bond market

An important distinction must be made in the sustainable bond market. A majority of bonds issued in financial markets that support environmental purposes are not actually labeled “green.” The bond market that constitutes both “green” bonds and non-labeled bonds that are climate-sensitive, collectively, is known as the climate-aligned bond market.

The absence of universally accepted criteria that qualifies bonds as environmentally-friendly makes it problematic to track all climate-aligned bonds. Many countries, such as China, have decided to follow their own standards and guidelines to classify these types of bonds (Box 1).

Box 1: China's Green Bond Market Practices

In 2015, the Agricultural Bank of China issued the first ever green bond by a Chinese entity. One year on, China now accounts for approximately 40% of the market, having issued US\$ 36.2 billion worth of bonds with a green focus in 2016. At the time China's first green bond was issued, the People's Bank of China (PBOC) published their guidelines for issuing green bonds. *Announcement No.39* and the *Green Bond Endorsed Project Catalogue (the Catalogue)* for the first time offered financial institutions insight and guidance into green bond issuance. Shortly after the PBOC's publication, the National Development and Reform Commission (NDRC) released its *Guidance on Green Bond Issuance*, which detailed the eligibility criteria of green initiatives as well as the requirements needed for bonds to be approved.

China's Green Finance Committee (GFC), working under the supervision of the PBoC, has established close rapport for policy exchange and dialogue with the International Capital Market Association (ICMA) and the Climate Bonds Initiative (CBI). Procedures and protocols established by these two organizations have served as a point of reference for Chinese regulators. Many relevant Chinese institutions have even become observers or members of the CBI and ICMA. While the international green bond market is predominantly self-regulated and governed by voluntary principles, green bond issuance in China is overseen by government institutions. The PBoC, NDRC, and China's Securities Regulatory Commission (CSRC), all work to regulate green bonds.

Although green bond regulation in China has drawn inspiration from other sources, the policies ultimately enacted were tailored to fit local interests. Because China's guidelines do not fully match international standards, some initiatives that qualify as green in China may not qualify as such in other countries. The first difference has to do with the use of proceeds that are allocated to fund projects. The NDRC maintains that up to 50% of a bond's proceeds can be used to repay loans or invest in working capital while still being considered as green. This differs from international standards, which state that at least 95% of green bond proceeds must be directed to green assets. There are also differences in the definition of "green." The PBoC and the NDRC maintain definitions of green that includes projects that would not otherwise be considered green by international standards. "Clean" coal, retrofits to fossil fuel power stations, electricity grid transmissions, and infrastructure that carry fossil fuels as well as renewable energy are all initiatives that are considered "green" in China but not internationally. Approximately 34% percent (US\$ 12.6 billion) of Chinese green bond issuance did not meet international requirements in 2016. Clean coal has received the bulk of funding for projects that do not meet global standards.

Green bonds in China are subject to different jurisdictions and thus regulations depending on where they are issued. *Onshore* green bonds are issued in mainland China in local currency to domestic and accredited foreign investors. *Offshore* bonds, on the other hand, are issued by Chinese entities in international markets. Approximately one-quarter of green bonds issued last year were listed as *offshore*. Onshore green bonds must be approved by the three authorities that govern the market: the PBoC, NDRC, and CSRC. Guidelines needed for approval cover: green bond eligibility, management of proceeds, disclosure requirements, and external controls.

- *Green eligibility*: the PBoC and NDRC both maintain criteria for the types of projects that are qualified for green bond funding. The Catalogue, endorsed by the PBoC, has traditionally been used as the market standard for project managers to ensure their projects comply with the provisions for green financing. It is divided into six holistic categories and further subdivided into 31 subcategories. The NDRC's criteria also provide a defined set of project types that would benefit from green bonds. These criteria are mainly in line with that of the PBoC's with a few differences. The main exception is nuclear energy, which is excluded from the Catalogue but considered by the NDRC.

- *Management of proceeds*: similar to international market practices, the PBoC obliges issuers to "ring-fence" or "earmark" proceeds in order to comply with tracking requirements. Ring-fencing, which forces issuers to create a separate account for qualifying green proceeds, is the preferred method of administering funds in China. Earmarking is also used but less extensively and is the preferred method by international regulators, in which funds do not need to be placed in a separate account but rather require issuers to keep a nominal relationship between proceeds raised and funds allocated.

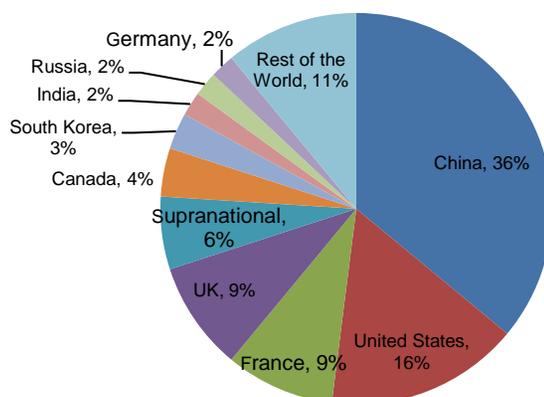
- *Disclosure requirements*: the PBoC requires issuers to report, on a quarterly basis, the status of their bonds. An additional annual report is required. While reporting on the use of proceeds is required, environmental impact reporting is not mandatory as is by international standards.

- *Third party verification*: while international best practice procedures require external review and auditing, the PBoC does not force issuers to seek third party verification, but it encourages issuers to do so, which has made reviews virtually the standard to follow. However, the lack of standardized procedures to dictate the review process creates difficulties for investors in comparing their financial and environmental credentials.

Sources: Wang and Zang (2017); Climate Bonds Initiative (2017a), Kidney and Dai (2016); Green Finance Committee of China Society of Finance and Banking (2015), People's Bank of China (2015).

However, regardless of what definition is used, the Chinese and U.S. markets remain the largest for green bond financing. Jointly, these two countries accounted for over half of all green bonds issued as of 2016 (Figure 1). French entities have also been heavily involved with sustainable financial instruments since they were first introduced to financial markets by supranational institutions.

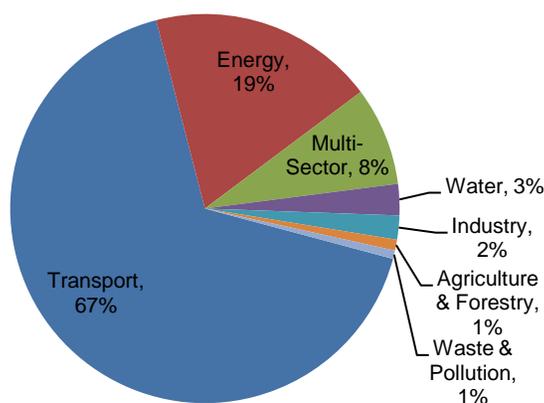
Figure 1
Total outstanding climate-aligned bond issuances by country, 2016
(Percentage)



Source: ECLAC Washington Office, on the basis of data from the Climate Bonds Initiative.

A report conducted by the Climate Bonds Initiative (2016) estimates the international climate-aligned bond market to be valued at US\$ 694 billion. This figure represents a US\$ 96 billion increase from the 2015 report. The market is composed of 3,590 bonds from 780 issuers that cover diverse climate-related themes including clean transport, energy, industry, water, waste and pollution control, and agriculture and forestry. Two-thirds of all bonds outstanding in the market are used to finance transportation initiatives followed by energy projects that account for 19% of total climate-sensitive bond issuance (Figure 2).

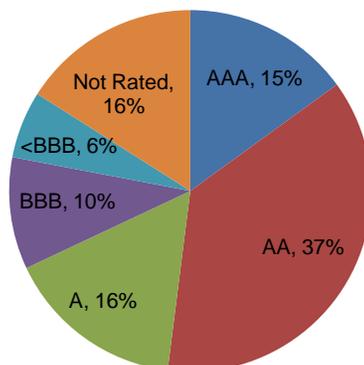
Figure 2
Total outstanding climate-aligned bond issuances by sector, 2016
(Percentage)



Source: ECLAC Washington Office, on the basis of data from the Climate Bonds Initiative.

Over three-quarters of all outstanding climate-aligned bonds are of investment grade (BBB- or higher) and the AA grade is the most common credit rating (Figure 3). Some of these AA issuers include large rail enterprises such as the United Kingdom’s Network Rail, the Chinese Railway Corporation, and France’s public rail company SNCF. The average coupon rate for investment grade bonds is approximately 3.7%. On the other hand, the remaining quarter either have no rating (typically they are of sub-investment risk) or have a higher-yield grade (BBB- or lower). The average coupon rate for these bonds was roughly double at 6.9%.

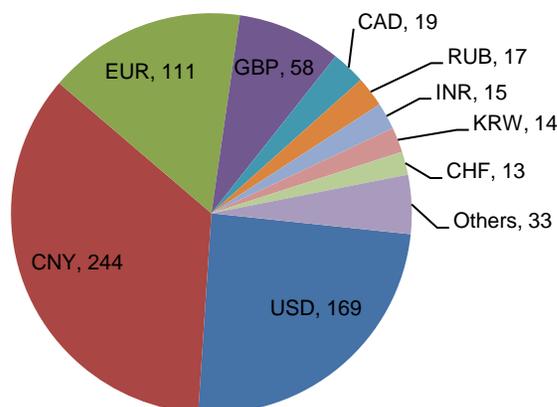
Figure 3
Total outstanding climate-aligned bond issuances by credit rating, 2016
(Percentage)



Source: ECLAC Washington Office, on the basis of data from the Climate Bonds Initiative.

