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Financing for climate change in Latin America and the Caribbean in 2014

Joseluis Samaniego
Heloísa Schneider

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Project Document

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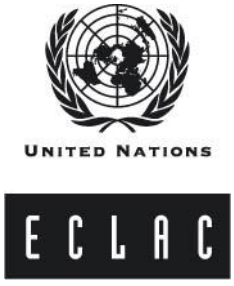

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Joseluis Samaniego
Chief, Sustainable Development and Human Settlements Division

Ricardo Pérez
Chief, Publications and Web Services Division

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Introduction

Quantifying the resources mobilized to tackle climate change makes it possible to ascertain the region's status in this area and the opportunities it offers. It provides countries with the detailed information they need to move forward and prepare to meet the objectives of the United Nations Framework Convention on Climate Change (UNFCCC).

With accurate, up-to-date information on climate finance flows, countries can define their strategies for the transition to more sustainable development scenarios with a smaller environmental footprint and fiscal agents can identify gaps between supply and demand for specific financial instruments. The hope is that, rather than investment by fund providers and managers in sustainable initiatives with a smaller environmental footprint being an exception or anomaly, it will become a business model that gradually decouples economic development, investment and social inclusion from greenhouse gas (GHG) emissions.

Climate finance and other environment-related investment are still seen as niche responses requiring specialist funds and institutions to address specific issues, including global warming. To remedy this, Governments and financial institutions have created parallel systems to conventional financing. However, climate change is not a niche problem and, over the decades, it has become apparent that is it the financial system itself, in the broadest sense, that should be reformed to incorporate into the economic institutional framework the cost[1] of following unsustainable development paths. The economic approach to niche financing, or climate finance, has still not been updated and continues to be based on lists of activities that are deemed to have less of a climate impact or that contribute to adaptation. It is an approach based on "pilots", rather than moving towards financing that factors in the carbon footprint of projects, converted to economic value in order to internalize externalities in the cost to the economy, i.e. in investment.

So, for the second year running the Economic Commission for Latin America and the Caribbean (ECLAC) has set out to quantify climate finance flows to Latin America and the Caribbean to provide timely information for determining the region's status in this area. Available data are still not optimal. In addition, lack of infrastructure for the storage and systematization of environmental information, in general,

[1] Taxation is making gradual —but as yet modest— progress and Latin America's development and private banks are still failing to evaluate the social cost of carbon in their investments.

and climate information, in particular, coupled with a lack of shared concepts and harmonized quantification methods, has undermined information quality, completeness and timeliness. One thing that is clear, though, is that the region is fully embedded in climate finance flows and has managed a significant amount of finance for this purpose, both from domestic sources (national budget or national development banks) and from multilateral banks and international donors and funders.

In 2014, the total amount of assistance from the various climate financing instruments for which it was possible to disaggregate information for Latin America and the Caribbean was US$ 21.219 billion. This includes only resources approved in 2014 by national and international public entities. It does not include funding from private sources, foundations or non-governmental organizations (NGOs), or from pension and insurance funds, although the final section of this document does discuss pension and insurance funds generally in terms of their potential as sources of additional finance. The document does not post data on official development assistance (ODA) because the data currently available relate to 2013 and ODA counts only committed funds.

Table 1 shows the structure of climate finance in Latin America and the Caribbean in 2014, identifying sources and comparing them with 2013. The institutions that mobilized the most climate finance in the region were national development banks, with 56% of all such operations in 2014, compared with 60% of the total in 2013. They are followed by multilateral banks whose performance was the reverse. While in 2013, they accounted for 28% of all resources mobilized, in 2014 this rose to 35%.

Table 1
Climate finance in Latin America and the Caribbean in 2014 and 2013
(Millions of current dollars)

Year		Climate funds	Multilateral banks	National development banks	Other national resources	Total
2014	Total amount	337.61	7 323.01	11 858.37	1 699.88	21 218.82
	Percentage of total	1.3	34.6	56.1	8.0	100.0
2013	Total amount	294.80	5 486.64	11 884.00	2 110.65	19 776.08
	Percentage of total	1.5	27.8	60.1	10.7	100.0

Source: prepared by the authors, on the basis of data from the respective institutions.

