GUIDELINES FOR ISSUING GREEN BONDS IN BRAZIL 2016

FEBRABAN – Brazilian Federation of Banks
CEBDS – Brazilian Business Council for Sustainable Development

CREDITS

PRODUCTION

- FEBRABAN – Brazilian Federation of Banks
- CEBDS – Brazilian Business Council for Sustainable Development

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INTRODUCTION

In 2015 a historic agreement was signed during COP211, where 195 parties to the United Nations Framework Convention on Climate Change (UNFCCC) committed to intensify actions and investments for the development of a low-carbon economy.

In addition to the general goal of maintaining the average worldwide temperature increase below 2 °C relative to pre-industrial levels (with efforts to limit the increase to 1.5 °C), the signatory countries were asked to indicate what measures will be implemented over the next few years to reduce greenhouse gas emissions (GHG) and thereby contribute to the fulfillment of the agreement. In the case of Brazil, the announced measures focus on two main areas: energy and land use.

The Paris agreement indicated the urgent need to increase the use of financial resources towards climate change mitigation and adaptation actions, recognizing that investments will be required from both public and private sources.

Organizations such as the International Energy Agency, the World Bank, and the World Resource Institute (WRI) estimate that investments required for this transition could reach US$ 5 trillion per year - a volume of resources far greater than the minimum US$ 100 billion per year provided for in the Paris Agreement to be mobilized by developed countries for climate financing before 2025.

Among the financial instruments available to fill this gap and mobilize investments in activities with positive environmental and climate characteristics, there are the so-called Green Bonds, which are the subject of this guide. With the fast growth observed in the international market, the potential of this instrument was explicitly reinforced in the scope of G20 in a recent report prepared by the "Climate Finance Study Group", which recommended promoting and encouraging local markets of Green Bonds. In this context, this guide aims at providing guidelines to participants and stakeholders in the Brazilian fixed income securities market regarding the process of issuing Green Bonds.

[1] 21st Conference of the Parties (COP21) of the United Nations Framework Convention on Climate Change (UNFCCC) held in December 2015 in Paris.

The content is based on references from the international market of Green Bonds, with emphasis on the International Capital Market Association (ICMA), responsible for the preparation of the Green Bond Principles, the World Bank, the International Finance Corporation (IFC), and the Climate Bonds Initiative.

The project was conducted by the Working Group on Green Bonds of FEBRABAN - Brazilian Federation of Banks, and by the Thematic Chamber on Sustainable Finance of CEBDS - Brazilian Business Council for Sustainable Development, with technical support from SITAWI Finance for Good and from the Center for Sustainability Studies of Getúlio Vargas Foundation (GVces).

A broad consultation process was conducted prior to publication to ensure the involvement of stakeholders, transparency in the preparation, and applicability of this guide to the Brazilian capital market.

The Guide has a recommendatory nature and is intended for agents of the Brazilian Green Bonds market, including potential Issuers (such as companies and financial institutions), Underwriters, Investors, External Review Agents, as well as other participants. However, it does not intend to exhaust the topic.

The Guide does not suggest changing the existing regulations or creating new financial instruments, but rather to provide guidance to help market actors in the process of selecting projects and issuing Green Bonds, considering its main stages.

For the purposes of this Guide, the terms with an uppercase first letter have their definition described in the glossary.

Thus it is recommended that those interested in issuing Green Bonds in Brazil consider the guidelines presented in this document.

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WHAT GREEN BONDS ARE

1.1. Definition

Green Bonds are Fixed Income Securities used to raise funds in order to finance or refinance projects or assets that have positive environmental or climate-related attributes. The projects or assets suitable for the issuance of such bonds may be either new or existing, and are referred to as Green Projects.

Green Bonds are also characterized by funding projects or long-term assets and are becoming an important alternative to stimulate and facilitate initiatives and technologies with positive environmental attributes in different types of organizations, and also to attract institutional investors, such as pension funds, social security trust funds, insurance companies, and asset managers.

These bonds constitute an important instrument to stimulate sustainable development and the allocation of resources to mitigate and adapt to climate change.

According to the Climate Bonds Initiative, in September 2016 there was over US$ 140 billion in labeled Green Bonds outstanding globally, while another US$ 576 billion represented unlabeled bonds, i.e. bonds that have potential to be green but have not been declared as such.

Thus the main additional features of a Green Bond compared to a conventional bond are that proceeds are directed to Green Projects and assets and these environmental attributes are promoted to investors. Table I below clarifies these similarities and differences.

TABLE I – Comparison between Green Bonds and conventional bonds

Characteristics	Green Bonds	Conventional bonds
Are debt instruments	✔	✔
Pay periodic coupons or at the due date	✔	✔
Can receive credit rating	✔	✔
Typology according to debt security	✔	✔
Financing or refinancing	✔	✔
Proceeds applied to Green Projects	✔	possibly
Labeled and promoted as green with investors	✔	✔
The Issuer undertakes some level of transparency and documentation regarding the use of proceeds in Green Projects	✔	
The projects' green credentials are externally reviewed	✔	

In the Brazilian market, the Fixed Income securities subject to public or private distribution can have their environmental attributes or climate benefits recognized, and therefore have the potential to fall into the category of Green Bonds.

Below are examples of regulated financial instruments in Brazil that could be categorized as Green Bonds:

- Shares of Receivables Investment Funds (FIDC)
- Agribusiness Receivables Certificates (CRA)
- Real Estate Receivables Certificates (CRI)
- Debentures
- Incentivized infrastructure debentures
- Financial Bills
- Promissory Notes

Green Bonds can also be issued abroad using any instrument regulated in the chosen jurisdiction, such as bonds, notes, or commercial papers.

1.2. Why issue Green Bonds

The first issuances of Green Bonds were carried out by the World Bank and European Investment Bank in 2007 and 2008. Since then, the market has experienced a fast growth, with issuances in more than 25 currencies and dozens of countries and Issuers such as commercial banks and companies coming to the market.

As the international experience shows, a series of benefits can be obtained with the issuance of Green Bonds.

1.2.1. Benefits for the issuer

Diversification and/or expansion of the investor base

- Access to new investors such as sustainable funds (which consider Environmental, Social, and Governance issues - ESG), investors with a specific mandate to buy Green Bonds or with long-term goals (such as pension funds, insurance companies, signatories of the Principles for Responsible Investment - PRI) that due to its characteristics can keep the paper in the portfolio even in times of crisis.

EXAMPLES OF INVESTORS WITH DEDICATED FUNDS FOR GREEN BONDS:

2010: Nikko Asset – Green Bonds Fund of the World Bank
2014: Zurich Insurance – fund of US$ 2 billion
2014: Mirova, branch dedicated to the responsible investments of Natixis Asset Management – fund of €1 billion
2014: Treasury of the Barclays Bank – fund of £1 billion
2015: Treasury of the Deutsche Bank – fund of €1 billion

Reputational gains

- More visibility for the Green Projects
- Positive marketing instrument differentiating the issuance of Green Bonds from conventional issuances
- Recognition of Issuer's commitments related to environmental conservation and to mitigation and prevention of the risks posed by climate change.

1.2.2. Benefits for the investor

More transparency in the use of resources

- The projects funded by Green Bond proceeds are often structured within the company's long-term strategy and should be aligned with its policy for social and environmental responsibility and governance model for sustainability issues.
- The clarity and demonstration of the use of proceeds in Green Projects as well as its monitoring may reduce the risks associated with investments.

Convergence with voluntary commitments

- Investments in Green Bonds facilitate the fulfillment of commitments for asset managers that are signatories to the PRI[2] (Principles for Responsible Investment) and IIGCC[3] (Institutional Investors Group on Climate Change). These voluntary commitments undertaken by more than 1,500 organizations in the domestic and international markets direct investment in projects that promote sustainable environmental and social development.
- For specialist investors with sustainability mandates, the availability of Green Bonds facilitates the identification of projects and target assets in the fixed income market.

[2] The PRI works closely with its international network of signatories to put into practice the six Principles for Responsible Investment. The purpose of the Principles is to understand the implications of the investment on environmental, social, and governance matters, as well as to offer support to the signatories in integrating these matters in their investment decisions and asset ownership. The six Principles were created by investors and have the support of the UN. They already have more than 1,500 signatories in more than 50 countries, representing US$ 62 trillion in assets.

[3] IIGCC: *Institutional Investors Group on Climate Change*, has more than 120 members representing a total of 13 trillion Euros in assets.

Financial return

Green Bonds in general present financial returns and prices set by the market, as is the case for conventional bonds.

1.3. Market players

In addition to the usual players in the Brazilian capital market, the Green Bonds market also uses external review agents to provide an independent opinion on the positive environmental attributes of the projects to which the funds raised will be allocated. The characteristics and different modalities of this assessment are detailed in the chapters of this guide.