A majority of bonds issued in this market originate from public-sector entities. Over 60% of bonds outstanding are issued by governments at different levels – local and municipal, regional development banks, and state-owned enterprises. The largest issuers include China’s Railway Corporation, the European Investment Bank (EIB), European Company for the Financing of Railroad Rolling Stock (EUROFIMA), and the New York Metropolitan Transportation Authority. It is no surprise therefore that the Chinese renminbi (35%), the U.S. dollar (23%), and the Euro (16%) are the currencies most used to denominate climate-aligned bonds (Figure 4). However, bond issuances denominated in emerging market currencies are on the rise. The Indian Rupee, for instance, became a top ten currency for climate-aligned bonds for the first time in 2016.

Figure 4
Total outstanding climate-aligned bond issuances by currency, 2016
(US\$ Billions)



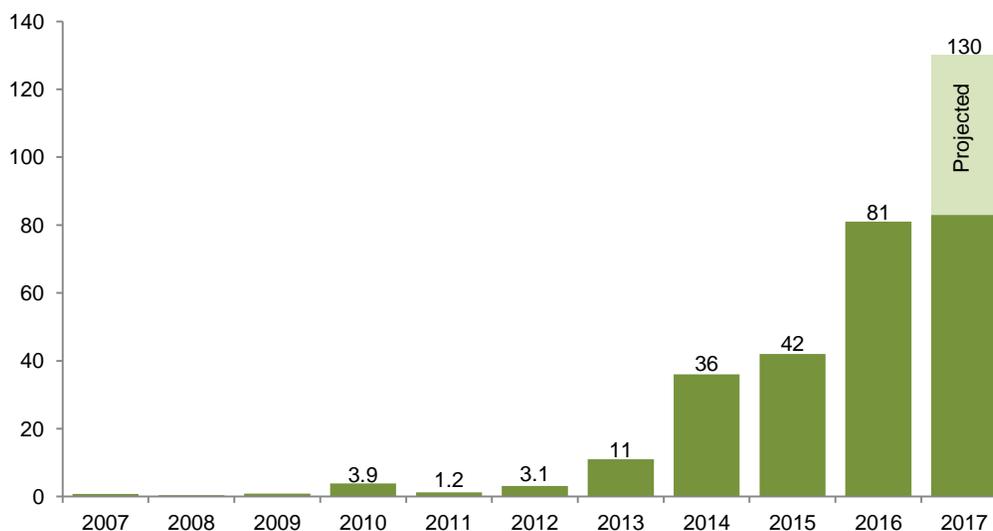
Source: ECLAC Washington Office, on the basis of data from the Climate Bonds Initiative.

Moreover, approximately 70% of all bonds have maturity durations of ten years or more and fall within the US\$ 100 million to US\$ 500 million size bracket. It is interesting to note that in general, unlabeled climate bonds are larger in size than labeled green bonds. The average value of a climate-aligned bond is US\$ 196 million and upwards of 68% of these bonds range between US\$ 100 million and US\$ 500 million in size. As a comparison, most labeled green bonds have face values between US\$ 10 million and US\$ 100 million.

B. Labeled green bond market

Of the total US\$ 694 billion climate-aligned bonds outstanding, US\$ 118 billion or roughly 17%, are labeled as “green bonds.” Last year’s US\$ 81 billion of issued green bonds was a record that nearly doubled the record set in 2015 of US\$ 42 billion (Figure 5). Current year-to-date estimates by the Climate Bonds Initiative value green bonds issuance at US\$ 83 billion, with projections of up to US\$ 130 billion for the year 2017 – a projected 60% increase from 2016.

Figure 5
Total outstanding green-labeled bond issuances by year, 2007 – 2017 YTD
(US\$ Billions)



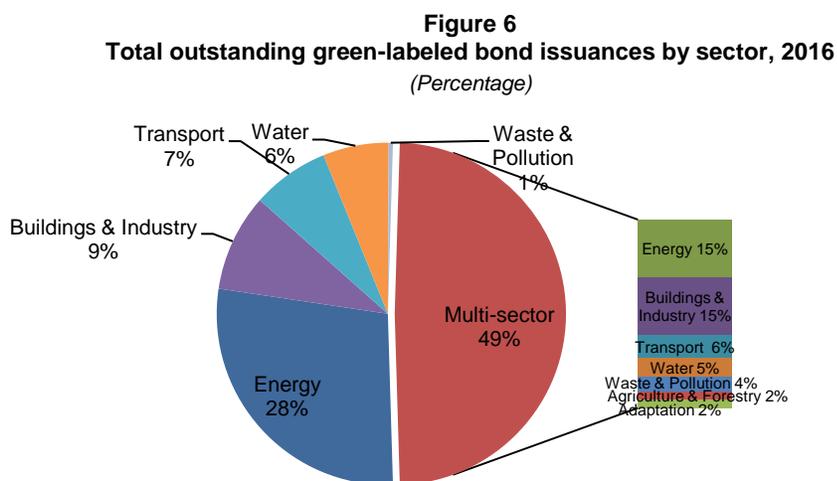
Source: ECLAC Washington Office, on the basis of data from the Climate Bonds Initiative.

Western and developed countries have for the past years been the largest issuers of green bonds. American and French entities, in particular, have been the most active green bond issuers. However, many new countries have begun entering the market. There are now a total of 24 countries that have green bond issuers. Poland in 2017 became the first country to issue a sovereign green bond.

China has been the driving force behind the recent explosive growth in the market. For the year 2016 it became the world’s largest green bond market, issuing over US\$ 23 billion in green bonds. China last year contributed to more than a quarter of total global green bond issuance, having also issued the largest ever green bond to date with a face value of US\$ 4.36 billion by the Chinese Bank of Communications. China’s green bond activity is even more impressive when considering that the country had never issued more than US\$ 1 billion total in green bonds in any year prior to 2016. Improved regulations and better incentives enacted by the People’s Bank of China (PBoC) and the National Development and Reform Commission (NDRC) have helped spur such dramatic growth and interest in green financing.

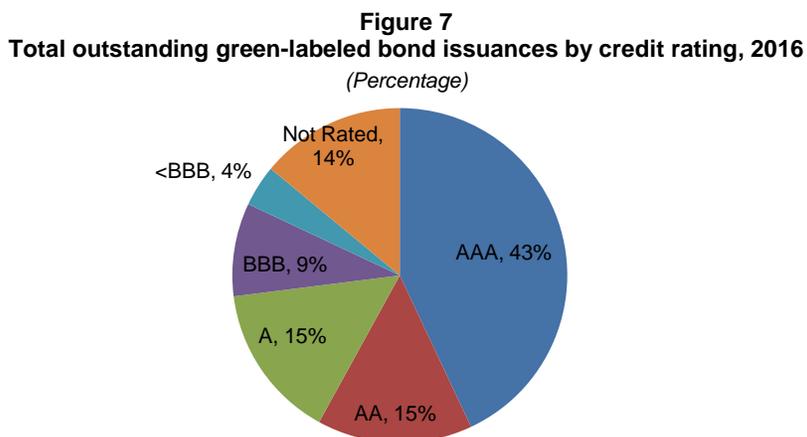
The growth of the labeled green bond market has sprung the attention of new issuers. Development banks nevertheless still remain the primary issuers of global green bonds, though their proportional contribution is declining. For the second consecutive year, the European Investment Bank was the largest issuer of green bonds having issued over US\$ 17 billion worth of green bonds to date. More recently, development banks have also become cornerstone investors in green bond offerings. Beyond development banks, there has been growth in bond issuance from commercial banks and financial entities. Cities and municipalities not only in the U.S. but worldwide have also increased their issuances of green bonds and are expected to continue doing so in the future.

Similar to the universal climate-aligned bond market, green bonds are used to finance a wide range of sectors. Multi-sector makes up half of the market, which incorporates bonds that benefit a mix of strategic sectors. Energy, and buildings and industry are the two other most widely used sectors for green bond investment. Proportionately, transport accounts for a far smaller share of bonds in the labeled green bond market (7.3%) than in the climate-aligned bond market (Figure 6).



Source: ECLAC Washington Office, on the basis of data from the Climate Bonds Initiative

Green-labeled bonds tend to have high credit rankings because of the large development banks that issue them. Approximately 43% of labeled green bonds outstanding have an AAA rating, a majority of which are denominated in U.S. dollars or Euros (Figure 7). More Chinese renminbi-denominated bonds are expected in the near future, as China aims to become the main issuer of green bonds.