While finance from national development banks remained stable in absolute dollar terms, there were exchange rate variations in local currencies, altering the amount of funding received. For instance, in Brazil, while the real (R$) traded at R$2.16 per dollar in 2013, it traded at R$ 2.39 in 2014. In Mexico, the reverse was true. While, in 2013, the Mexican peso (Mx$) traded at Mx$ 13.1, in 2014 it traded at Mx$ 12.77.

As regards multilateral banks, the regional Inter-American Development Bank (IDB) and Development Bank of Latin America (CAF) together accounted for more than US$5 billion. IDB mobilized US$2.491 billion (12% of the total), while CAF mobilized US$2.809 billion (13.3% of the total).

As regards countries, Brazil mobilized the largest amount of resources, through the National Economic and Social Development Bank (BNDES), as well as the Amazon Fund, Low-Carbon Agriculture (ABC) Programme and Climate Fund. Brazil received 67% of total resources, followed by Peru with 7%, Colombia with 3.9% and Ecuador with 3.2%. Table 2 shows resource distribution among countries according to source.

For three Caribbean countries (Antigua and Barbuda, Saint Kitts and Nevis and São Tomé and Príncipe), the sources reviewed contained no information on financing initiatives for tackling climate change. However, this does not necessarily mean that no such initiatives exist in these countries as they may have been conducted by institutions other than those analysed.

Table 2
Climate finance flows to Latin America and the Caribbean in 2014, by funding source
(Millions of dollars at 2014 prices)

Country	Climate funds[a]	Multilateral banks					National development banks				Total	Percentage of total
		World Bank[b]	Inter-American Develop-ment Bank (IDB)	Develop-ment Bank of Latin America (CAF)	European Invest-ment Bank (EIB)[c, d]	Central American Bank for Economic Integra-tion (CABEI)[e]	National Economic and Social Develop-ment Bank (BNDES)[f]	BANCOLDEX[g]	Nacional Financiera (NAFI)[h]	Other national resources[i]		
Regional programmes	18.39	24.0	19.2	426.44		0.01					488.01	2.3
Argentina	6.92		8.8	311.12							326.84	1.5
Barbados			0.5								0.50	0.0
Belize	5.64		27.0								32.68	0.2
Bolivia (Plurinational State of)		70.0	9.7	75.11							154.84	0.7
Brazil	56.98	423.0	390.4	470.31	242.82		11,629			1,014.23	14 227.25	67.1
Chile	51.70	3.0	173.4	5.28	182.12					8.0	423.50	2.0
Colombia	21.53	203.0	5.8	50.20				18.627		527.5	826.62	3.9
Costa Rica	16.90		3.6			1.73					22.23	0.1
Cuba	6.07										6.07	0.0
Dominica	22.73	17.0									39.73	0.2
Dominican Republic			75.5	0.00						147.75	223.24	1.1
Ecuador	1.78	305.0	185.3	177.21	-						669.25	3.2
El Salvador	3.60		1.1			7.14					11.84	0.1
Guatemala	3.60		33.5			1.35					38.47	0.2
Guyana	3.80	21.9	37.7								63.44	0.3
Haiti	8.00	95.0	23.7								126.70	0.6
Honduras	30.52		50.6			1.72					82.83	0.4
Jamaica	1.25	42.0	18.5								61.75	0.3
Mexico	24.81	3	288.4	0.02	182.12				210.27	2.403	710.99	3.4
Nicaragua		30.0	15.6			5.59					51.16	0.2
Panama			3.8	201.12							204.95	1.0
Paraguay	2.20			50.00							52.20	0.2
Peru	13.11	120	883.9	471.09							1 488.10	7.0
Saint Lucia	28.00	41.0									69.00	0.3
Saint Vincent and the Grenadines	1.73										1.73	0.0