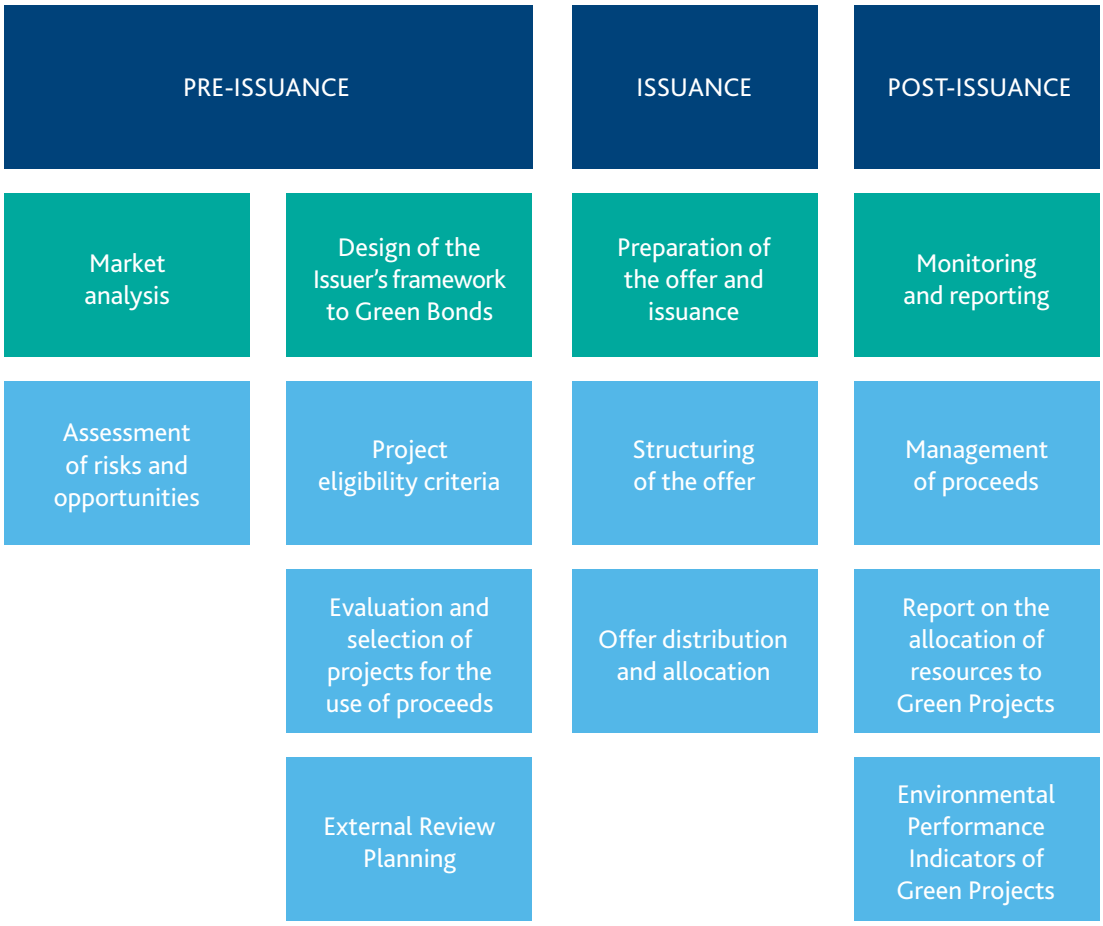
Typical agents in the market of Green Bonds:

- Issuers
- Underwriters
- Investors
- External Review Agents
- Regulators and Supervisors
- Rating Agencies
- Fiduciary Agents
- Financial Auditors
- Systems of Registration, Deposit, Settlement, and Trading of Securities
- Legal Advisors

2

HOW TO ISSUE GREEN BONDS IN BRAZIL

Typical steps for issuing Green Bonds



2.1. Pre-issuance

2.1.1. Market analysis

In order to support the decision-making related to the type of issuance and most appropriate financial instrument, the issuer must assess the market conditions and trends for the Green Bonds[4].
In order to identify the degree of sensitivity of the target market, the Issuer must perform a preliminary analysis of the options regarding the following aspects:

[4] At this stage, some sources of information may be useful to support the assessment, such as data on the international market of Green Bonds available on Bloomberg; market news available through Environmental Finance and annual market reports prepared by the Climate Bonds Initiative.

- The key target investors of the issuance.
- The market segment, currency, and term of the required funding.

Assessment of risks and opportunities

During the process of assessing risks and opportunities inherent to the business of the company, the Issuer should give special attention to environmental aspects. This is because these issues will be subject to the analysis of potential investors.

2.1.2. Design of the Issuer's framework to Green Bonds

Once the decision of issuing Green Bonds is taken, the organization must internally prepare the principles governing the issuance process. Due to the nature of Green Bonds, this phase requires collaboration between the financial and sustainability departments of the Issuer.

A set of guidelines are already available on the market and may be useful for the development of the principles that will guide the issuance of the Green Bonds. Among them the Green Bond Principles[5], used as reference for the development of these Guidelines, stand out since they are globally recognized and provide guidance on the following aspects:

- Identification of eligibility criteria for financed projects
- Projects selection
- Use of Proceeds
- Monitoring and reporting.

Examples of other guidelines that can be used as reference are the ones prepared by multilateral banks, such as the European Investment Bank (EIB), the World Bank, the International Finance Corporation (IFC), and the Inter-American Development Bank (IDB).

Project eligibility criteria

Issuers of Green Bonds define for which Green Project categories the proceeds from the issuance can be used. The criteria used to identify a Green Project may relate to actions either to mitigate negative environmental / climate-related impacts or to adapt to its effects.

Table II presents examples of categories of eligible projects for the issuance of Green Bonds and the types of activities that can be considered for financing / refinancing through the proceeds of the issuance.

[5] Guidelines prepared by more than 50 financial institutions put together by the International Capital Markets Association (ICMA), published initially in January 2014 and updated for the second time in June 2016.

TABLE II – Examples of eligible activities for Green Bonds

Categories	Examples
Renewable Energy	• generation, transmission, storage, or usage of solar, wind, bio, hydro, tidal, or geothermal power.
Energy Efficiency (equipment and products)	• sustainable buildings (retrofit and new) • efficient storage systems • efficient heating systems • smart grids
Pollution prevention and control	• effluent treatment • emission control (GHGs and others) • soil decontamination • recycling and production of high value-added products • power generation from waste • environmental analysis and monitoring
Sustainable management of natural resources	• low carbon agriculture and livestock • sustainable forestry and forest management • native vegetation conservation, restoration and recovery • recovery of degraded areas • sustainable fishing and aquaculture
Biodiversity conservation	• protection of terrestrial, coastal, marine, fluvial and lacustrine habitats • sustainable usage of biodiversity • deployment of wildlife corridors
Clean transportation	• production and use of electric and hybrid vehicles • non-motorized vehicles • railway and subway • multimodal • infrastructure for clean vehicles
Sustainable management of water resources	• water treatment and cleaning • impounding and storage infrastructure • distribution infrastructure • basin protection • sustainable urban drainage systems • flood control systems
Adaptation to climate change	• climate monitoring or early warning • resilience infrastructure (dams and other structures) • development / usage of varieties resistant to extreme weather conditions
Products, production technologies, and eco-efficient processes	• eco-friendly stamps / sustainability certificates • development of biodegradable or renewable source technologies / products • eco-efficient products / processes

It should be noted that mitigation or adaptation actions in sectors with intensive use of natural resources that cause significant environmental impact, such as oil, gas, and mining, are not excluded from the potentially eligible activities to implement a Green Project. Considering that the transition to a Green Economy requires the adoption of global efforts across all sectors of the economy and that the issuance of Green Bonds must have the objective of financing or refinancing Green Projects, the implementation of actions that reduce the impact of activities in sectors that can potentially cause environmental impact should not be disregarded without prior analysis of the environmental attributes proposed by the Green Project. For example, an electricity utility with the majority of its energy generation capacity from non-renewable sources may issue a Green Bond to expand its renewable energy business thus helping the company to transition to a more sustainable business.

It is recommended, however, to consider the possible effects of the allocation of financial resources to projects that may indirectly extend the life of enterprises with a high environmental or climatic impact.

A high level of disclosure and transparency is at the core of the Green Bond market. At the end of the day, it will always be up to investors to decide whether the eligibility criteria chosen by an issuer is in line with the investor's environmental criteria and whether the issuer is comfortable marketing the investment as a Green investment vis-à-vis its clients and other stakeholders.

Evaluation and selection of projects for the use of proceeds

Once the eligibility criteria are defined, the Issuer must select the Green Projects that will receive the funds raised with the issuance of Green Bonds.

The purpose of this step is to develop and/or improve the internal process for project selection, and thus to establish the conditions for an effective communication with investors at the time the issuance is offered.

It is recommended that the following elements are described:

- Criteria and/or references adopted to classify Projects as Green;
- Description of the use of proceeds from the Green Bonds; and
- Environmental features and/or benefits of the selected projects, including indicators and metrics that will be used to monitor performance.

External Review Planning

In the same way investors in conventional bonds perform an analysis of financial due diligence and rely on assessments from rating agencies regarding credit quality, investors in Green Bonds demand additional information for environmental due diligence. As occurs with the credit quality, the assessment of the green aspect of the bond by an independent organization ensures the recognition and credibility of the issuance in the market.

The External Review brings the following benefits:

- Confirms the environmental credentials of the projects.
- Ensures greater transparency of the process, facilitating investors' access to relevant and standardized information.
- Decreases the cost of environmental due diligence by investors, which requires time and resources even for specialized investors.
- Attracts non-specialized investors with no or little experience in environmental analysis of projects.
- Enables the security to be eligible for listing in sectors dedicated to Green Bonds of some stock exchanges[6] or for inclusion in Green Bond indices (especially relevant in international issuance cases).

Most issuers in the international market choose to validate Green Bonds through an External Review. Thus, it is strongly recommended for the issuer to hire an External Review agent to provide independent advice on the process of assessment and selection of Green Projects and their monitoring. When advice is issued at the pre-issuance phase, the content should be presented to investors at the time of the disclosure of the offer and in the marketing process, thereby increasing the credibility of the title and extending its reach among the target investors.

The External Review can take various formats, with different characteristics, as described below. The most appropriate format will depend on several factors such as the features of the Green Projects, the criteria and standards available in the market, as well as demand of investors or even the characteristics and profile of the Issuer.

In addition to the information specifically related to the issuance of the Green Bond - and which will be covered by External Review reports - investors may also consider the sustainability performance of the Issuer more broadly, including its governance structure and policies in place to deal with social and environmental issues.