Source: ECLAC Washington Office, on the basis of data from the Climate Bonds Initiative

III. Green bonds in Latin America and the Caribbean

There is an ongoing debate about what is needed to solve for the shortage in financing for infrastructure and green projects. Moreover, it has been recognized that the overlap between green and infrastructure projects is significant, some say above 75% (Lake 2017). Basically, most infrastructure development going forward should be green, and green financing needs are largely for infrastructure. In the case of Latin America and the Caribbean the infrastructure gap is substantial. No matter what measure is used, whether it is the infrastructure the region needs to: (a) meet a target growth rate, (b) achieve a specific objective, such as sectoral coverage rate (for example, 100% of access to water and sanitation), or (c) achieve an infrastructure stock similar to a more developed country or group of countries, a range of studies have concluded that the region needs to invest at least 5% of GDP in infrastructure for a prolonged period of time.³

There is a consensus regarding the importance of infrastructure spending in stimulating economic growth and its fundamental role in addressing the region's development challenges. What the region needs is "a greater and better endowment of infrastructure that is specifically designed and adapted to sustainable development purposes" (ECLAC 2017b). In the past, the public sector has been the primary source of funds for infrastructure projects in Latin America and the Caribbean. Other financial institutions, such as commercial, national, regional and multilateral banks, have provided supplemental sources of capital but in limited amounts. Bonds placed in capital markets, local and international, could be an important part of the region's funding mixture to address its infrastructure gap and development challenges.

On the aggregate, the region remains a small participant of the global green bond market. Less than one percent of the total current climate-aligned bonds outstanding originate from Latin America and the Caribbean, according to the Climate Bond Initiative. Despite the small numbers, there is growing interest in alternative sustainable financing, and there is an upward trend in issuances with a green focus in the region. Twenty six bonds with a green focus were issued by Latin American and Caribbean issuers between December 2014, when the region's first green bond issuance took place, and August 2017 (Table 2).

³ See ECLAC (2014), IDB (2014), IDB (2013), Bhattacharya, Romani and Stern (2012), Perrotti and Sánchez (2011), Kholi and Basil (2011), Calderón and Servén (2003), Fay and Yepes (2003).

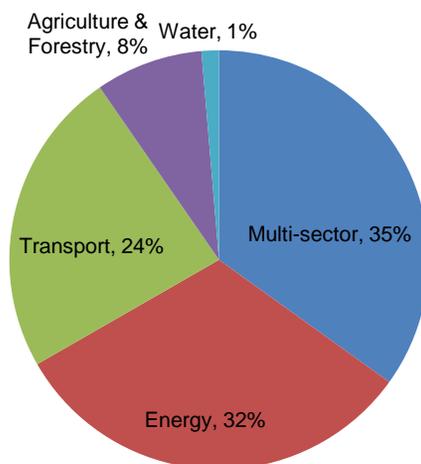
Table 2
Climate-aligned bond issuances in Latin America and the Caribbean, 2014-2017 YTD

Country	Name	Amount (million)	US\$ (million)	Issue Date	Maturity	Rating	Market	Sector	Type of issuer	Independent review
Mexico	Banobras	MXN 4,000	225	31-Aug-17	2024	AAA/AAA	Local	Multi-sector	Development bank	Sustainalytics
Colombia	Bancóldex	COP 200,000	67	14-Aug-17	2022	AAA/AAA	Local	Multi-sector	Development bank	Sustainalytics
Supranational	IIC (Invenergy Wind)- Campo Palomas Finance Ltda.	USD 136	136	3-Aug-17	2036	Baa3	B-bond	Energy (wind)	Dev. bank/debt issuing vehicle	DNV GL
Mexico	Grupo Rotoplas SAB	MXN 600	34	30-Jun-17	2020	AA-/AA	Local	Water and sanitation	Corporate	Sustainalytics
Mexico	Grupo Rotoplas SAB	MXN 1,400	79	30-Jun-17	2027	AA-/AA	Local	Water and sanitation	Corporate	Sustainalytics
Brazil	Potami Energia S.A. (Omega Geração)	BRL 42	14	15-May-17	2026	AA	Local	Energy (wind)	Corporate	Vigeo EIRIS
Brazil	Itarema Geração de Energia S.A.	BRL 112	36	10-May-17	2028	AA	Local	Energy (wind)	Corporate	Vigeo EIRIS
Brazil	BNDES	USD 1,000	1,000	2-May-17	2024	Ba2/BB	International	Energy (wind & solar)	Development bank	Sustainalytics
Chile	Inversiones CMPC	USD 500	500	31-Mar-17	2027	Baa3	International	Multi-sector	Corporate	Sustainalytics
Colombia	Davivienda	COP 433,000	150	25-Apr-17	2027	AAA	Local	Multi-sector	Bank	None
Argentina	Province of La Rioja	USD 200	200	17-Feb-17	2025	B/B-	International	Energy (wind)	Sub-sovereign (Municipal)	None
Argentina	Genneia S.A.	USD 350	350	12-Jan-17	2022	B3/B+	International	Energy (wind)	Corporate	None
Brazil	Fibra	USD 700	700	11-Jan-17	2027	Ba1/BBB-/BBB-	International	Agriculture & Forestry	Corporate	Sustainalytics
Mexico	Mexico City	MXN 1,000	49	7-Dec-16	2021	Aaa/AAA	Local	Multi-sector	Sub-sovereign (Municipal)	Sustainalytics
Colombia	Bancolombia	COP 350,000	115	5-Dec-16	2023	AAA	Local	Multi-sector	Bank	Deloitte
Brazil	Suzano Papel e Celulose	BRL 1,000	294	25-Nov-16	2024	Ba1/BB+/BB+	Local	Multi-sector	Corporate	None
Brazil	CPFL Energias Renovaveis	BRL 200	61	5-Sep-16	2021	A2/AA	Local	Energy (wind)	Corporate	Vigeo EIRIS
Mexico	Mexico City Airport Trust	USD 1,000	1,000	22-Sep-16	2046	Baa1/BBB+/BBB+	International	Transport	State-owned/debt issuing vehicle	Sustainalytics
Mexico	Mexico City Airport Trust	USD 1,000	1,000	22-Sep-16	2026	Baa1/BBB+/BBB+	International	Transport	State-owned/debt issuing vehicle	Sustainalytics
Mexico	Nacional Financiera (NAFIN)	MXN 2,000	110	31-Aug-16	2023	AAA	Local	Energy (wind & power)	Development bank	Sustainalytics
Supranational	CABEI	ZAR 1,032	74	1-Aug-16	2020	A1/A/A	International	Energy	Development bank/Supranational	None
Brazil	Suzano Papel e Celulose	USD 500	500	7-Jul-16	2026	BB+/BB+	International	Multi-sector	Corporate	Sustainalytics
Costa Rica	Banco Nacional de Costa Rica (BNCR)	USD 500	500	20-Apr-16	2021	Ba1/BB+	International	Multi-sector	Development bank	None
Mexico	Nacional Financiera (NAFIN)	USD 500	500	29-Oct-15	2020	A3/BBB+	International	Energy	Development bank	Sustainalytics
Brazil	BRF Brazil Foods	EUR 500	549	29-May-15	2022	Baa3/BBB/BBB-	International	Multi-sector	Corporate	Sustainalytics
Peru	Energia Eolica	USD 204	204	12-Dec-14	2034	BBB-	International	Energy (wind)	Corporate	None
			8,447							

Source: ECLAC on the basis of data from LatinFinance and the Climate Bonds Initiative.

The LAC climate-aligned bond market as of August 2017 (including both domestic and international bond issuances) is composed of 26 bonds from 22 issuers that cover diverse climate-related themes, with the total value of LAC bonds issued since December 2014 at US\$ 8.4 billion. A majority of the bonds issued in the region are directed at financing energy and transportation-related projects as well as agricultural and forestry initiatives (Figure 8). Multi-sector initiatives account for 35% of total climate-sensitive bond issuance (Table 3).

Figure 8
LAC climate-aligned bond issuances by sector, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

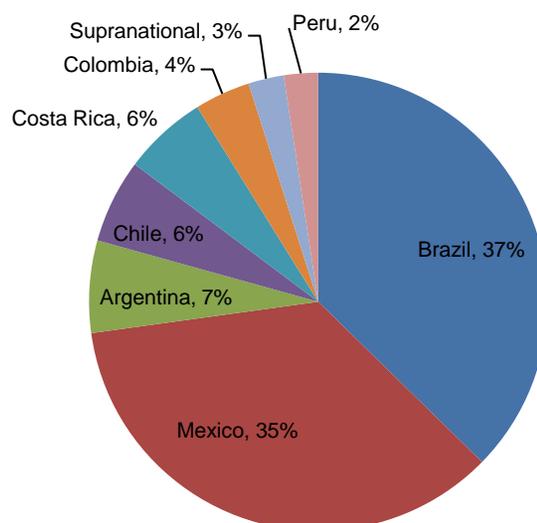
Table 3
LAC multi-sector climate-aligned bond issuances, 2014-2017 YTD

Country	Issuer	Sectors
Mexico	Banobras	1. Affordable basic infrastructure to vulnerable segments of the population; 2. Public services infrastructure; 3. Disaster recovery; 4. Sustainable transport; 5. Renewable energy; 6. Energy efficiency; 7. Water efficiency and wastewater management; 8. Pollution prevention and control.
Colombia	Bancóldex	1. Pollution control and resource efficiency (including waste management and wastewater treatment); 2. Sustainable transport 3. Energy efficiency 4. Renewable energy 5. Sustainable building.
Chile	Inversiones CMPC	1. Sustainable forestry; 2. Sustainable water management; 3. Preservation of biodiversity and restoration of high conservation value forests; 4. Pollution prevention and control; 5. Energy efficiency.
Colombia	Davivienda	1. Renewable energy; 2. Green construction; 3. Reducing carbon dioxide emissions; 4. Energy efficiency; 5. Water management.
Mexico	Mexico City	1. Sustainable transport; 2. Water and wastewater management; 3. Energy efficiency.
Colombia	Bancolombia	Proceeds from the sale of the bond will be used to finance projects that help address climate change goals.
Brazil	Suzano Papel e Celulose (I)	1. Sustainable forests-forest management; 2. Sustainable forests-restoration of degraded areas; biodiversity conservation; 3. Water management; 4. Energy efficiency; 5. Renewable energy.
Brazil	Suzano Papel e Celulose (II)	
Costa Rica	Banco Nacional de Costa Rica (BNCR)	1. Renewable energy - including wind, solar, and hydro, 2. Wastewater management.
Brazil	BRF Brazil Foods	1. Renewable energy; 2. Energy efficiency; 3. Greenhouse gas emission reduction; 4. Sustainable forest management; 5. Raw materials use reduction.