Table 2 (concluded)

Country	Climate funds[a]	Multilateral banks					National development banks				Total	Percentage of total
		World Bank[b]	Inter-American Development Bank (IDB)	Development Bank of Latin America (CAF)	European Investment Bank (EIB)[c, d]	Central American Bank for Economic Integration (CABEI)[e]	National Economic and Social Development Bank (BNDES)[f]	BANCOLDEX[g]	Nacional Financiera (NAFI)[h]	Other national resources[i]		
Suriname	0.20		20.9								21.10	0.1
Trinidad and Tobago	3.50										3.50	0.0
Uruguay			213.6	197.50							411.05	1.9
Venezuela (Bolivarian Republic of)	4.66		0.5	374.11							379.27	1.8
Total	337.61	1 397.9	2 491.0	2 809.51	607.05	17.55	11 629.47	18.63	210.27	1 699.88	21 218.82	100.0
Percentage of total	1.6	6.6	11.7	13.2	2.9	0.1	54.8	0.1	1.0	8.0	100	

Source: Prepared by the authors, on the basis of data from the respective institutions.

[a] Climate funds were considered to be bilateral and multilateral resources, such as the Global Environment Facility, Green Climate Fund and Climate Investment Funds and their subfunds, managed by agencies other than multinational development banks or local development banks. The climate funds include NAMA Facility resources for Mexico and Colombia, which were approved in 2014.

[b] Two databases were used: [online] http://www.worldbank.org/en/topic/climatefinance/overview#1 for specific climate change projects in Mexico and Chile and one project in Colombia; and [online] http://maps.worldbank.org/p2e/mcmap/map.html?code=LCR&level=region&indicatorcode=0553&title=Latin%20America%20And%20Caribbean&org=ibrd for other projects which, by their nature, were deemed to contribute to tackling climate change (other countries).

[c] See [online] http://www.eib.org/projects/loans/list/index.htm?start=2014&end=2014&region=ala&country=&sector=.

[d] Exchange rate: US$ 1,2141

[e] CABEI data relate to the Green MSMEs Initiative (for micro, small and medium enterprises).

[f] Exchange rate: 2,39 Brazilian real

[g] Exchange rate: 2,000 Colombian pesos

[h] Exchange rate: 12,777 Mexican pesos

[i] Other national resources. Brazil: data relate only to the Banco do Brasil share of the Low-Carbon Agriculture (ABC) Programme for the 2104/2015 harvest, which accounts for more than 90% of the total; other resources are managed by the National Economic and Social Development Bank (BNDES). Colombia: national adaptation fund to assist with adaptation measures for communities affected by La Niña ocean-atmosphere phenomenon in 2010-2011. Own resources for nationally appropriate mitigation actions (NAMAs) approved in 2014: Chile, Colombia, Dominican Republic and Mexico (the Dominican Republic's funding was divided by 15, which is the number of years the NAMA is expected to last. For the other countries, the total amount anticipated on the NAMA submission date was considered, given that the periods involved ranged from one to two years). Exchange rates: for 31 December 2014 in International Monetary Fund (IMF), "Representative Exchange Rates for Selected Currencies for December 2014" [online] https://www.imf.org/external/np/fin/data/rms_mth.aspx?SelectDate=2014-12-31&reportType=REP

A total of 84% of bank-managed funds were allocated to mitigation. As regards institutions, 44% of CAF funds were allocated to adaptation. Almost 100% of the funds of other institutions were allocated to mitigation (see table 3).