Similarly, the Underwriters of the operation (i.e. the financial institutions responsible for structuring the security and brokering its issuance on the market), can take into account the procedures for social and environmental due diligence usually adopted to analyze the transactions they intermediate.

It should be noted, however, that only the Green Bond Issuer is responsible for ensuring that the allocation of proceeds and the monitoring of the environmental performance of the projects occur as intended. External Review is the best way to check compliance with these commitments and may also be used to report the results to investors and Underwriters.

[6] The stock exchanges of London, Shanghai, Oslo, Stockholm, Luxembourg and Mexico City already have or have announced the launch of segments dedicated to Green Bonds.

Examples of formats of external review[7]

OPINION

- Technical opinion issued by consultants or institutions with recognized experience and technical skills in the area of sustainability.
- Does not require the existence of predetermined criteria.
- The so-called "Second Opinion" on the international market may fall in this category.

VERIFICATION

- Technical opinion issued by auditing firms or consulting firms/institutions with recognized experience and technical skills in the area of sustainability.
- Assessment based on internal criteria or statements (claims) of the issuer.
- It is possible to refer to external guidelines and principles, such as the "Green Bond Principles" as well.

CERTIFICATION

- Technical opinion issued by auditing firms and other institutions accredited/ approved by the certification body.
- Assessment based on external criteria (certification default).
- The "Climate Bonds Standards" is currently the only certification available for Green Bonds.

GREEN RATING

- Carried out by Rating agencies or research institutions.
- Attribution of a green rating specific to the bond (and not to the issuer in general).
- In 2016 Moody's and S&P Global Ratings released their rules for assessing and rating Green Bonds.

Source: Formats defined based on the Green Bond Principles (2016).

Opinion

The type of analysis conducted in this model of External Review depends on who provides the technical opinion. This analysis does not require the existence of a standard or predetermined evaluation criteria.

Generally, the following items are assessed:

- Adoption of a Social and Environmental Responsibility Policy by the Issuer8;
- Environmental goals of the issuer;
- Governance model for project deployment and management;
- Eligibility criteria for Green Projects;
- Clear definition of the use of proceeds to be raised with the Green Bonds;
- Definition of the parameters, monitoring forms for the expected financial and environmental results;
- Quality, instrument, and frequency of the reporting to the investors and market in general.

[7] The International Capital Markets Association (ICMA) offers a standard review form at its website, which details the items analyzed according to the Green Bond Principles.

[8] In the case of issuances that depend on prior registration with CVM, watch for consistency with the information about social and environmental policies published in the reference form, as set forth in the Instruction CVM 480 of 2009.

Verification

External verification is conducted by a qualified third party, usually auditors, and its subjects of analysis are internal criteria or statements made by the issuer. It is possible to refer to external criteria as well.

Certification

External certification is based on the assessment of the Issuer against compliance with the standard in question. The analysis is performed through audits conducted by entities approved by a certification body.

Currently, the only specific certification for Green Bonds available in the market is the "Climate Bonds Standards". More details on the criteria of this standard and the approved verification agents are available at the Climate Bonds Initiative website.[9]

Green Rating

Another possibility of External Review is assigning a rating to the bond's green attribute, after an analysis of the eligibility criteria of the projects and of the use of proceeds, monitoring, and reporting policies of the Issuer. This rating is usually assigned by Rating Agencies[10] or by research institutions, and refers to the green features of the bond and not the credit characteristics of the Issuer.

2.2. Issuance

2.2.1. Preparation of the offer

The preparation of a Green Bond offer is very similar to that of a conventional bond, since the distinction between the two is the intended use of the proceeds obtained and not the issuance process itself. Thus, to a large extent, the issuance will follow the rules and procedures applicable to the type of bond chosen for the operation.

The process commonly followed is briefly described below, highlighting some specificities of the Green Bonds.

Structuring of the offer

When applicable[11], the issuer must choose the financial institution that will structure the bond offer, acting as the Underwriter of the operation.

The underwriting bank may also act as an advisor of the whole process and may occasionally rely on support from expert sustainability (or Green Bonds) consultants.

[9] https://www.climatebonds.net/standards/certification/get-certified

[10] In March 2016, Moody's released the rating assignment rules for Green Bonds (GBA, Green Bond Assessment), expressed on a scale of five points from GB1 for "Excellent" to GB5 for "Weak". Its taxonomy covers the taxonomy of the Climate Bonds Standards, the definitions and metrics of the International Finance Corporation, and the taxonomy of the OECD. In September 2016, S&P Global Ratings announced plans for a new Green Bond Evaluation tool, that will consist of scores, including a governance score, a transparency score and mitigation or adaptation score, which would be weighted into a final Green Bond Evaluation.

[11] Not all fixed income instruments require the hiring of an intermediary or underwriter to assist in the issuance process. This is the case, for example, of securities issued by financial institutions.

Provided that the proceeds are directed to Green Projects, any combination of the following aspects can be adopted:

- Bond type
- Term
- Currency
- Warranties

The issuance offer can also be made in several tranches[12].

The preparation of the offer includes a series of documents to support the issuance (such as the issuance indenture, rating report, corporate documents of the issuance approval, and audited financial statements of the issuer), which may vary depending on the type of bond used.

For issuances in Brazil, for example, not all offers require the preparation of a prospectus or need to be registered by the Brazilian Securities Commission (CVM). For this reason, the recognition of the bond's Green aspect, secured by means of an External Review, can be highlighted in different ways in this stage of the process, such as:

- In the prospectus of the offer, when existing;
- In the marketing material used for the bond placement;
- In the bond indenture.

Once the offer is structured, the Issuer will present it to potential investors (public in general or qualified investors). This happens through a series of presentations (roadshow) made with the support of the underwriting bank.

Offer distribution and allocation

When the registration or deposit of the papers is carried out through a system of assets and securities authorized by the Central Bank of Brazil (Cetip and BM&FBOVESPA), in addition to the information usually presented, it is recommended to indicate the bond as Green in the system, as declared by the issuer and attested by an External Review agent.

The green aspect of the bond can also be registered on the Issuer's website, by institutions that provide data to the financial market or at a dedicated stockmarket listing. Over time, the establishment of a database on Green Bonds will enable the comparison between this type of bond and other fixed-income securities in terms of price, investors' demand and other market aspects.

The credibility of the Green Bonds among investors grows as the commitments made by the Issuer on the use of proceeds are documented, verified, and enforced. In this way, it is recommended, whenever possible, to indicate the green aspect of the bond in the formal documents of the offer. Nevertheless, the Issuer is responsible for the accuracy and consistency of the information provided during the process of distribution of the offer and allocation of the bonds in the market.

[12] The division into tranches is made to separate the peculiarities of each offer, for example different interest rates for each tranche or differences in relation to the projects for which the funds obtained will be used in the case of Green Bonds.

2.3. Post-issuance

2.3.1. Monitoring and Reporting

The Issuer of the Green Bond must monitor the Green Projects and disclose the results through reports at least annually. It should present information on the disbursement of proceeds to projects or eligible assets and, preferably, on its performance in terms of environmental sustainability.

The quality of the monitoring and transparency in reporting are essential, since the reputational gain is one of the major benefits of a Green Bond over a regular bond. Thus, the credibility of the issuance and the maturity of this market depend largely on the way reports are made.

The report can have different formats, and it can be produced as an independent document or integrated with other reports, such as a sustainability report and / or the Issuer's annual report. The issuer must make this decision considering the demands of investors and the importance of ensuring the credibility of the process.[13]

Management of proceeds

The documents of the offer must clearly indicate the procedure that will be adopted to collect and allocate the proceeds for the Green Projects, including refinancing, and reimbursement of related costs, expenses, or debts.

In cases where part of the resources is intended for refinancing, it is recommended that the issuers report an estimate of the proportion between financing vs. refinancing, and indicate, when possible, which investments or portfolio of projects could be refinanced.

The allocation of Green Bonds proceeds to working capital is possible only if the investments are directly linked to the categories of eligible activities (e.g. wind power generation operations). The use of proceeds in Research and Development (R&D) for Green Projects can also be made, provided that the Issuer proves the application in the R&D areas.

The Issuer must be able to track the use of proceeds from Green Bonds. The proceeds can be:

- Credited to a subaccount (ring-fencing),
- Allocated in a specific portfolio, or
- Managed through other formal internal processes which enable the issuer to prove that the bond proceeds were applied in the settlement period in the financing or refinancing operations indicated in the description of the Green Projects.

While the Green Bonds are still in the market, i.e. before their redemption or maturity, only the amount allocated to eligible projects must be discounted from the balance of the monitored resources, as stated in the documents of the bond offer.

For pending disbursements, the issuer may also report what types of temporary investments will be carried out until the resources are in fact applied to the Green Projects.

[13] The Report "*Green Bonds: Working Towards a Harmonized Framework for Impact Reporting*" (2015), prepared by a group of development banks, provides additional guidance.

Report on the allocation of proceeds to Green Projects

The Green Projects are included in the monitoring report when they are classified as eligible, or when the proceeds from the Green Bonds are effectively disbursed.

A Green Project may be excluded from the report when there is no disbursement in the period in question, or when the payments have already been paid off.

If a project ceases to be classified as a Green Project, it will be no longer eligible to use the Green Bond proceeds and therefore must be excluded from the monitoring report. Market participants should be informed about these exclusions.

The report must indicate both the amount contracted and legally committed to finance the Green Project and the disbursement up to the period in question. In cases where the Green Project financing also relies on other sources of funding, only the portion obtained from the issuance of Green Bonds should be reported.

When only a percentage of the financing is eligible to the Green Bond program, only this installment should be reported and not the total value of the investment.