Source: ECLAC Washington Office, on the basis of information from several sources, including issuers' press releases and reviews by Sustaynalitics and other independent reviewers.

The most frequent green bond issuers in the Latin American and Caribbean region have been from Brazil and Mexico (Figure 9, Table 4). Jointly, these two countries accounted for over 70% of all bonds with a green focus issued in the region as of August 2017.

Figure 9
LAC climate-aligned bond issuances by country, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

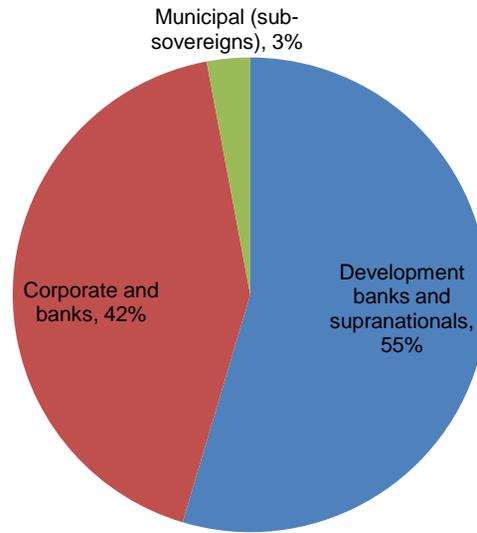
Table 4
LAC climate-aligned bond issuances by country: number of issuances and amount issued
2014-2017 YTD

	Number of issuances	%	Amount issued US\$ Million	%
Argentina	2	8%	550	7%
Brazil	8	31%	3,154	37%
Chile	1	4%	500	6%
Colombia	3	12%	332	4%
Costa Rica	1	4%	500	6%
Mexico	8	31%	2,997	35%
Peru	1	4%	204	2%
Supranational	2	8%	210	3%
	26	100%	8,447	100%

Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

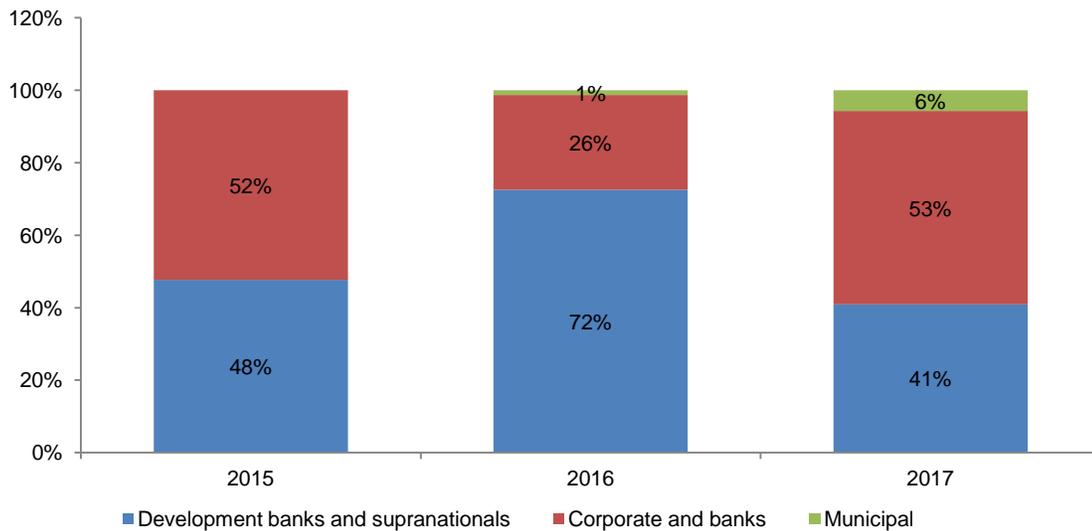
A majority of bonds issued in this market originate from public-sector and supranational entities. Close to 60% of bonds outstanding are issued by governments at different levels – local and municipal, regional development banks, and state-owned enterprises (Figure 10). The largest issuers include Mexico City Airport trust (in 2016) and Brazil's BNDES (in 2017). The biggest share of public sector and supranational green issuances took place in 2016. In 2017 as of August 31, most of the green-focused issuance has been by the corporate sector (Figure 11).

Figure 10
LAC climate-aligned bond issuances by type of issuer, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

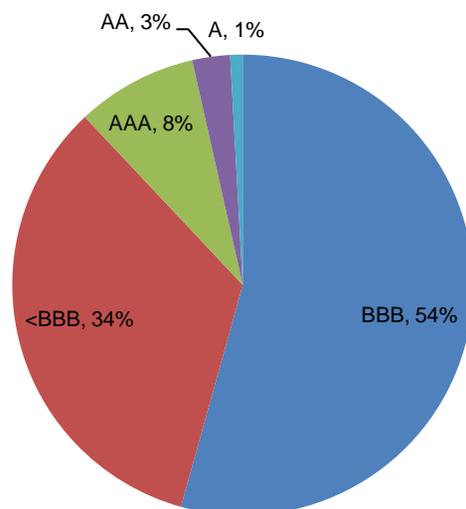
Figure 11
LAC annual climate-aligned bond issuances by type of issuer
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

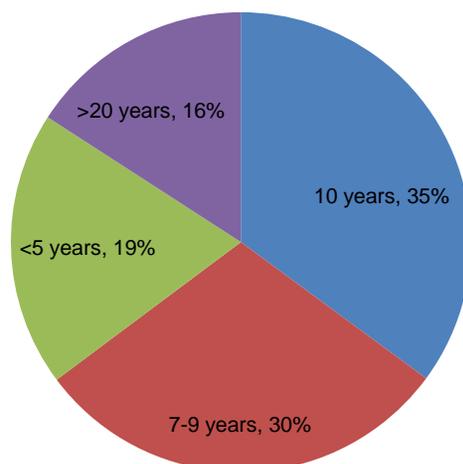
The outstanding LAC climate-aligned bonds have high credit ratings for the most part, because of the large development banks and corporations that issue them. Two thirds of all outstanding LAC climate-aligned bonds are of investment grade (BBB- or higher) and the BBB grade is the most common credit rating (Figure 12). The remaining third has a non-investment grade rating (<BBB).

Figure 12
LAC climate-aligned bond issuances by credit rating, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

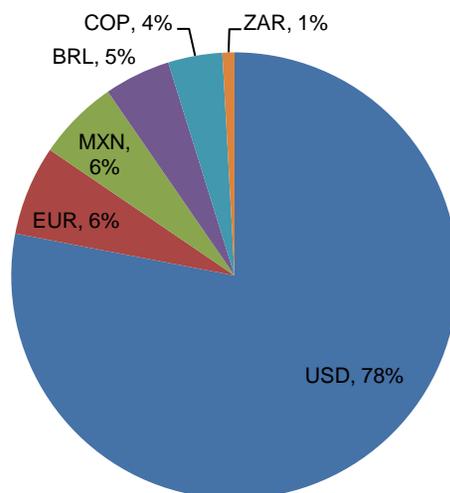
Figure 13
LAC climate-aligned bond issuances by maturity, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

More than half of all climate-aligned bonds issued in the region have maturity durations of ten years or more (Figure 13) and most of the issuances were denominated in U.S. dollars (Figure 14), given that the biggest share of the region's total amount of climate-aligned bonds issued targeted the international bond market. Among local currencies, the Mexican peso had the biggest share, followed by the Brazilian real. The average value of a climate-aligned bond in the region in the period (2014 to August 2017) is US\$ 325 million and 74% of these bonds are above US\$ 500 million in size.

Figure 14
LAC climate-aligned bond issuances by currency, 2014-2017 YTD
 (Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

Latin America and Caribbean green-focused bond issuance is on an upward trend. From January to August 2017 there have been three more issuances than in 2016 as a whole, although the amount issued in the first eight months of 2017 is still below the amount issued in 2016 as a whole (Table 5).