Table 3
Funds provided by Latin American regional and national development banks in 2014, by type of climate finance
(Millions of dollars at 2014 prices)

2014	Adaptation	Mitigation	Mitigation and adaptation	Technology	Other	Total
National Economic and Social Development Bank (BNDES)		10 729.36		4 724	900.1	11 629.5
Development Bank of Latin America (CAF)	1 246.50	1 101.14	105.32		356.6	2 809.5
Inter-American Development Bank (IDB)	108.85	2 382.00		2 269.70		2 490.9
Nacional Financiera (NAFIN)		210.27		210.0		210.27
BANCOLDEX		13.25		13.25	5.52	18.77
Central American Bank for Economic Integration (CABEI)		17.55				17.55
Total	1 355.35	14 453.58	105.32	7 217.64	1 262.18	17 176.42
Percentage of total	7.9	84.1	0.6		7.3	100.0

Source: prepared by the authors, on the basis of data from the respective institutions.
[a] Renewable energy, low-carbon energy generation, energy efficiency. It is part of mitigation and is included therein.

As regards financial instruments, 77% of funds were disbursed in the form of concessional loans. Guarantees are still not a major option (see table 4).

Table 4
Financial instruments providing climate finance to Latin America and the Caribbean in 2014
(Millions of dollars at 2014 prices)

	Loans		Guaran-tees	Soft loans	Grants	Other	Total
	Conces-sional	Non-concessional					
National Economic and Social Development Bank (BNDES)	11 205	250.0				175.0	11 630.0
Inter-American Development Bank (IDB)	161	2,003	127.0	200.0			2 491.0
BIE		607.05					607.1
Nacional Financiera (NAFIN)	210.3						210.3
BANCOLDEX	18.612					0.188	18.8
Central American Bank for Economic Integration (CABEI)		15.2			2.3		17.5
Total	11 595	2 268	127.0	200.0	2.3	175.0	14 974.614
Percentage of total	77.4	15.1	0.8	1.3	0.02	1.2	100.0

Source: Prepared by the authors, on the basis of data from the respective institutions.

As regards climate funds, the four funds comprising the Climate Investment Funds (CIF) provided a total of US$190.23 million in 2014. These, together with the Amazon Fund are the most important funds in terms of volume of resources. The country to have received the most CIF funding was Brazil, with 30% of the total, followed by Chile with 26%. The fund that disbursed the largest amount was the Clean Technology Fund (CTF), which provided USD68.75 million to two projects: one for Honduras and one for Chile.

In 2013, climate funds provided a total of USD145.84 million, distributed among seven projects. In the same year, CTF financed 85% of all resources from these funds, compared with 31% in 2014.

In Brazil in 2014, the Amazon Fund provided a total of US$72 million. As sole manager of the Amazon Fund, BNDES managed all these resources. To date, Brazil has been the only beneficiary of Amazon Fund resources.

Research revealed no information from private banks regarding environmental and climate-related issues and it was difficult to obtain public information from countries other than development-bank data. National budgets provide no heading for such issues, or for risk management, which is hardly encouraging given the climate change threats and vulnerability experienced by many countries in the region.

The sole exception is Colombia's national adaptation fund, which was not created specifically to tackle climate change but for sustainable rebuilding following the damage caused by La Niña ocean-atmosphere phenomenon in 2010-2011. These resources are posted as a separate item in the national budget. However, in Colombia too, the information relates only to funds budgeted but not to those actually accrued. The same is true of other resources managed as national climate funds but not of banks, which post financial flows but hold no information on the impact of projects financed.

The experience of the Latin American and the Caribbean Climate Finance Group (GFLAC) in 2014 in quantifying climate finance in Argentina and Chile bears this out.

The Argentina study concludes that there is only one budget item earmarked specifically for climate change —"Climate Change Status Survey: Third National Communication (funding from International Bank for Reconstruction and Development, no number)"— and that it is difficult to pinpoint specific climate change-related items for the sectors analysed (energy, forests and glaciers) because of the degree of aggregation in the national budget. All that can be found is large programmes with funds that do not specify a percentage for adaptation or mitigation activities or activities targeted at greenhouse gas-emitting sectors, nor do they specify the participation of implementing agencies (ministries/departments) (GFLAC, 2014a).