The reports, proof of application of proceeds, and the environmental results achieved, as specified at the issuance, are key to the credibility and reputation of the issuer before the market in general and investors in particular since there is no regulatory or legal standard to ensure the correct application of resources, only the voluntary and public commitment of the Issuer.

Environmental performance indicators for the Green Projects

Along with the allocation of proceeds, the monitoring report should include, whenever possible, information on the environmental performance of the financed projects.

The environmental performance may be reported through impact indicators, which may be quantitative (preferably) or qualitative. The report may present the effective results of the project or consider estimates for the period based on a scenario in which the project is in operation.

If the Issuer performs the verification of the results, even by sampling, it is recommended that his information is included in the report.

It is expected that the actual performance indicators (based on a posteriori checks) are different from those estimated. This is because a number of economic, technical, and political aspects can change the results initially forecasted. For this reason, transparency is recommended with regard to the assumptions and methods used for the calculation of environmental performance.

Table III presents a non-exhaustive list of environmental monitoring indicators that can be used to evaluate the performance of Green Projects.

TABLE III – Examples of environmental indicators

Categories	Examples of indicators
RENEWABLE ENERGY (RE)	
Annual generation of RE	MWh/GWh (electric) or GJ/TJ (other energy forms)
RE generation capacity of the project (new or existing)	MW/GW
Capacity of the RE project / plant to use power transmission systems	MW
RE consumption	% of total power consumption
Annual reduction of GHG emissions / avoided emissions	Tons of CO_2 equivalent
GHG absolute emissions (annual) of the project	Tons of CO_2 equivalent
ENERGY EFFICIENCY	
Annual reduction of power consumption	MWh/GWh (electric) or GJ/TJ (other energy forms)
Annual reduction of GHG emissions (avoided emissions)	Tons of CO_2 equivalent
GHG absolute emissions (annual) of the project	Tons of CO_2 equivalent
POLLUTION PREVENTION AND CONTROL	
Waste generation reduction	Tons
Amount of recycled wastes	Tons
Contaminated areas recovered	Tons of soil / contaminants / pollutants treated
Contaminated areas recovered	square meters
SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES	
Annual reduction of GHG emissions (direct or indirect) / avoided emissions	Tons of CO_2 equivalent
Annual GHG balance (emissions and removals)	Tons of CO_2 equivalent
Annual increase in productivity	Tons / hectare
Reforested / restored area	Hectares or % of the area
Degraded area recovered	Hectares or % of the area
Increase in the adoption of integrated production systems	Hectares
Increment in the adoption of good agricultural practices (e.g. zero tillage)	Hectares or % of the area
Reduction in the application of pesticides	kg of active ingredients per hectare / year
Reduction in the use of chemical fertilizers	kg / hectare / year
Sustainable forest management	Hectares or production volume or % production

TABLE III (CONTINUATION) – Examples of environmental indicators

Categories	Examples of indicators
BIODIVERSITY CONSERVATION	
Biodiversity monitoring	Number of individuals and species identified
Increase of the population of endangered species	Increase of the number of individuals of endangered species
Protected or restored habitats	Hectares
Deployment of Protected Areas (e.g. Conservation Unit or Indigenous People's Land)	Hectares
Forest / native vegetation restoration	Hectares
CLEAN TRANSPORTATION	
Absolute annual reduction of GHG emissions / avoided emissions	Tons of CO_2 equivalent
Reduction of GHG emissions / avoided emissions	Tons of CO_2 equivalent / km
Absolute annual reduction of pollutant emissions (non-GHG)	Tons of the pollutant
Reduction of pollutant emissions (non-GHG)	Tons of the pollutant / km
Sustainable management of water resources	
Reuse of water	cubic meters or % of total use
Annual reduction of water consumption	cubic meters
Annual reduction of water impoundment	cubic meters
Water and effluent treatment	cubic meters of water / effluent treated
ADAPTATION TO CLIMATE CHANGE	
Use or development of more resistant varieties	Reduction of production losses (ton, % or $)
Reforestation for protection against floods	Hectares
Resilience infrastructure: construction / adaptation of dams and / or other structures	Benefited area Number of benefited individuals
Avoided deforestation	Tons of CO_2 equivalent
PRODUCTS, PRODUCTION TECHNOLOGIES, AND ECO-EFFICIENT PROCESSES	
Attested certification of sustainability	Annual certified production volume or % of the certified production
Reduction of the use of materials	Tons of raw materials / year

Depending on the process adopted to allocate proceeds, the Issuer of the bond may choose to present specific information in the report:

- by project or
- in an aggregate form, by portfolio, where a series of smaller projects are financed (e.g. when a Green Bond is issued by a Financial Institution to create a program or funding line).

Regardless of the approach adopted for the report, it is good practice that the issuer explains the motivations of their choice.

Finally, in addition to the information described above, the issuer may also include in the reports the estimated results for the entire period (lifespan) of the Green Project. This information allows for a better understanding of the impact of the project as a whole.

2.4. Non-compliance with Green Bonds issuance criteria

If the Issuer does not allocate the proceeds to the Green Projects, as defined in the issuance process, the issuance will lose its green characteristic.

Although there is no penalty provided for in the regulations, there may be a loss of credibility of the Issuer on the market and damage to its reputation and image. Nevertheless, the indenture of the issuance can provide for punitive clauses in case of non-compliance with the green credentials announced at issuance.

2.5. Issuance costs

The issuance costs of Green Bonds tend to be somewhat higher than those of the issuance of conventional bonds. This usually relates to the hiring of an External Review agent to provide an independent technical opinion regarding the Green aspect of the bond (see External Review Planning).

If the issuer does not publish Sustainability Reports or Annual Reports, it must disclose at least in electronic media periodic reports on the application of the resource raised with Green Bonds and the results achieved according to the issuance process. Such disclosure can be made, for instance, through a special report published on a designated part of the Issuer's website (e.g. under investor relations) and may include the technical opinion of the External Review agent, not incurring in additional costs. As for other costs, these are similar to conventional issuances. The issuance of the Green Bond must also meet the applicable regulations, which in Brazil are set by the CVM (Brazilian Securities Commission).

3

Photography: Veniamin Kraskov / Shutterstock.com

ISSUANCE MODELS

To enable the understanding of the different possibilities for issuing Green Bonds and to encourage the issuance by Brazilian Issuers, this Guide indicates, in a non-exhaustive manner, some models for Green Bonds with potential in the country. In all cases, it is recommended to meet the issuance and post-issuance procedures presented in Chapter 2 of this Guide, i.e. eligibility, specificity in the use of proceeds, external review, environmental performance indicators, and reporting to investors and the market.

Aspects such as financial conditions, the amount of the issuance, the type of financial instrument, and the return to investors are defined according to the market and the interests of Issuers and Investors, including a risk/return analysis.

The financial return of the Green Bond can be guaranteed by:

- The Issuer's cash flow as a whole, as in cases where the Green Bond is issued for an ensemble of projects or a green investment program;
- Cash flow generated by the Green Project, common when the issuance offer is structured for a specific project or through the establishment of a Special Purpose Entity - SPE.

The Green Bond can also be a source of funding to complement other sources, such as bank funding or the Issuer's own resources.

3.1. Companies in general: specific projects

Companies operating in the Brazilian market can finance their Green Projects by issuing Green Bonds. The Projects define the activity or enterprise to which the bonds' proceeds are allocated.

Use of proceeds

Financing or refinancing an identified Green Project or an ensemble of Green Projects.

Issuance process

If the Green Project is being financed or refinanced by a Corporate Group, the issuance may be structured on behalf of any company that integrates the group. In any case, the process must follow the provisions given in Chapter 2 of this Guide.

In some cases, the company may establish one or more Special Purpose Entities (SPE) to host the Green Projects and the issuance of Green Bonds for their respective financing. Then it is necessary to specify the requirements and procedures adopted for the issuance and post-issuance for each SPE.

External Review

The scope of the External Review process focuses on the features of the Green Projects selected.

In this issuance model, the elements of the External Review can also vary depending on the stage of implementation of the Green Project. Projects that are already in operational phase, for example, have actual results in terms of cash flow and environmental performance indicators, which will be considered in the analysis. As for projects in the pre-operational phase, assessment will be based on forecasts and estimates.

TABLE IV – Examples of elements to be considered in the external review

Project phase	External Review
Pre-operational	• Eligibility criteria for Green Projects • Governance model for Project deployment and management • Environmental permits • Environmental Impact Assessment • Indicators defined for monitoring • Environmental performance estimates
Operational	• Eligibility criteria for Green Projects • Governance model for Project deployment and management • Environmental permits • Environmental performance of the Green Project for the defined indicators • Sustainability certifications • Environmental compliance certificates • Technical reports

Report

The annual performance reports focus on the results of the environmental indicators and on the allocation of proceeds to the Projects, as planned during the issuance process.

Sectors with the highest potential

In the international market, Green Bonds have been issued to (re)finance projects in sectors such as Railway and Subway Transport, Renewable Energy, Energy Efficiency, Water, Forestry, Agribusiness, and Sanitation.

TABLE V – Examples of Green Bonds to finance specific projects

Issuer	Financial Instrument	Country	External review	Use of proceeds
Wind Power – controlled by ContourGlobal	Senior Secured Notes (Project Debenture) US$ 204 MM 20 years	Peru	No	Operational wind power plants with 20-year contracts to sell power in the Peruvian government's renewable energy program.
TerraForm Power Operating (YieldCo)	Senior Notes US$ 300 MM 10 years	USA	No	Acquisition of a wind power plant.
Flexigroup	Asset-Backed Securities US$ 39 MM 5 years	Australia	Opinion – DNV GL + Climate Bonds Standard Certification	Project portfolio for distributed photovoltaic power generation.