Table 5
Annual LAC climate-aligned bond issuances, 2014-2017 YTD

	Number of issuances	Yearly Increase	US\$ (million)	% Increase
2014	1		204	
2015	2	1	1,049	414%
2016	10	8	3,703	253%
2017	13	3	3,491	-6%
	26		8,447	

Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

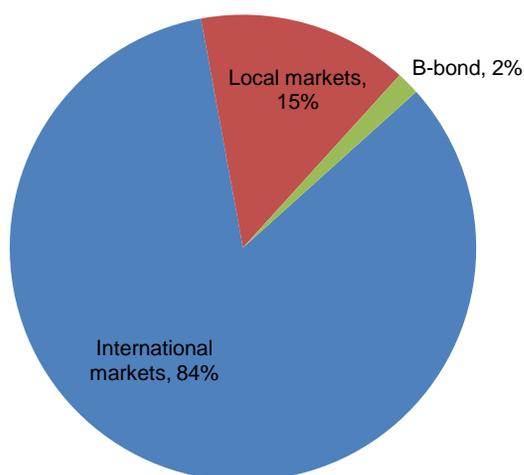
The biggest limitation for the use of green bonds in the process of resource mobilization in the context of the 2030 Agenda is that bond financing is a tool available to only a set of countries of the region that have better developed domestic capital markets and access to international bond markets. In the case of smaller economies with less developed domestic capital markets and limited access to international capital markets, the role of regional and multilateral banks is of vital importance in providing direct financing.

Regional and multilateral banks may play a role through a variety of tools. On August 3, 2017, for example, the Inter-American Investment Corporation (IIC), the private sector arm of the Inter-American Development Bank (IDB) Group closed on a landmark 19.5 years amortizing B-bond for US\$ 136 million (see table 2, p.24) to finance the operation of the 70 MW Uruguayan wind farm Campo Palomas. The B-Bond is a product developed by the IDB Group to mobilize institutional investors to Latin America and the Caribbean. The Campo Palomas project is developed by Invenergy, a global leader in renewable energy projects, under Invenergy's renewable arm, Invenergy Renewables LLC.

A. LAC green bond issuances in the international bond market

Although the number of climate-aligned bond issuances was almost evenly divide between local and international markets (twelve and thirteen issuances, respectively), the amount issued in international bond markets represented an 84% share of the total amount issued (Figure 15). Between December 2014 and August 2017, total issuance of LAC bonds with a green focus in international bond markets was US\$ 7.1 billion (see table 6).

Figure 15
LAC climate-aligned bond issuances by market, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

Table 6
LAC international bond issuances with a green focus, 2014 – 2017 YTD
(US\$ Millions)

Country	Issuer	Amount (million)	Amount in US\$ (million)	Coupon (%)	Maturity	Issue Date
Peru	Energia Eolica	USD 204	204	6.000%	2034	12-Dec-14
Brazil	BRF Brazil Foods	EUR 500	549	2.750%	2022	29-May-15
Mexico	Nacional Financiera (NAFIN)	USD 500	500	3.375%	2020	29-Oct-15
Costa Rica	Banco Nacional de Costa Rica (BNCR)	USD 500	500	5.875%	2021	20-Apr-16
Brazil	Suzano Papel e Celulose (Bahia Sul Holdings)	USD 500	500	5.750%	2026	7-Jul-16
Supranational	Central American Bank for Economic Integration (CABEI)	ZAR 1032	74	8.400%	2020	1-Aug-16
Mexico	Mexico City Airport Trust	USD 1000	1,000	5.500%	2046	22-Sep-16
Mexico	Mexico City Airport Trust	USD 1000	1,000	4.250%	2026	22-Sep-16
Brazil	Fibria Overseas Finance Ltd	USD 700	700	5.500%	2027	11-Jan-17
Argentina	Genneia S.A.	USD 350	350	8.750%	2022	12-Jan-17
Argentina	La Rioja Province	USD 200	200	9.750%	2025	17-Feb-17
Chile	Inversiones CMPC	USD 500	500	4.375%	2027	31-Mar-17
Brazil	BNDES	USD 1000	1,000	4.750%	2024	2-May-17
			7,077			

Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

Peru's Energía Eólica, a wind farm operator, became the first Latin American issuer to sell a green bond when it issued a US\$ 204 million 6% 2034 bond in December 2014. While this transaction was not the first to finance renewable energy in Latin America (two bonds to finance wind farms in Oaxaca, Mexico, were sold in 2012),⁴ it was the first from the region to be certified by auditors as complying with a series of green bond conditions. Those requirements include the funding being used specifically for a project that has describable, quantifiable and/or assessable environmental benefits.

Although foreign investors placed orders, it was Peruvian pension funds and insurance companies that made up more than 80% of the order book.⁵ Energía Eólica didn't get a second opinion on the green credentials of the bond. However, since the underlying projects are two wind farms – proceeds from the bond are slotted for the Cupisnique and Talara wind farms, which have a 20-year purchase agreement with the Peruvian government – the bond is viewed as genuinely green. Proceeds will be used to pay down existing loans and credit facilities from the construction phase of the projects.

In May 2015, BRF Brazil Foods, an investment-grade meat producer, issued a EUR 500 million (US\$ 549 million) 2.75% 2022 bond, taking advantage of a yield-hungry European market to issue the first green bond from Brazil. The 2022 notes were compliant with the Green Bond Principles published by the International Capital Market Association.

Nacional Financiera (NAFIN), Mexico's development bank, issued Mexico's first green bond (and third in the region) in October 2015 – a 3.375% US\$ 500 million 2020 bond – drawing heavy interest from global accounts including those with dedicated environmental mandates. Investors from the U.S. bought 45% of the instrument, European investors 25%, Mexican investors 5%, and Asian investors picked up the rest. It obtained a positive second-party review from Sustainalytics and the certification by the Climate Bond Initiative.

Banco Nacional de Costa Rica (BNCR) issued a US\$ 500 million 5.875% 2021 green bond in April 2016 (fourth in the region). Proceeds are to be allocated to "eligible green projects" such as wind, solar or hydroelectric projects less than or equal to 50 MW of installed capacity, and waste treatment projects. Banco Nacional de Costa Rica did not obtain independent review of the bond, but they commit to online reporting on the use of proceeds, including fund allocation and estimated environmental impact. The information should be available within one year of issuance and last until the proceeds are fully expensed.

In July 2016, Suzano Papel e Celulose (Bahia Sul Holdings) issued Brazil's second green bond (and its first in U.S. dollars), a US\$ 500 million 5.75% 2026 bond. The proceeds are being used by the company to invest in environmental projects in their forest areas and industrial units that meet one or more of six eligibility criteria (forest management; restoration of degraded areas; biodiversity conservation; water management; energy efficiency; and renewable energy).

On August 1, 2016, the Central American Bank for Economic Integration (CABEI) debut a green bond in the Uridashi market,⁶ issuing a ZAR 1,032 (US\$ 74 million), 8.4% 2020 bond. CABEI's head of capital and financial markets said that proceeds were earmarked for renewable projects and CABEI's development goals. It was CABEI's first ever "Socially Responsible Investment," or SRI, bond in any market.⁷

In September 2016, Mexico City's Airport Trust (connected to Mexico's development bank NAFIN) issued the largest green bond to date in Latin America, raising US\$ 2 billion through a two-tranche jumbo bond, which received the certification by the Climate Bond Initiative. The two tranches were issued separately with US\$ 1 billion face values with 10-year and 30-year maturities and with 4.25% and 5.50% coupon rates, respectively. The proceeds will be used to finance Mexico City's new

⁴ The refinancing of the Oaxaca II and IV wind farms involved Rule 144A/RegS project bonds of about US\$ 152 million and US\$ 154 million, respectively, in August 2012.

⁵ Peruvian investors were said to be more comfortable with the deal because of greater familiarity with the country's economy.

⁶ An Uridashi bond is sold to Japanese retail investors and is normally issued in high-yielding currencies in order to give the investor a higher return than the historically low domestic interest rate in Japan.

⁷ Socially responsible investing (SRI), or social investment, also known as sustainable, socially conscious, "green" or ethical investing, is any investment strategy which seeks to consider both financial return and social good to bring about a social change.

airport that aims to be carbon neutral, utilize 100% clean energy, and also be efficient in its water usage. Bondholders will be paid through cash flows generated from Mexico City's existing airport traffic (cash flows from passenger charges), effectively helping pay for the construction of the new Mexico City International Airport (NAIM) that will start operations in 2020. The airport will be environmentally sustainable and reflects a follow-through on Mexico's commitment to reduce greenhouse gas emission by 22% by 2030 under the Paris agreement.

There were two green-labeled bonds issued by Latin America and the Caribbean issuers in the first half of 2017, both from Brazilian issuers.

In January, Brazil's pulp and paper unit Fibria Overseas Finance tapped the cross-border fixed income space with a green US\$ 700 million 5.5% 10-year bond. Fibria is the world's largest eucalyptus pulp producer. Under strict green bond principles, Fibria must allocate the proceeds for specific environmentally-friendly purposes, and in this case funds will go towards financing sustainable reforestation and water management initiatives in Brazil, and in particular to the conservation of eucalyptus-producing tree plantations, among other projects. Asset managers and pension funds primarily located in the U.S. were the main investors of Fibria's debt.