The Chile study covers the energy, agriculture and forestry sectors and concludes that the country still faces challenges in integrating more explicitly the relationship between energy, agriculture, forests and climate change at both programme and budget levels: despite resources being allocated to these sectors, they do not provide explicitly for tackling climate change. The study also concludes that, in the energy sector, even though no resources are earmarked specifically for climate change, funds for related activities do exist. An interesting finding was the large volume of natural gas subsidies for the Magallanes region of Chile, which received the largest budgetary allocation in both 2013 and 2014 in transfers to the State oil company (ENAP). Nor did the study identify any resources earmarked specifically for climate change in the agriculture and forestry sectors. However there is a budget for related activities, with resources allocated directly to the Ministry of Agriculture and its departments, or provided by the Treasury via the subsidy programme under the "government spending" heading (GFLAC, 2014b).

Investment decisions still fail to consider the climate variable. Rather, such initiatives arise as a result of countries' international commitments and their own environmental and climate policies but are not part of their normal development financing. Banks act only as implementing agencies. They

measure neither the impact nor the relevance of the finance. They ignore the social cost of carbon and instead treat climate finance as just another portfolio item.

This document also reveals the amount of potential climate resources available under the pilot-based approach, should the promises of recent years be kept, which would be substantial and far exceed the annual resources disbursed worldwide. Not to mention the opportunities that would open up in a scenario where pension funds and insurers increase their participation, acting as finance providers to foster the transition to a cleaner economy. These institutions have a key role to play in the changes expected to take place in global financial system. There is no doubt that, if financial institutions were to switch to carbon footprinting their investment portfolios, total resource availability would be matched with climate finance, removing the need for specific funding.

Other possible sources of additional funding now gaining momentum include government funds released by the removal of fossil fuel subsidies —as recently agreed by the Group of Twenty (G-20) major economies —and instruments such as carbon tax, which Mexico and Chile have already introduced.

Lastly, a major new player has emerged on the scene in the past two years: green bonds. Bonds are certainly a powerful financial instrument for raising fresh funding for the financial system —even better if they can be traced as "green", given that they have the narrow and limited scope of reducing the carbon footprint and environmental vulnerability. However, green bonds have not been exempt from criticism and the system must move to provide the necessary transparency to give them credibility. This means ensuring not only that such resources are properly deployed but also that they do not come from illicit sources.

UNFCCC establishes that signatory parties must submit national communications, biennial update reports and intended nationally determined contributions (INDCs), or national emissions accounting. In the case of national communications and biennial update reports, parties must report on how their reductions are financed, whereas for INDCs they must report their anticipated financing needs.

In particular, national communications should make an economic and social assessment of proposed mitigation measures to quantify costs/benefits and feasibility in light of public policy or technological barriers. Biennial update reports deliver an update on greenhouse gas inventories. They should report on mitigation measures, financing needs and support received (constraints and shortcomings, and related technical, financial and capacity requirements, including a description of support required and received). INDCs should estimate the costs of planned adaptation actions, available resources and additional needs in terms of finance, technology transfer and capacity-building (South Centre, 2015). For mitigation, they should specify available national resources and the external support needed in terms of finance, technology transfer and capacity-building.

This document reflects the financial context in which Latin American and Caribbean countries are acting and responding to international requirements. The data show that resources are available and that countries are using them. Progress is needed in analysing their effectiveness and the transition to a form of development where sustainability is no longer seen as an appendix or pilot but as a model.

I. Methodological aspects

The analysis in this document and the information reported in tables 1, 2, 3 and 4 were based on the following:

- The definition of climate finance used is that of the Intergovernmental Panel on Climate Change (IPCC), which considers total climate finance to include all financial flows whose expected effect is to reduce net greenhouse gas emissions and/or to enhance resilience to the impacts of climate variability and the projected climate change. This covers private and public funds, domestic and international flows, expenditures for mitigation and adaptation, and adaptation to current climate variability as well as future climate change. It covers the full value of the financial flow rather than the share associated with the climate change benefit (Gupta and others, 2014).
- The data posted were the amounts approved in 2014 and, only in special cases where the information so permitted, was the total distributed among the putative years of a project. Accrued amounts were not considered.
- The information reported includes data on public funds and domestic and international flows. No data were included on funding from private sources, foundations or NGOs, or from pension and insurance funds, although pension and insurance funds are discussed from the standpoint of their potential as a source of climate finance. No data on ODA were posted because the data currently available relate to 2013 and ODA only counts committed funds.
- Climate funds were counted as bilateral and multilateral funds provided to countries and managed by institutions other than development banks, in order to avoid double-accounting. The main source of data on such funds was the Climate Funds Update website of Heinrich Böll Foundation (Heinrich Böll Stiftung) and official documents of climate funds.
- Climate Investment Funds (CIF) were counted as climate funds but were discussed individually in the section on multilateral banks, as most are managed by such institutions. These funds were subtracted from those managed by the World Bank to avoid double-accounting.
- Green bonds were not counted.

- Climate funds included nationally appropriate mitigation actions (NAMAs) whose resources came from the NAMA Facility. Country resources committed for NAMAs were counted as "other national resources".
- Different methodologies and approaches were used to post data and information, for the following reasons.
  - Four of the seven Latin American members of the International Development Finance Club (IDFC) whose information is included in this study —BNDES, BANCOLDEX, Nacional Financiera (NAFIN) and CAF— use the IDFC methodology to classify the information they report to IDFC. This information was gathered through direct contact with each of these institutions.
  - Information on CABEI activities was compiled from its website [online] http://www.bcie.org/ and from the 2013 and 2014 Annual Reports of the Central American Bank for Economic Integration (CABEI) published [online] At http://www.bcie.org/uploaded/content/category/1587119956.pdf and http://www.bcie.org/uploaded/content/category/370966280.pdf respectively.
  - Since 2012, the climate finance reporting methodology used by IDB has been the joint approach by multilateral development banks (joint MDB Approach) of the Joint Report on MDB Climate Finance for both the MDB report and the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD). While the Joint MDB Approach was not used to classify operations relating to 2011 and earlier, it was used for 2012, 2013 and 2014 data. Access to this information was gathered through direct contact with IDB managers.
  - For World Bank data, two databases were used: [online] http://www.worldbank.org/en/topic/climatefinance/overview#1 for specific climate change projects; and [online] http://maps.worldbank.org/p2e/mcmap/map.html?code=LCR&level=region&indicatorcode=0553&title=Latin%20America%20And%20Caribbean&org=ibrd for other projects which by their nature are considered to have contributed to climate change and, for the purposes of this document, were classified in accordance with the options offered by the search engine (climate change, environmental and social management).
  - EIB data were compiled from its website [online] http://www.eib.europa.eu/projects/loans/list/index.htm?start=2013&end=2014&region=ala&country=&sector= and categorized manually according to the climate-related content of each project.
- Where data were not disaggregated by subject, they were disaggregated according to the title and basic content of projects, seeking to identify those that could be considered as contributing to climate change mitigation and adaptation.
- It was not possible to find climate change-related information on private banks from their own portfolios. The sole exception was Brazil but only for funds transferred by BNDES to private banks (data that do not give a full picture of these institutions).
- Data from institutional databases were considered as primary information sources. Even though data from institutional documents, such as reports, statements and studies, were available on the respective websites, they were considered as secondary sources. Tertiary information sources were considered to be studies, papers, press releases and other third-party documents, many available on the web and some of which cannot be verified.

The authors consulted the databases and sources used by Buchner and others[2] (2013 and 2014) and established direct communication with representatives of various institutions. The data presented in this document are based mainly on official sources and come from analysing the information and data available in institutional websites and databases, documents, reports and statements on sustainability, financial and other matters.

The main currency used throughout this document is the United States dollar and, in some cases, the euro; where data relate to local matters, the currencies of the respective countries are used. Conversion rates are provided in all instances.