TABLE VI – Examples of Green Bonds to refinance specific projects

Issuer	Financial Instrument	Country	External review	Use of proceeds
Hindustan Power	Bond - private placement INR 3.8 bi 10 years	India	No	Refinancing of three SPEs of photovoltaic plants.
Massachusetts Institute of Technology (MIT)	Taxable Bonds US$ 370 MM 24 years	USA	No	Refinancing of existing sustainable buildings
Westar Energy	EUR 350 MM 10 years	USA	No	Refinancing of a wind power plant under construction

3.2. Companies in general: green investment program

Companies can also choose to issue Green Bonds to finance a program of green investments without specifying the respective projects at the moment of issuance. In these cases, the Issuer indicates only the categories of projects to which the resources will be allocated (e.g. energy efficiency, renewable energy generation, effluent treatment) and specification can be made afterwards.

Use of proceeds

Financing of a program / set of investments that fit into the category of eligible projects for the issuance of Green Bonds.

Issuance process

The issuance approach differs in this case because of the special relevance of the eligibility criteria, since the Green Projects are not specified at the time of Bond issuance. The eligibility definition can be based on aspects like:

- Social and Environmental Policy of the Issuer, validated by the Senior Management
- Strategy defined by the Issuer to implement the policy
- Environmental goals and / or objectives of the Issuer
- Action plans to meet the strategies and goals
- Reference guidelines to issue Green Bonds (e.g. Green Bond Principles and Taxonomy of Climate Bonds Standards.

External Review

Since the precise allocation of resources will be defined only in the medium and long term, the implementation of a robust External Review is of particular relevance in this issuance model. In the international market it is common to hire a corporate social and environmental rating (ESG rating) of the Issuer.

Report

The regular monitoring and reporting of the Issuer's environmental performance and of the financed projects or assets contribute to increase investors' confidence regarding the green credentials of the issuance and the company. Good market practices in this model include:

- Transparent management of the volume of resources allocated to each Project, reported at least annually.
- Information on the use of proceeds not yet allocated to Green Projects.
- Detailed reporting of the environmental performance comparing actual with expected results taking into account the indicators defined during the issuance process.

It is worth mentioning that, as in other cases, it is possible to include the Green Bond report in annual or sustainability reports of the company, which may be audited.

TABLE VII – Examples of Green Bonds to finance an investment program

Issuer	Financial Instrument	Country	External review	Use of proceeds
Unilever	Senior Notes GBP 250 MM 4 years	UK	Opinion – DNV GL	Energy and water efficiency as part of the Sustainability Plan* of the company.
Apple	Senior Notes US$ 1,500 MM 7 years	USA	Opinion - Sustainalytics	Renewable energy, sustainable buildings, and waste management
BRF	Senior Notes EUR 500 MM 7 years	Brazil	Opinion - Sustainalytics	Energy and water efficiency, GHG emission reduction, waste management, use of sustainable and efficient packing, forest management, and reduction of the use of raw materials.
SUZANO Papel e Celulose	Senior Notes US$ 500 MM 10 years	Brazil	Opinion - Sustainalytics	Forest management, restoration of native forests, establishment of environmental protection areas, energy efficiency, renewable energy, water management, and GHG emission reduction.
Sodra	Senior Notes SEK 1 bi 5 years	Sweden	Opinion – CICERO	Expansion of a pulp plant.

** Sustainable Living Plan*

3.3. Companies with exclusively green business (pure play)

In the case of companies with exclusively green business[14] (pure play) the resources raised with Green Bonds can be used for general purposes, without specifying any of the projects that will be financed with the resources. However, in case the company starts new activities or enters into new businesses, it is recommended to specify which projects will be financed.

[14] Exclusively dedicated to the implementation of Green Projects.

Use of proceeds

Proceeds are intended for the company's overall business, without the need to specify the projects or assets that will be financed.

Issuance process

The most recent update of the Green Bond Principles (2016) advises this type of company to follow the guidelines valid for all Green Bond issuers, so that there will be no different levels of transparency regarding the use of resources, environmental performance indicators, and reporting to investors and the market.

External review

In this model, the Review focuses on the company's environmental credentials as a whole. It is common to use Ratings provided by specialized research and rating agencies.

Sectors with the highest potential

Companies with predominantly green businesses belong more frequently to the sectors of Forestry, Renewable Energy, Sanitation, Waste Management and Clean Transportation.

TABLE VIII – Examples of Green Bonds issued by mostly green companies

Issuer	Financial Instrument	Country	External review	Use of proceeds
Xinjiang Goldwind Science and Technology	Debenture US$ 300 MM 3 years	China		General business of the wind energy company
Vestas	Senior Note EUR 500 MM 7 years	Denmark	Opinion – DNV GL	General business of the company, manufacturer of wind turbines.
Sveaskog	Senior Note SEK 300 MM 5 years	Sweden	Opinion – DNV GL	General business of the company, which has 14% of the Swedish forests and is dedicated exclusively to forestry services.

3.4. Financial institutions

Financial institutions can play a distinctive role in the Green Bond market, since they can act as Issuers, Underwriters or Investors.

As Issuers, financial institutions can issue bonds to finance or refinance their own Green Projects, just like other companies. An example is the implementation of a comprehensive energy efficiency program in their administrative units, data centers, or branch network.

Financial institutions can also issue Green Bonds to finance their clients' Green Project portfolios (green lending or green financing).

Commercial and development banks stand out as the most important financial institutions in the international Green Bonds market.

Use of proceeds

Proceeds are allocated for financing or refinancing their own Green Projects or portfolios of Green Projects from their clients.

Issuance process

It follows the procedures set out in Chapter 2, including the definition of the eligibility criteria, the selection of the Green Projects (their own or their customers' projects), definition of the environmental performance indicators, conduction of External Review, and reporting.

In this model, it is essential for the credibility of the issuance that the social and environmental responsibility policies and practices established by the financial institution are consistent with:

- The evaluation of the eligibility criteria for selecting the green loan portfolio.
- The decision-making process adopted by the financial institution to select and evaluate the Green Projects that will receive the proceeds.

In cases where Green Bonds are issued for financing or refinancing a portfolio of clients and where confidentiality agreements, competitive considerations or a large number of underlying projects limit the amount of information that can be made available, reporting can be presented on an aggregated basis.

When it comes to financing or refinancing Green Projects of the financial institution itself, the issuance process will be similar to the one indicated in items 3.1 and 3.2, applicable to companies in general.

External Review

The External Review must analyze the eligibility criteria for Green Projects in the institution's portfolio. It can also include the review of social and environmental risk assessment policies and processes, as well as the assessment of the history of projects financed by the financial institution.

Sectors with the highest potential

International experience shows that the issuance of Green Bonds by financial institutions mainly finance portfolios of loans for Renewable Energy, Energy Efficiency, Clean Transportation, Low Carbon Agriculture and Sustainable Buildings.

TABLE IX – Examples of Green Bonds issued by financial institutions

Issuer	Financial Instrument	Country	External review	Use of proceeds
Bank of America	Senior Notes US$ 1.1 bi 3 years	USA	Verification - PwC	Financing of renewable energy and energy efficiency projects, within the US$ 125 billion multiannual program for environmental commitment.
Berlin Hyp	Pfandbrief* EUR 500 MM 7 years	Germany	Opinion - Oekom	Sustainable building mortgages.
ABN AMRO	Senior Notes EUR 500 MM 6 years	Netherlands	Opinion - Oekom Certification - Climate Bonds Certification	Residential and commercial real estate loans, green loans for the installation of solar panels in residential buildings.
ANZ Bank	Senior Note AUD 600 MM 5 years	Australia	Checks - EY Certification - Climate Bonds Certification	Refinancing of green buildings (40%) and loans for wind and solar power plants (60%).

** Pfandbriefs are covered bonds issued by banks in Germany, with collateral and guarantee in contracts of real estate loans. They are considered the safest credit instrument second only to the German Government bonds.*

3.5. Participation of development banks or multilateral entities

Development banks can leverage the growth of the Green Bond market in several ways, regardless of the issuance model. They may act, for instance, in the following ways:

- Promotion of the market, being the first movers and currently the largest Issuers.
- Enhancement of the Issuer credit profile by giving guarantees, which can significantly increase the ratings and attract more conservative investors.
- Advisory to the Issuers in the process of structuring and issuance of Green Bonds. The IFC (International Finance Corporation), for instance, encourages Issuers to define the eligibility criteria for their Green Projects based on their guidelines for Green Bonds and on their performance standards, which may include a certification program for sustainable buildings developed by the bank.

- Acting as anchor investors, guaranteeing the purchase of a substantial part of the Green Bonds at the time of the issuance as a way of signaling the reliability of the green credentials of the Project to other investors. In June 2016, the IFC launched a US$ 2 billion fund dedicated to anchor investments in Green Bonds originated from emerging markets and issued by financial institutions.

TABLE X – Examples of Green Bonds issued with the participation of development banks

Issuer	Financial instrument	Country	External review	Use of proceeds	Participation of the development bank
YES Bank	Infrastructure Bond INR, listed in London 5 years	India	No	Loans for renewable energy.	IFC - Investment commitment of US$ 50 MM in the Green Bonds program of YES Bank
Industrial Development Bank of Turkey (TSKB)	Bond REGS/S US$ 5 years	Turkey	Opinion - Sustainalytics	Financing of climate change mitigation and adaptation and sustainable infrastructure.	IFC - US$ 50 MM of US$ 300 MM
Punjab National Bank (PNB) Housing Finance	Secured Debentures (Project Debentures) INR	India	No	Financing of 62 sustainable building projects.	IFC - Total of the issuance: INR 5 bi (US$ 74.7 MM) Use of IFC EDGE to choose eligible projects.
Inter-American Development Bank (IDB)	Asset Backed Securities (ABS) US$ Not issued yet	Mexico	No	Securitization of energy efficiency projects	IDB - Facilitation, standardization, structuring, and brokering. US$ 217,000,000 from the Green Climate Fund (GCF) of the United Nations, of which US$ 20,000,000 was used for the pilot program to be expanded to other countries in Latin America.
AP Renewables Inc. (APRI)	Climate Bond PHP 10.7 bi (US$ 225 MM)	Philippines	Certification - Climate Bonds Initative	Financing of geothermal energy facilities (Tiwi-MakBan project)	ADB Asian Development Bank – Partial guarantee for credit enhancement (75% of principal and interest on the bond)

4

POTENTIAL OF A GREEN BOND MARKET IN BRAZIL

The assessment of the potential market in Brazil has been developed by identifying the sectors with the greatest potential to develop Green Projects that could receive resources from Green Bonds issuance.