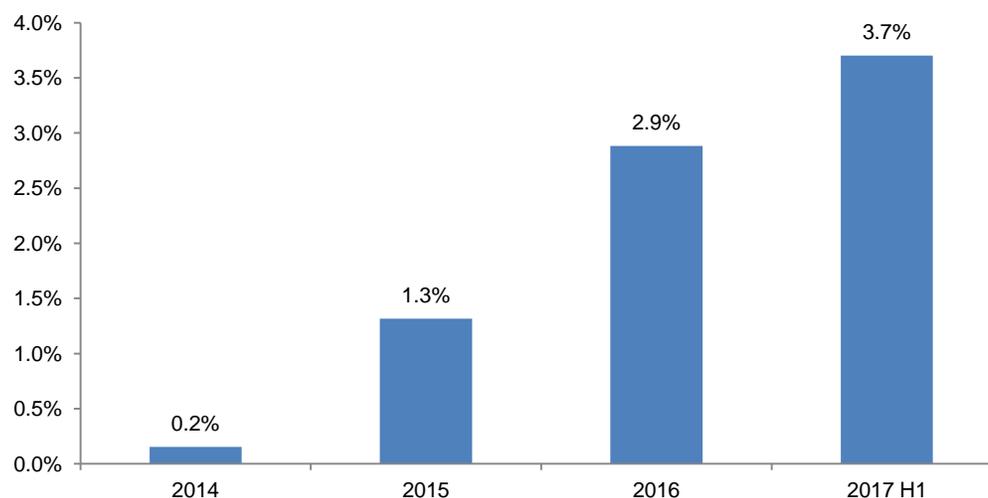
In May, Brazil's National Development Bank (BNDES) issued a US\$ 1 billion 4.75% 2024 green-labeled bond, with proceeds to be used to finance wind and solar projects in Brazil. It was the first time that a Brazilian bank had issued a green bond in the international market. The bond has features similar to conventional ones; however, the funds obtained will go towards financing environmentally sustainable projects, certified by a company specialized in the environmental area. The funds are to be aimed at new or already existing wind or solar generation projects in the portfolio of the Bank. Between 2003 and 2016, in the wind power sector alone, BNDES approved 87 credit operations totaling R\$ 28.5 billion in credit, increasing the installed capacity by about 10.7 GW. The release of this bond, which was listed on the Luxembourg Green Exchange, adds to the other BNDES's initiatives to promote the dissemination of best practices of social and environmental management. The Bank also hopes to encourage the access of other Brazilian issuers to the market of green bonds.

Although not labeled as green bonds, there were other bonds with a green focus issued in the first half of 2017. Argentina's Genneia's bond debut in January is one of them, with part of the proceeds to be used for investments in wind projects. In the same vein, the proceeds of the bond issued in February by Argentina's La Rioja Province will be set aside for renewable energy investments, although the province's trade did not come attached with a green bond structure. More specifically, the proceeds of the bond will support an increase in the province's wind power generation capacity through the expansion of Arauco wind farm to 300 MW. Similarly, Chile's Inversiones CMPC, a pulp and paper company, issued a 10-year bond in March whose proceeds will be invested in green projects. The company will use the proceeds to fund projects related to its operations in five strategic sectors. Efforts to continue ongoing sustainable forestry and preservation of biodiversity plans will be given a priority.

Bonds with a green focus accounted for 1.6% of the region's total bond issuance in international bond markets in the period of December 2014 to August 2017. However, underlying an upward trend, in the first half of 2017 they accounted for 3.7% of the region's total bond issuance in international bond markets (Figure 16).

The steady increase in the participation of bonds with a green focus in the total amount of bonds issued by Latin America and the Caribbean in international markets since Peru's Energía Eólica's issued the region's first green bond bodes well for their use as an instrument to promote sustainable development in the region. A continued increase in this share will depend on trusted benchmarks for investment in climate-resilient infrastructure, renewable energy, clean transport, and good forest and water management. Transparency and governance over the use of proceeds, as well as green quality, should play an increasingly important role in investment decisions.

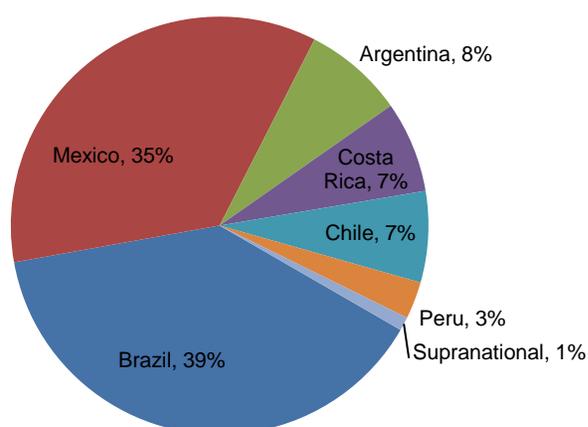
Figure 16
Bonds with a green focus as a share of LAC total bond issuance in international markets
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance.

Issuers from six countries of the region – Brazil, Mexico, Argentina, Costa Rica, Chile, and Peru – and one supranational entity (CABEI) accessed international bond markets with climate-aligned bonds between December 2014 and August 2017. The three top issuers were Brazil with 39% of the total LAC climate-aligned issuance, Mexico with 35% and Argentina with 8% (Figure 17).

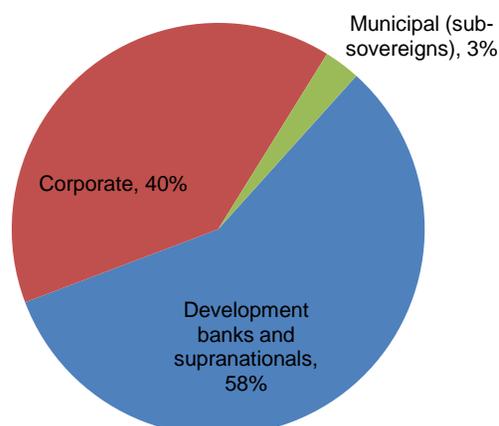
Figure 17
LAC climate-aligned international bond issuances by country, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

Of the total amount of climate-aligned bonds issued in international markets by LAC issuers, 58% was issued by quasi-sovereign and supranational issuers and 3% by sub-sovereigns (basically the US\$ 200 million bond issued by Argentina's Province of La Rioja), while 40% was issued by private companies (Figure 18).

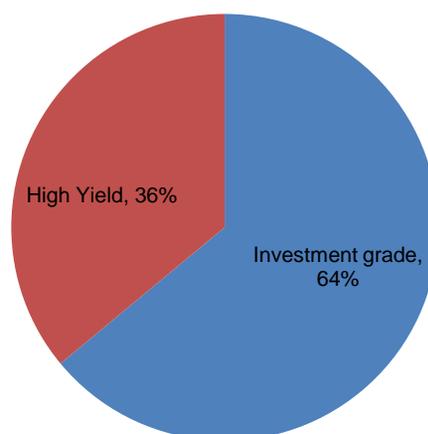
Figure 18
LAC climate-aligned international bond issuances by type of issuer, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

Regarding the credit quality of the region's climate-aligned issuance in international bond markets, 64% of the amount issued was issued by investment grade and 36% by non-investment grade issuers (Figure 19). Non-investment grade issuers consisted primarily of issuers from Argentina (Province of La Rioja and Genneia) and Brazil (BNDES and Suzano Papel e Celulose), plus one issuance from Costa Rica (BNCR).

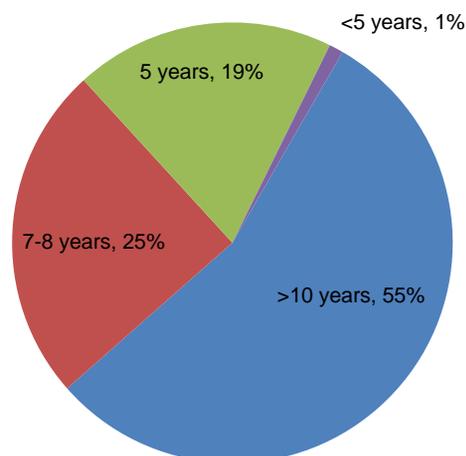
Figure 19
LAC climate-aligned international bond issuances by credit rating, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

Bonds of US\$ 500 million or higher in size made up 88% of the total amount of bonds with a green focus issued by LAC issuers in international bond markets. Moreover, 80% of the region's green bonds issued in international markets in the period have tenors longer than 5 years (Figure 20). More than half had maturities of 10 years or more. About a quarter had maturities of 7 to 8 years.

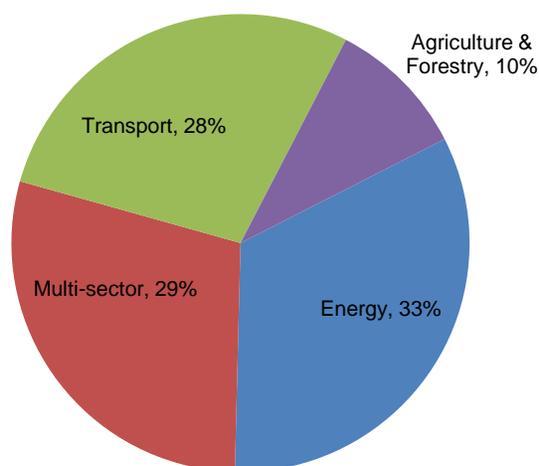
Figure 20
LAC climate-aligned international bond issuances by maturity, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

Most green-focused international issuances from LAC were in the energy sector – including power, wind and solar – with emphasis on renewable projects, followed by multi-sector issuances (which included not only energy but also sustainable water management, forest conservation, and pollution prevention and control), transport, and agriculture and forestry (Figure 21).