[2] Data from OECD's Creditor Reporting System (CRS) for any official development assistance (ODA) data that were not obtained from a survey of development finance institutions; financial reports to identify ODA flows; Climate Funds Update website of the Heinrich Böll Foundation (Heinrich Böll Stiftung); official documents of climate funds; and Bloomberg New Energy Finance database to track financial information on private operators conducting government-funded renewable energy projects.

II. Conceptual framework for climate finance

Chapter 16 of Climate Change 2014: Mitigation of Climate Change. Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, published by IPCC in 2014, which focuses specifically on investment in climate change mitigation, concludes that scientific literature on finance and investment to address climate change is still very limited and knowledge gaps are substantial. It also warns that there are no agreed definitions for climate investment and climate finance (Gupta and others, 2014). An important premise of this chapter, stressed by the authors, is precisely this lack of consensus and agreement on a definition of climate finance. Lack of a common and agreed definition means that data cannot be posted accurately, invalidating the information whilst deterring countries and other stakeholders involved in addressing climate change from using the definition to determine resource requirements.

Within the available literature, the term "climate finance" is used to refer generally to financial resources devoted to addressing climate change globally, or to financial flows to developing countries to assist them in addressing climate change. In turn, the two broad definitions include a wide range of concepts, whether financial resources are measured totally or, for instance, referring only to public finance or incremental investment (Potestio, 2014). According to Gupta and others (2014), the literature includes multiple concepts within each of these broad categories. The specific mitigation and adaptation measures whose costs qualify as climate finance are also not agreed. The measures included vary from study to study and often are determined by the data available.

Venugopal and Patel (2013) state that, in its broadest interpretation, climate finance refers to the flow of funds towards activities that reduce greenhouse gas emissions or help society adapt to climate change impacts. It is defined as the totality of flows directed to climate change projects or initiatives, in the same way that "infrastructure finance" refers to the financing of infrastructure or "consumer finance" refers to providing credit for purchases of big-ticket household items.

According to IPCC, "total climate finance" includes all financial flows whose expected effect is to reduce net greenhouse gas emissions and/or to enhance resilience to the impacts of climate variability and the projected climate change. This covers private and public funds, domestic and international flows, expenditures for mitigation and adaptation, and adaptation to current climate variability as well as future climate change. It covers the full value of the financial flow rather than the share associated with the climate change benefit. It defines "international climate finance" as public funding from developed countries to finance adaptation and mitigation measures in developing countries (grants and concessional loans) (Gupta and others, 2014).

At their second meeting in Bonn (Germany) in September 2013, UNFCCC Experts on Long-term Finance defined climate finance as the mobilization of a further US$100 billion a year by 2020 for climate change mitigation and adaptation in developing countries, through public, private, bilateral, multilateral and alternative sources of finance. Many types of financing and policy measures for encouraging climate finance were considered, including direct public finance, co-finance of public and private finance, risk mitigation by the public for private investment, incentives to low-carbon investment, including emission trading, tax incentives, removal of negative incentives (subsidies) and regulation for inefficient investment. The experts agreed that it was better to have a common definition of climate finance to consider effective and efficient measures and implement and monitor its amount and performance (UNFCCC, 2013).

The sixteenth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 16) in Cancun (Mexico) in 2010 took note of the collective commitment by developed countries to provide new and additional resources to developing countries, as established in the Copenhagen Accord of 2009, approaching US$30 billion in fast-start finance between 2010 and 2012, and their commitment to a goal of mobilizing jointly US$100 billion per year by 2020 (UNFCCC Decision 1/CP.16). It cited the lack of an agreed definition of climate finance as a further challenge.

With regard to financial mechanisms, UNFCCC Article 11.1 establishes that resources from the UNFCCC Financial Mechanism should be provided on a grant or concessional basis, which has led developing countries to defend and fervently advocate this mechanism. A definition outside the UNFCCC Financial Mechanism centres around financial mechanisms based on the market and private sector. According to Nafo (2012), neither option is risk-free. A definition with a "grants or concessional basis" emphasis places great demand on public finance, which can impact significantly on national budgetary resources and increase the risk of resource availability, in the context of a sluggish economy or political polarization, for example. On the other hand, while a definition centred around "markets/private sector" might deliver considerable greenhouse gas emission reductions and achieve significant mitigation potential financial, these are less effective for countries where markets are inefficient, political risk is acute and where regulatory and policy frameworks are still weak.