According to a study by the Climate Bonds Initiative (CBI)[15], in July 2016 there were US$ 2.9 billion in the Brazilian fixed income securities market with positive environmental characteristics, including those labeled and not labeled as Green Bonds.

As a consequence of the growth potential and abundance of natural resources in Brazil, there is great potential for issuance of Green Bonds by the agribusiness, forestry and energy sectors.

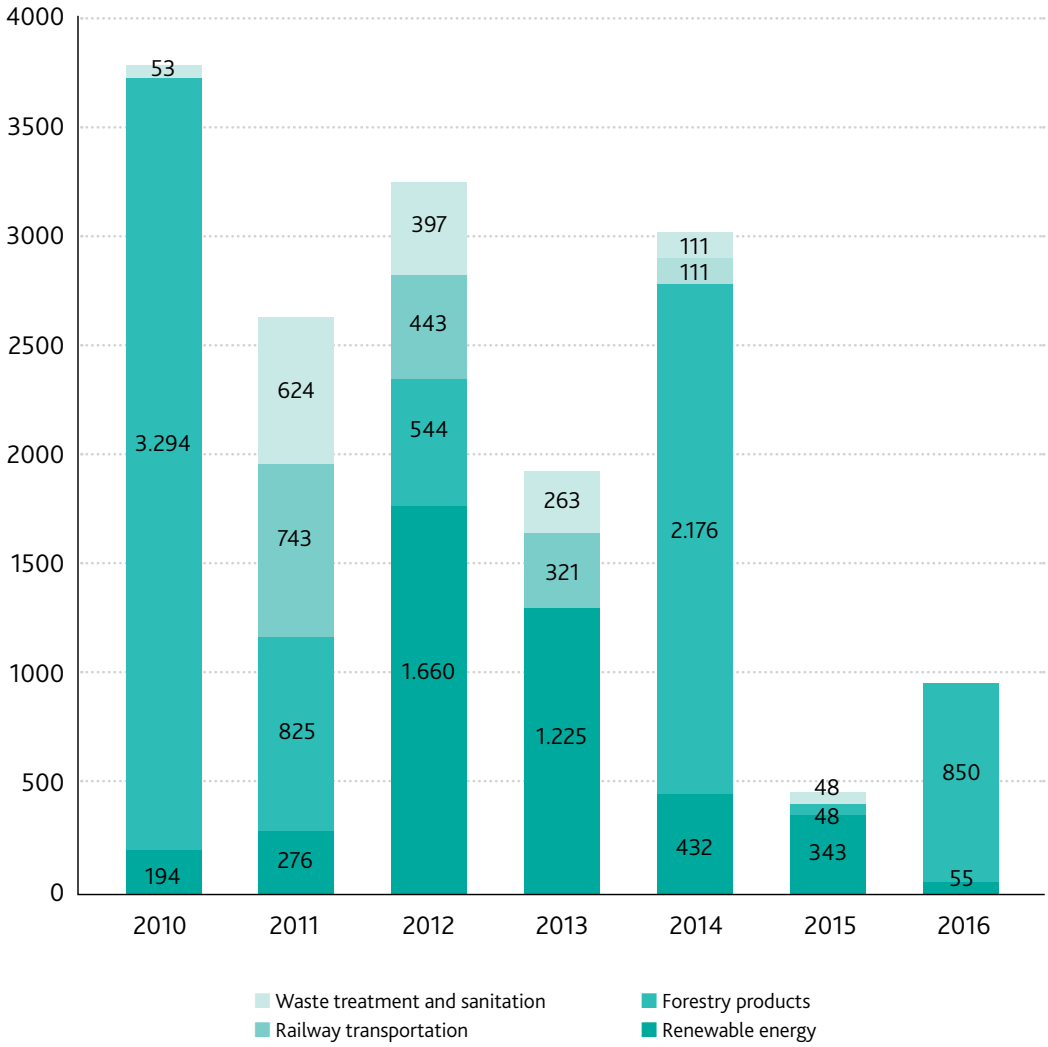
The need for investments in infrastructure in the country also points to opportunities in the transportation, construction, and sanitation sectors.

These sectors are key to the economic growth and transition to a low-carbon economy in Brazil. Green Bonds represent a great opportunity to direct capital investment necessary to achieve the objectives of fighting climate change established at COP21[16] through the Paris Agreement.

Financial institutions can also become large Green Bond issuers and use the proceeds to finance companies without access to the capital market, thus contributing to the development of a green economy.

[15] CBI, State of the Market 2016.
[16] 21st Conference of the Parties (COP21) of the United Nations Framework Convention on Climate Change (UNFCCC) held in December 2015 in Paris.

FIGURE I – Fixed income securities with green attributes issued by brazilian companies since 2010 (R$ millions)



Source: Bloomberg. Prepared by SITAWI – Finance for Good.

The corporate fixed income securities issued by Brazilian companies since 2010 were analyzed and all issuances from the Forestry Products, Renewable Energy, Railway Transportation, Waste Treatment and Management of Water Resources sectors were highlighted, since these are sectors whose projects are likely to be eligible for the issuance of Green Bonds.

4.1. Agribusiness

One of the goals proposed by the Brazilian Government in the so-called ABC Plan (The Low Carbon Agriculture Plan)[17] is the recovery of 15,000,000 hectares of degraded pasture and the adoption of 4,000,000 hectares of integrated production systems (crops, livestock, and forest) by 2020.

The commitments to reduce Greenhouse Gas (GHG) emissions undertaken in Brazil in the context of the COP 21[18] sum up to the goals of the ABC Plan and are supported by two fundamental pillars:

a. Land use: expand the use of integrated production systems, recover degraded areas, and eliminate illegal deforestation, and
b. Energy: expand the participation of renewable energy sources in the Brazilian energy matrix and achieve energy efficiency gains in the electric power sector.

4.2. Forestry products

Brazil is already one of the largest exporters of pulp and paper in the world. The combination of a favorable exchange rate for exports and strong demand could further stimulate the issuance of Green Bonds in this sector.

The environmental credentials for issuances in this sector are based on three main factors[19].

Carbon sequestration

The sector has a very important role due to the capacity of forests to store carbon. The International Council of Forest and Paper Associations (ICFPA) estimates that the contribution of the forests and land use for mitigation represents 20% to 25% of the global reduction goals of GHG emissions. The 7,740,000 hectares of eucalyptus, pine, and other species planted for industrial purposes in Brazil absorb 1.69 billion tons of CO2 from the atmosphere, equivalent to one year of national emissions. The planted forests also provide renewable raw materials for the power generation sector, replacing the use of fossil sources, and contributing to the reduction of GHG emissions. Fuel oil represents less than 6% of the sector's energy matrix, being replaced by biomass and by-products, such as black liquor.

Recovery of degraded areas through planted forests

According to estimates by IBÁ (The Brazilian Tree Industry Association), the industry preserves 5,400,000 hectares of land in the form of Permanent Preservation Areas (APP - Áreas de Preservação Permanente), Legal Reserve Areas (RL - Reserva Legal), and Private Natural Heritage Reserves (RPPN - Reserva Particular do Patrimônio Natural).

[17] The Sectorial Plan for Mitigating and Adapting to Climate Change for the Consolidation of a Low-Carbon Economy in Agriculture - the ABC Plan is one of the sectoral plans drawn up in accordance with article 3 of the Decree nº 7,390/2010. It is composed of seven programs, six of them related to mitigation technologies, and one last program with actions to adapt to climate change: Program 1: Recovery of Degraded Pastures; Program 2: Integration Crop-Livestock-Forest (iLPF) and Agroforestry Systems (SAFs); Program 3: Zero Tillage Systems (SPD); Program 4: Biological Nitrogen Fixation (BNF); Program 5: Planted Forests; Program 6: Animal Waste Treatment; Program 7: Adaptation to Climate Change.
[18] The commitment made by Brazil, expressed in the Nationally Determined Contribution (NDC) is to reduce GHG emissions by 37% compared to 2005 levels by 2025 and subsequently by 43% compared to 2005 levels by 2030.
[19] All the data presented come from the statistics of the Indústria Brasileira de Árvores (Brazilian Industry of Trees - IBÁ).

Certification

The growth of areas certified against sustainability standards such as the FSC[20], along with the increase in recycled paper content and byproducts, are relevant examples of positive activities from an environmental point of view. More than 60% of commercial forest planting in Brazil is certified, enforcing industry best practices.

Suzano Papel e Celulose, one of the largest Brazilian pulp and paper producers, issued its first Green Bonds in July 2016, worth US$ 500 million with BB + rating and coupon of 5.75%. The resources of the issuance will be used for management activities of the company's forests (which owns an attested forest management certification), conservation, energy efficiency, waste treatment and renewable energy projects.