Figure 21
LAC climate-aligned international bond issuances by sector, 2014-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

B. LAC green bond issuances in local bond markets

In line with its mandate to develop domestic capital markets and fostering the Green Bond Market in Mexico, NAFIN – Mexico’s development bank – issued Mexico’s first green bond in Mexican pesos on August 31, 2016. Although it was NAFIN’s second green bond, this time it was issued in local currency and in the local market. This issuance was the first listed in the Mexican Stock Exchange segment dedicated to green bonds and it was the first LAC green bond issued in the region’s local markets (Table 7). NAFIN’s MXN 2 billion (US\$ 110 million) 2023 green bond with a 6.05% coupon received a Climate Bond Certification issued by the Climate Bonds Initiative and will be used to finance three renewable energy projects in the states of Puebla and Nayarit.

Table 7
LAC green bond issuances in local markets, 2016 – 2017 YTD
(US\$ Millions)

Country	Name	Amount (million)	US\$ (million)	Maturity	Sector	Issue Date
Mexico	Nacional Financiera (NAFIN)	MXN 2,000	110	2023	Energy (wind & power)	31-Aug-16
Brazil	CPFL Energias Renovaveis	BRL 200	61	2021	Energy (wind)	5-Sep-16
Brazil	Suzano Papel e Celulose	BRL 1,000	294	2024	Multi-sector	25-Nov-16
Colombia	Bancolombia	COP 350,000	115	2023	Multi-sector	5-Dec-16
Mexico	Mexico City	MXN 1,000	49	2021	Multi-sector	7-Dec-16
Colombia	Davivienda	COP 433,000	150	2027	Multi-sector	25-Apr-17
Brazil	Itarema Geração de Energia S.A	BRL 112	36	2028	Energy (wind)	10-May-17
Brazil	Potami Energia S.A. (Omega Geração)	BRL 42	14	2026	Energy (wind)	15-May-17
Mexico	Grupo Rotoplas SAB	MXN 600	34	2020	Water and sanitation	30-Jun-17
Mexico	Grupo Rotoplas SAB	MXN 1,400	79	2027	Water and sanitation	30-Jun-17
Colombia	Bancóldex	COP 200,000	67	2022	Multi-sector	14-Aug-17
Mexico	Banobras	MXN 4,000	225	2024	Multi-sector	31-Aug-17
			1,234			

Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

In September 2016, Brazilian company CPFL Energia Renováveis issued a BRL 200 million (US\$ 61 million) five year green bond, the first Latin American private company to issue a green bond in the local market that was internationally certified by the Climate Bonds Standard Board. The proceeds were used to finance the construction of the wind projects Campos dos Ventos and São Benedito, with 231 MW of installed capacity, in the state of Rio Grande do Norte.

In November 2016, Brazil’s paper and pulp producer Suzano Papel e Celulose issued its first Brazilian real-denominated green bond in the Brazilian market, following up on the successful issuance of its very first green bond in July in international markets. The bond has a value of BRL 1 billion (US\$ 294 million), matures in 2024 and has received a green certificate locally known as CRA (Agribusiness Receivables Certificates). As part of its effort to align corporate and environmental goals, the company will use the funds to finance projects that target sustainable forestry, water efficiency, and conservational efforts. This the largest green bond to date in LAC local markets.

On December 5, 2016, Bancolombia became the first LAC commercial bank to issue a green bond. The bond was issued with a face value of COP 350 billion (US\$ 115 million) in Colombia’s Segundo Mercado and was sold in its entirety to the International Finance Corporation (IFC) of the World Bank Group. Bancolombia adhered to the Green Bond Principles in structuring the bond. The issuance of a green bond showed the bank’s “corporate commitment to sustainability,” according to

Bancolombia President Juan Carlos Mora. Proceeds will be aimed at expanding financial services for climate-related projects including renewable energy and sustainable building.

Mexico City issued the first municipal bond in LAC on December 7, 2016 for MXN 1 billion (US\$ 49 billion). The oversubscribed, 6.02% 5-year bond won Environment Finance's Bond of the Year for the city's efforts to finance sustainable transportation and to improve wastewater management.

In April 2017, the Bogota-based private bank Davivienda issued a COP 433 billion (US\$ 150 million) green bond with a ten-year maturity, as part of its efforts to offer financing to customers seeking to develop sustainable projects that help mitigate climate change. As in the case of Bancolombia's green issuance, the bond was purchased in its entirety by the IFC.⁸ Davivienda will help fund different sustainable projects with the proceeds including cleaner production, eco-friendly construction, and energy efficient initiatives. This is the largest green bond to date issued by a private financial institution in Latin America.

In May 2017, Brazil's Itarema Geração de Energia S.A. issued a BRL 112 million (US\$ 36 million) green bond maturing in 2028, which was certified by the Climate Bonds Initiative under the Wind Criteria. Brazil's Potami Energia S.A. issued a BRL 42 million (US\$ 14 million) green bond maturing in 2026. It was also certified under the Wind Criteria.

In June 2017, Mexico's Grupo Rotoplas S.A.B., a leading provider of individual and integrated water solutions, issued Latin America's first "sustainable" bond⁹ in the local debt capital markets to fund clean water and sanitation projects in Mexico for a total amount of MXN 2 billion. The issuance was made in two tranches, the first in the amount of MXN 600 million (US\$ 34 million) and a three-year maturity, and the second in the amount of MXN 1.4 billion (US\$ 79 million) and a 10-year maturity. The proceeds will finance and refinance sustainable initiatives that improve access to water and sanitation. The issuance's framework is in alignment with Green Bond Principles and the Social Bond Guidance, which was evaluated by Sustainalytics, an independent third party.

On August 14, 2017, Colombia's Banco de Comercio Exterior de Colombia S.A., Bancóldex, issued the third green bond from Colombia, a COP 200 billion (US\$ 67 million) five-year bond to fund projects that help mitigate climate change impacts, improve the environmental performance of Colombian companies and help Colombia meet its INDC targets.¹⁰ Bancóldex is the development bank for business growth in Colombia. The bond was structured with technical cooperation from the Inter-American Development Bank (IDB) with resources from the Secretariat of State for Economic Affairs of Switzerland (SECO) and certified by the Climate Bonds Initiative. It was the country's first green bond available through the Colombian Stock Exchange (BVC, Bolsa de Valores de Colombia).

Finally, on August 31, 2017, Banobras, a Mexican state-owned development bank (Banco Nacional de Obras y Servicios Públicos, Sociedad Nacional de Crédito), issued a MXN 6 billion (US\$ 225 million) seven-year paper, the second sustainable bond out of Mexico in 2017. Proceeds of the bond may be directed towards eight categories: affordable basic infrastructure to vulnerable segments of the population; public services infrastructure; disaster recovery; sustainable transport; renewable energy; energy efficiency; water efficiency and wastewater management; and pollution prevention and control.

Regarding country composition, LAC local issuances with a green focus originated from only three countries: Mexico, Brazil, and Colombia, in that order (Figure 22). The currency distribution

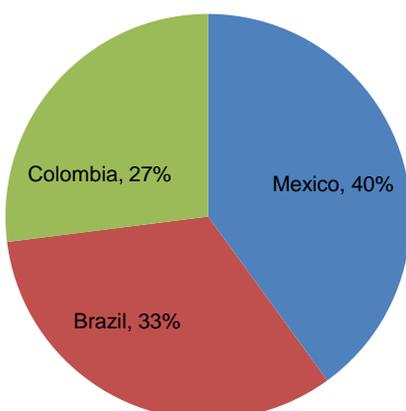
⁸ IFC has identified more than US\$ 1 trillion in climate financing opportunities in Latin America and the Caribbean through 2040. In Colombia, the potential alone for financing of renewable energies, for example, totals US\$ 27.5 billion.

⁹ In the "sustainable" bond, the green bond definition has been broadened to capture bonds that address sustainability challenges in addition to climate change. These include protecting biodiversity or reducing resource use, or socially positive activities such as employment, education and healthcare.

¹⁰ Countries across the globe adopted an historic international climate agreement at the U.N. Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP21) in Paris in December 2015. In anticipation of this moment, countries publicly outlined what post-2020 climate actions they intended to take under the new international agreement, known as their Intended Nationally Determined Contributions (INDCs).

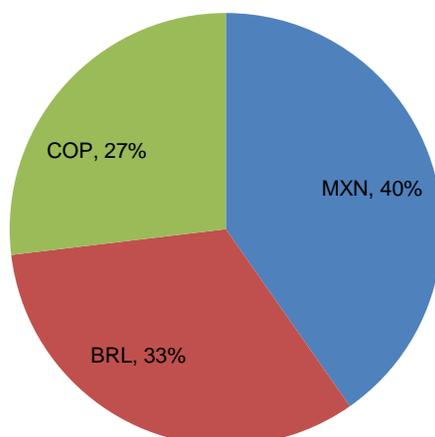
followed the same pattern: 40% of the total local green-focused issuance was denominated in Mexican pesos, 33% in Brazilian real and 27% in Colombian pesos (Figure 23).