4.3. Renewable energy and energy efficiency

The share of renewable sources in the Brazilian energy matrix is among the highest in the world. Currently, more than 41% of the energy supply in the country comes from renewable sources[21]. Looking only at the generation of electric power, the share from renewable sources is even higher, accounting for 75.5% of the total. The investment in new renewable energy projects and assets in Brazil amounted to US$ 7.7 billion in 2015 and is expected to continue growing, with the exception of large hydroelectric power plants.

The 10-year Energy Plan for 2015 to 2024 by the Brazilian Energy Research Company (Empresa de Pesquisa Energética - EPE, 2015) estimates the investment needed in SHPs (Small Hydro Plants) and in wind, solar, and biomass power generation in aforementioned period at R$ 155.8 billion, corresponding to 58% of total investment in electric power generation.

According to a recent market analysis by the Climate Bonds Initiative, the Green Bonds that finance Renewable Energy projects account for 42.8% of the total issuance of bonds labeled as Green in the world. This type of bond can become the natural instrument of (re)financing this industry, including in Brazil.

In line with the 10-year Energy Plan, the goals for reducing domestic Greenhouse Gas (GHG) emissions include increasing the proportion of wind, solar, and biomass power generation to at least 23% of the domestic energy supply[22], in addition to an increase of 10% in energy efficiency in the electric power sector by 2030. Data from the National Energy Balance (2016) shows that from 2014 to 2015 wind power generation in Brazil grew by 77%, reaching 21.6 TWh. Solar power generation almost doubled in the same period. However, despite its potential, it still represents an insignificant portion of the Brazilian energy matrix (less than 1%).

[20] Forest Stewardship Council.
[21] Energy Research Company (*Empresa de Pesquisa Energética* - EPE) - National Energy Balance (*Balanço Energético Nacional* - BEN), 2016.
[22] In 2015, the supply of solar, wind, and biomass power in the Brazilian electric power matrix represented 11.6% of electric power generation in the country (BEN, 2016).

Cities are among the biggest consumers of energy in the world, accounting for more than 70% of Greenhouse Gas emissions. According to a World Bank study, almost one-fifth of the energy efficiency target could be achieved with the introduction of LED technology in Brazil's public lighting. The issuance of Green Bonds by local utilities or public-private partnerships (PPPs) could contribute to this investment.

As an example of the potential of Green Bonds in the domestic market, it can be noted that 23% of the non-labeled Green Bonds were issued by companies in the energy sector from various sources, including:

- Wind power
- Small Hydroelectric Plants (SHPs)
- Solar Power
- Biomass

4.4. Clean transportation

According to a study by the Climate Bond Initiative (2016), more than half of Brazilian bonds with positive environmental features, but not labeled as Green, are dedicated to financing transport solutions. This includes rail and subway solutions for public transportation such as subways and commuter rail, logistics, and freight. The second phase of the Plan of Investment in Logistics (PIL) in Brazil, launched in 2015, estimates that new railway concessions would need investments of R$ 86.4 billion, representing a great opportunity for the development of the Green Bond market.

4.5. Management of water resources

Due to the nature of the assets related to drinking water and sewage treatment, almost all issuances of fixed income securities that finance basic sanitation works could be promoted as Green Bonds. In the international market, they represent a very popular sector in the municipal green bond market.

The National Basic Sanitation Plan for 2014 predicts the need for investments in drinking water supply and sewage of R$ 87.5 billion in 5 years, R$ 168.2 billion in 10 years, and R$ 304 billion in 20 years.

4.6. Other sectors

Green Bonds may also be issued by companies operating in several industrial sectors to finance their Green Projects.

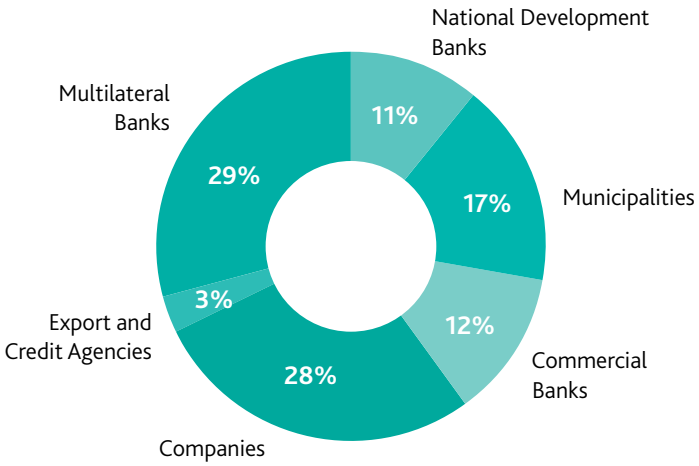
BRF, Brazilian food producer, issued EUR 500 million of 2.75%, BBB-rated Senior Notes in May 2015. It was the first Green Bond of a Brazilian company and the proceeds financed projects of water and electricity consumption reduction, Greenhouse Gases (GHG) and waste generation reduction.

5

INTERNATIONAL TRENDS

Until 2012, the only Issuers of Green Bonds were multilateral development banks. Companies, municipalities, export and credit agencies, and since then commercial banks have significantly increased their participation as Issuers of this type of bond. As shown in the figure below, the issuances by private companies are reaching the accumulated value of the issuances by multilateral banks.

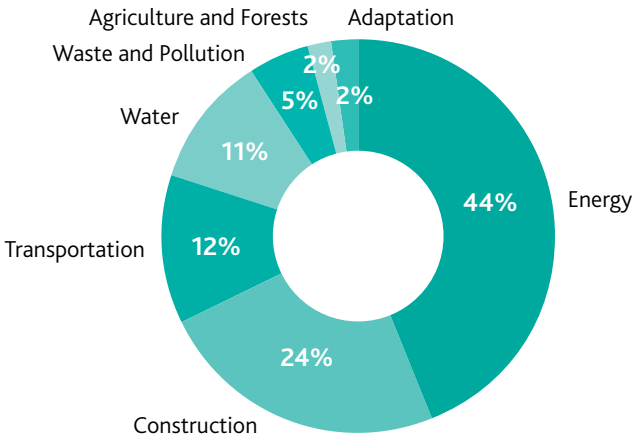
FIGURE II – Accumulated issuances of labeled Green Bonds by type of issuer



Source: Climate Bonds Initiative (CBI), 2016.

Regarding the use of the resources raised with the issuance of Green Bonds, the energy sector still prevails, but the transportation and construction sectors have a significant recent growth, especially in light of the issuance of Chinese bonds.

FIGURE III – Use of the resources of labeled Green Bonds by sector

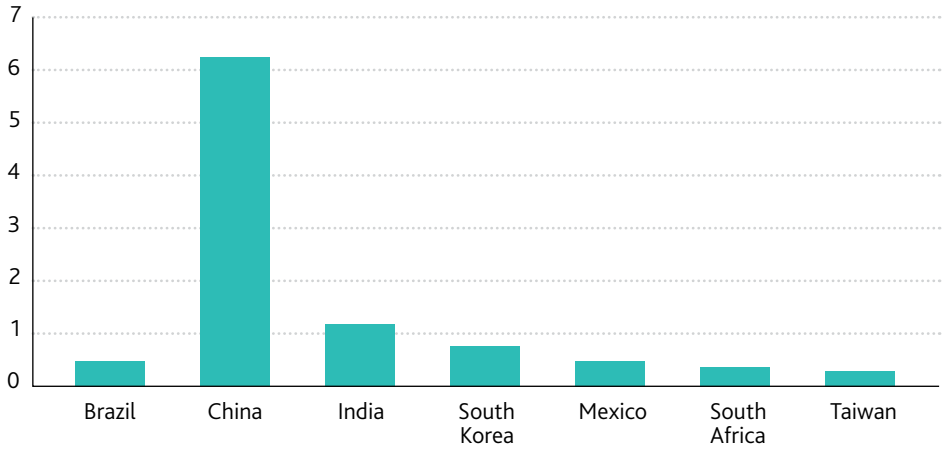


Source: Climate Bonds Initiative (2016)

5.1. Expansion in emerging markets

Since 2007, Organizations from developing countries have issued US$ 10 billion in Green Bonds. Currently, the Chinese and Indian markets are among the ones with the fastest growth, mainly due to the explicit support of their national governments.

FIGURE IV – Issuances in emerging countries from 2007 to 05/2016 (US$ billions)



Source: CICERO - Green Bonds and environmental integrity: insights from CICERO Second Opinions, 2016.

5.2. Standard guidelines to categorize Green Bonds

An example of the importance of Green Bond Issuers to provide public and standardized information is the fact that Bloomberg, the leading global provider of financial information, recently announced that it will collect and publish additional data on Green Bonds, with the purpose of increasing the transparency of that market, still under development. Today, in addition to identifying the papers as Green in the "use of proceeds" field, the platform displays four additional data fields that indicate:

- Selection of projects: If the Issuer has indicated a process that is in line with the Green Bond Principles
- Resource management: If the Issuer controls the use of proceeds
- Reporting: If there is a report with at least annual frequency
- External Review: What type of external review the issuance has, i.e. Opinion, Verification, Certification, or Green Rating.

5.3. Other trends

- High demand: The Green Bonds offered are being quickly placed in the international market, indicating a strong demand for this type of Bond. Some investors, including large global asset managers,[23] have already created dedicated funds of Green Bonds, but there is a shortage of issuances to keep up with the demand of this type of investor, which require papers with liquidity, in multiple currencies, and with different maturities.
- Standardized issuance program: Several issuers, especially financial institutions, have chosen to launch programs to issue series of Green Bonds, i.e. they plan to perform multiple issuances at different times within the same approach and with the same criteria for the selection of projects.
- Green Projects for adapting to climate changes: The multilateral development banks and municipalities include more and more project with climate change adaptation components in their Green Bonds.
- Frequent reporting with quantitative indicators: Periodic reports on the financed projects are becoming standard, with growing interest in the inclusion of quantitative impact indicators. Standard guidelines for this type of report were developed in 2015 by major multilateral banks which were presented in a publication and were considered in this guide.

[23] State Street, Allianz, AXA and Blackrock, SEB, Storebrand/SPP.

GLOSSARY

Green Projects: Projects with positive environmental or climate-related attributes. The projects suitable for the issuance of Green Bonds (new or existing) are referred to as Green Projects.

Fixed Income Securities: securities with remuneration in defined periods and with certain profitability conditions at the time of application.

Green Bonds: Fixed Income Securities used to raise funds in order to finance or refinance projects that have positive attributes of climatic or environmental nature.

In the Brazilian market, the fixed income securities subject to public or private distribution have the potential to fall into the category of a Green Bond.

Market players:

External Review Agents: institutions with technical skills in the environmental area that assess and verify or certify the environmental sustainability features of the projects for which the resources raised will be allocated. Generally the agent provides details to investors about the characteristics of the investment, pointing out the reasons why the project is fit for a Green Bond issuance. They can analyze the environmental performance of the issuer, discuss the main questions about the Green Project, and evaluate the ability of the issuer to mitigate the potential risks of the project. In addition, they can also review the monitoring reports, which present the environmental performance indicators and indicate the allocation of resources in the Green Projects. Conventional fixed income securities are not subject to this assessment.

Fiduciary agents: Named on the indenture of the public issuance of some bonds to ensure the rights and interests of investors. In the case of the public issuance of debentures, for example, it represents the community of debenture holders. At the structuring phase of the issuance, these agents check if documentation and remuneration clauses are correct. Once the bond is issued, they also monitor the company reports and calculations for paying the investors by issuing annual reports and working until all debts are paid. The fiduciary agent can be either a natural person or a legal entity, provided they are authorized by Brazil's Central Bank to perform this function.

Rating agencies: Agencies that provide credit ratings, research, tools, and analysis, which contribute to transparency and integration of financial markets, thus they hold importance in the capital market. It is important for the Green Bond issuer to obtain a credit rating from a Rating Agency, because in addition to bringing more transparency and credibility to the issuance and therefore greater confidence to the investors, it reflects an independent assessment on the credit quality of the issuer, which can contribute to the success of the issuance and generate liquidity for their bonds.

In addition to the traditional function of assigning credit ratings, the rating agencies have started structuring environmental assessment processes related to project selection criteria and / or projects funded by the Green Bonds, in order to assign a specific rating on the Green Bond characteristics and not on the Issuer's credit profile.

Regulatory and supervisory agents: Entities and agents responsible for control, standardization, and enforcement in the capital markets. In Brazil, operations related to public distribution of securities and fixed income bonds are subject to the rules and registration of the Brazilian Securities Commission (CVM), and the Central Bank of Brazil (BACEN). Other bodies such as the Private Insurance Superintendence (*Superintendência de Seguros Privados* - SUSEP) and the National Superintendence of Pensions (*Superintendência Nacional de Previdência Complementar* - PREVIC) also control the actions of the members of the financial system and capital market. The issuance of Green Bonds in Brazil must follow the same rules of the capital market in the country.

Legal Advisors: The issuer usually hires a law firm to assess the legal aspects of the issuance of the fixed income security, assist in the preparation of drafts of the writ and other legal documents, as well as to perform legal due diligence, where the contracts and other obligations undertaken by the company and are of interest to prospective investors will be checked. In some cases the Banks may hire their own external law firm to assist the lawyer hired by the company. At the end of the process they issue a Legal Opinion, ensuring compliance with the applicable regulations, both before and up to the date of issuance. Hiring an external legal opinion is not mandatory, but can ensure greater legal security and credibility to the process.

Financial Auditors: Auditors that perform specialized audits to analyze financial and operational information in accordance with international standards, such as the International Standard on Assurance Engagements 3000 (ISAE 3000). The accuracy of the work of the auditor warrants quality and independence, and ensures that their actions are genuinely independent from the bond issuer. In addition, the work of the auditors provides investors with confidence that the processes of monitoring and management of the resources are sound, as these agents check if the financial information object of the prospectus of issuance and the supplementary documents correspond to the audited financial statements. Hiring a financial auditor is not mandatory, but can ensure greater credibility to the bond issuance operation.

Underwriters: Financial institutions (e.g. banks, investment banks, brokerage houses, securities distributors) which assume a major role in the issuance of the bond. They are hired by the issuer to act as underwriters of the operation, being responsible for the development of the structure, price, launch of the bond on the market and placement with the investors. The structuring of operation relies on the definition of the characteristics of the bonds, such as term, interest coupon, and principal coupon. It includes the presentation of the operation to potential investors ("roadshow"), and depending on the interest, the development of the registration process of the purchase intentions of investors ("bookbuilding"). The price of the bond is set after the "bookbuilding" process so that it is appealing to both the issuer and the investor. The issuing operations are usually performed by a consortium of institutions under the coordination of a leading institution, which can also act as guidance counselor (advisor) of the issuer of the Green Bond.

Issuers: Institutions that have a potential project with environmental / climate benefits and opt for issuing Green Bonds to raise funds, conducting the processes of this emission mode. The major issuers in the international market are private companies, supranational institutions, and multilateral development banks. In addition to these participants, government agencies and financial institutions (public and private), can also raise funds via the issuance of Green Bonds.

Investors: The characteristics of the Green Bonds are attracting the attention mainly of institutional investors (e.g. pension funds, mutual funds, investment funds, foundations, insurance companies, investment banks, asset managers) that have long-term profit goals. Investors focused on environmental, social and governance (ESG) aspects are part of this category, and are natural investors in Green Bonds.

Systems of Registration, Settlement, and Trading of Securities: Organized environments for registration and electronic trading for purchasing and selling stocks and securities, including fixed income securities. They also fulfill the role of providing greater liquidity, transparency, and security to the capital market business.

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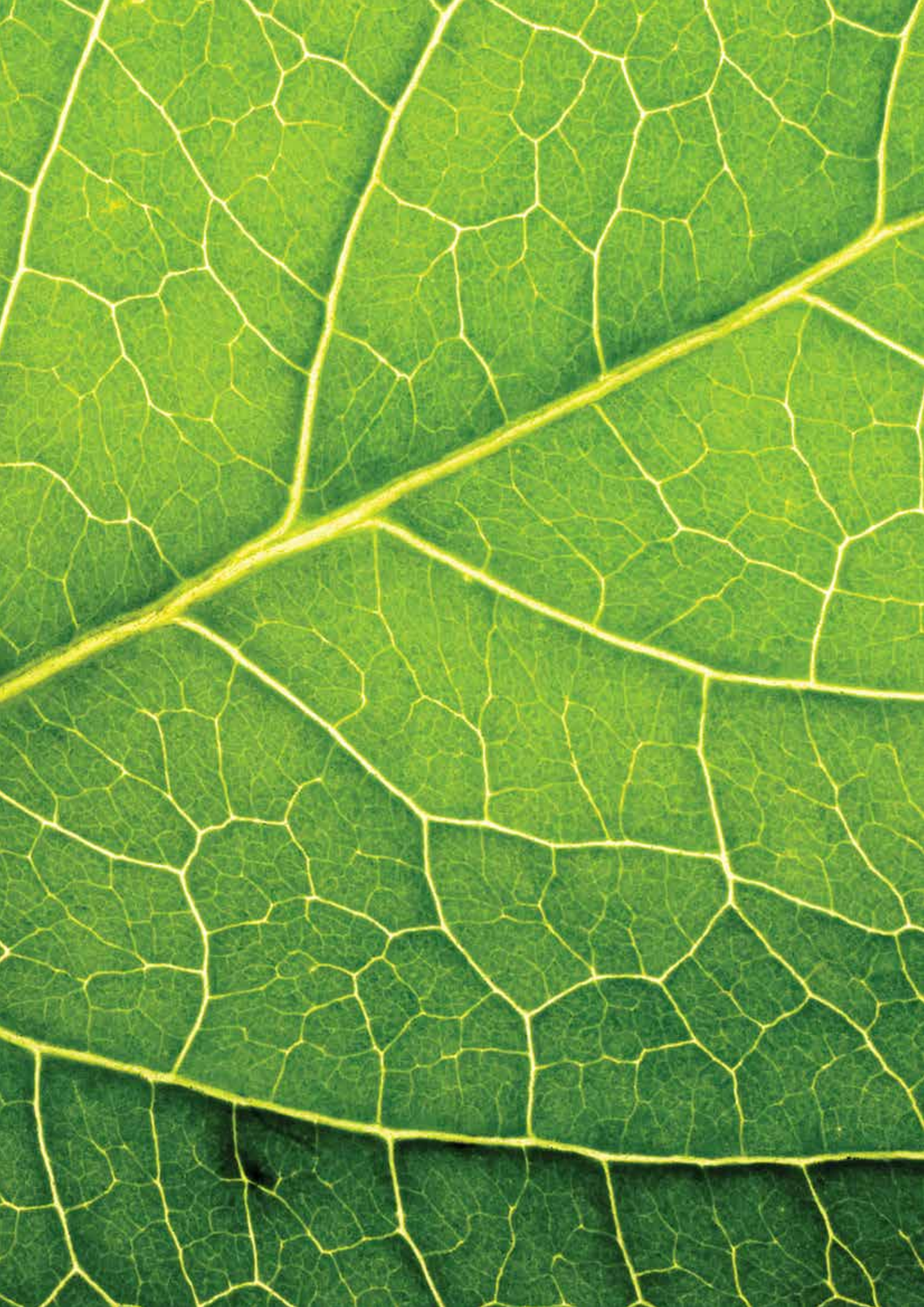

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