Figure 22
LAC climate-aligned local bond issuances by country, 2016-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

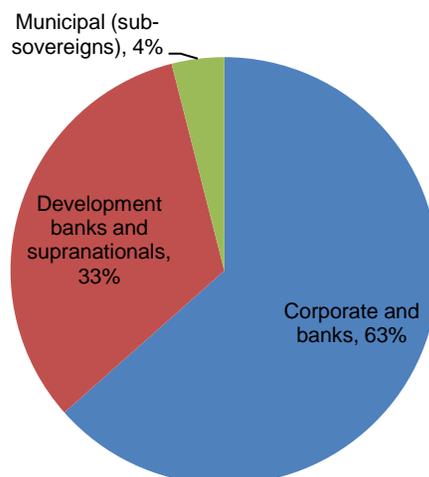
Figure 23
LAC climate-aligned local bond issuances by currency, 2016-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

While issuance with a green focus in international markets was dominated by development banks and supranational entities, in local markets it was dominated by private corporate and bank issuers (Figures 24). Of the total amount of climate-aligned bonds issued in local markets by LAC issuers, 63% was issued by private corporate and banks, 33% by quasi-sovereign and supranational issuers and 4% by sub-sovereigns (basically the US\$ 49 million bond issued by Mexico City).

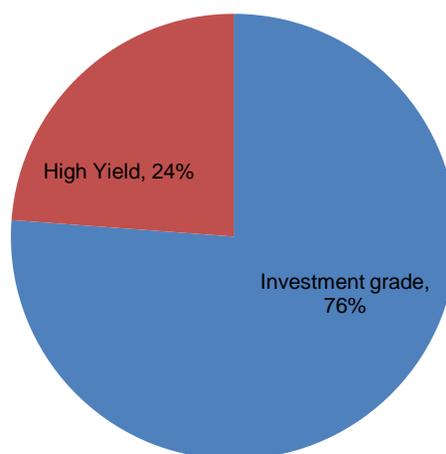
Figure 24
LAC climate-aligned local bond issuances by type of issuer, 2016-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

Regarding the credit quality of the region's climate-aligned issuance in local bond markets, 76% of the amount issued was issued by investment grade and 24% by non-investment grade issuers (Figure 25). Basically all issuers that tapped LAC local markets with green bonds in the period were investment grade, except for Brazil's Suzano Papel e Celulose.

Figure 25
LAC climate-aligned local bond issuances by credit rating, 2016-2017 YTD
(Percentage)

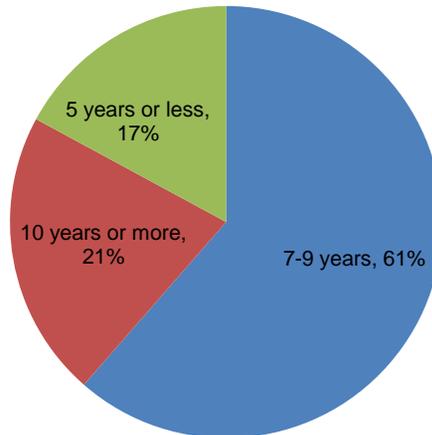


Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

The size of the bonds with a green focus in LAC local markets was significantly smaller. Of the total amount of bonds with a green focus issued by LAC issuers in local bond markets, 72% was higher than US\$ 100 million, but lower than US\$ 300 million. 28% were bonds of less than US\$ 100 million in size. More issuers (seven out of twelve) issued smaller-sized bonds than not.

As in the case of green bond issuances in the international markets, the majority of the green bonds issued in LAC local markets (82%) have tenors larger than 5 years (Figure 26). More than 60% had maturities of 7 to 9 years, and 21% of 10 years or more.

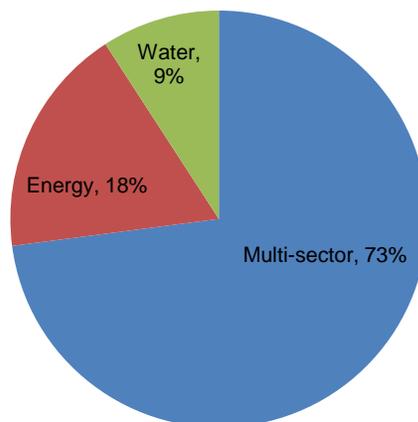
Figure 26
LAC climate-aligned local bond issuances by maturity, 2016-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

Most green-focused local issuances from LAC benefitted more than one strategic sector (Figure 27). Multi-sector issuances included not only green-related sectors such as energy, water management, transport, forest conservation, pollution prevention and control, but also sectors that address sustainability challenges, such as affordable basic infrastructure and public services (see Table 3, p.25). Multi-sector issuances (73%) were followed by energy (18%) and water management and sanitation (9%).

Figure 27
LAC climate-aligned local bond issuances by sector, 2016-2017 YTD
(Percentage)



Source: ECLAC Washington Office, on the basis of data from LatinFinance and the Climate Bonds Initiative.

IV. Conclusion

As Latin American and Caribbean governments look to implement the 2030 Agenda and keep the targets agreed in the Paris 2015 agreement, they are finding that traditional sources of capital are falling short of what is needed. If the region is to meet its demand for infrastructure, for example, it must invest at least US\$ 320 billion annually on average (6.2% of GDP) in the coming years according to ECLAC (2014), double the amount invested in the last decade. Only less than half of that is currently being invested.

Aware of their constraints, governments are looking to the private sector to help fill the funding gap. While bank lending is expected to continue to play a fundamental role in financing projects, experts believe that traditional commercial bank project financing will not suffice to fill the region's infrastructure needs. A broader range of investors are thus being called upon to complete the package. The growth of the green bond market in the region could help increase the share of private investment in environmentally-friendly infrastructure and channel the future growth of national savings to green projects that help the region respond to its sustainable development challenges.

The region has placed several bonds with a green focus in local and international markets in the past three years. The main takeaways from this experience so far have been:

- A well developed domestic capital market and access to international capital markets have been critical factors. Almost all of the local and international issuances of green bonds from the region, so far, have been placed by the largest economies of the region and by established corporations.
- The strength of local pension funds and their willingness to invest in sustainable development projects has been a vital factor in the issuance of these bonds.
- When these bonds attracted significant capital market participation, they generally benefitted from guarantees or partial guarantees from the government and/or regional/multilateral banks. Some issuances have been structured through the creation of a Special Purpose Vehicle.
- Local green bond issuance has shown size and maturity limitations – in most countries the maximum issuance has been lower than US\$ 300 million-equivalent – and for the most part seven to nine years are the maximum maturities. On the other hand, almost 90% of the region's green bonds issued between December 2014 and August 2017 in international markets were

US\$ 500 million or higher, more than half had more than 10 years of maturity, and almost a fifth of the total had maturities of 30 years.

- For the most part, green bond issuance both in local and international markets has been more focused on energy, transport, and agriculture and forestry, with several multi-sector issuances also covering pollution control, biodiversity conservation, wastewater management, and other strategic sectors.
- The most active countries in local and international capital markets have launched targeted initiatives, such as the creation of funds, investment promotion agencies and project models to finance green investment initiatives.
- Although the Latin America and Caribbean region remains a small participant of the global climate-aligned bond market, opportunities abound. The region's climate-aligned bond sector has shown important growth potential, with its participation in the total amount of bonds issued in international markets increasing steadily in the past three years.

The region's lagging infrastructure and investment needs present a sizable opportunity for the green bond market and its participants as well as for the region's sustainable long-term development. To continue the region's solidifying growth in the climate-aligned bond market the following considerations should be explored:

- i. Develop local markets: promote visibility of local demand for green bonds while establishing a set of local and international guidelines for issuers to follow. Bring together national market actors with private and institutional investors similar to what the Mexican Stock Exchange has done in Mexico to increase green-financing awareness.
- ii. Incentivize and regulate: provide a friendly regulatory environment for investors to support green projects, including removing barriers that hinder green bond investment, offering incentives to investors willing to invest in green bond initiatives and enhancing private and public credit channels for green infrastructure.
- iii. Increase the role of nontraditional investors: many governments have shown their commitment to funding climate-sensitive endeavors. However, there is insufficient public-sector disposable capital to match demand. Institutional investors, particularly pension and private funds, could help cover the remaining gap and play a more significant role in the market by committing to increase the participation of bonds with a green focus – which offer similar ratings and yield to a traditional bond – in their portfolios.

Bonds placed in capital markets will not be the sole source of financing for projects across the region, but hopefully they can be an important part of the funding mixture. National, regional, and global multilateral development banks can play an important role, as well, in providing partial or full guarantees, as well as in helping mobilize other relevant parties to implement and operate sustainable projects. Across the life of a project, such assistance can take the form of technical cooperation, advisory services, co-financing, and innovative financing mechanisms, such as the B-bond structure recently used by the IIC to finance a wind project in Uruguay.

In sum, given the magnitude of the effort required to implement the 2030 Agenda and the Sustainable development Goals as a share of GDP, neither the public nor the private sector alone is able to guarantee that such sums are mobilized. The solution, therefore, must lie in public-private efforts and national-international sources of financing. Cooperation between national and local governments and private investors (domestic and foreign), as well as regional and multilateral banks, will prove crucial in this endeavor.

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