According to IDFC (2014a), which has reported its member institutions' climate finance information since 2011, a key challenge of this annual mapping study is to overcome the varying definitions for green finance themes, understood as more than just climate finance, and to distinguish between the "other" environmental, green energy, mitigation and adaptation categories for which data was collected. IDFC, in coordination with its members' representatives, created a framework designed to standardize the information collected and to facilitate the work of those responsible for this task (Höhne and others, 2012). Three categories were therefore defined: "other" environmental objectives; green energy and mitigation of greenhouse gas emissions; and adaptation to climate change impacts. These categories are described in Annex 1, table A.1, on project eligibility and reporting. Seven Latin American and Caribbean development banks are IDFC members (CAF, NAFIN, BANCOLDEX, BNDES, CABEI, Peru's Development Finance Corporation (COFIDE) and Chile's BancoEstado) and report climate finance information using the IDFC methodology.

Faced with the same problem, in 2011 a group of seven multilateral development institutions[3] began drafting the first Joint Report on MDB Finance and agreed to develop a common methodology as a means for improving the content and accuracy of climate change-related financial information. The group's only Latin American member is the Inter-American Development Bank (IDB) Group, which reports its climate data using this methodology. Tables A.2 and A.3 of annex 1 list the

[3] African Development Bank (AfDB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), Inter-American Development Bank (IDB), World Bank and International Finance Corporation (IFC).

characteristics required for a project to qualify as a climate-change mitigation or adaptation project in accordance with this methodology and the types of mitigation activities included in the Joint MDB Mitigation Finance Reporting. Like the previous list, this too is an empirical list that does not take a life-cycle approach and includes no time horizon for considering normal what in the past was novel.

More recently, the joint climate finance group of MBDs and IDFC developed principles, guidelines and definitions for the International Conference on Financing for Development, held in July 2015 in Addis Ababa (Ethiopia), which it set out in the "Common Principles for Climate Mitigation Finance Tracking" (the Principles), approved by the Climate Finance Forum in March 2015, in Paris (France) (World Bank, n/d). This was in response to a concern that development finance institutions have been tracking and reporting climate finance for only a few years, and their methods have varied, making global public finance numbers difficult to compare. Some methods left out segments, while others led to double-accounting of resources (World Bank, 2015).

The Principles set common definitions and guidelines for tracking climate finance, but they leave the implementation, reporting and quality control to each institution. An activity is classified as related to climate change mitigation under the common principles if it promotes "efforts to reduce or limit greenhouse gas emissions or enhance greenhouse gas sequestration. For now the principles only cover mitigation activities, although the two groups of banks are working on a common framework for adaptation (which should be ready very soon). The data reported in the latest documents of both bank groups still use their respective methodologies and not the categories established in the Principles (IDFC, 2015).

The guidelines established in the Principles list activities that can be counted as climate finance in nine categories: renewable energy; lower-carbon and efficient energy generation; energy efficiency; agriculture, forestry and land use; water and wastewater; transport; low-carbon technologies; non-energy greenhouse gas reductions such cleaner industrial production and carbon capture and storage; and cross-cutting issues such as support for the development of carbon markets, policies and regulations, emissions monitoring systems. In accordance with the guidelines, finance is counted when the project is approved and the finance committed. The Principles also provide guidance for disaggregating climate finance from other activities. For example, in a project costing US$100 million where only about US$ 15 million might be documented for energy efficiency, only the US$15 million would be reported. The guidelines encourage banks to be conservative in their reporting when the data or separation is unclear (World Bank, 2015b; IDFC, 2015).

Table A.4 of annex 1 lists the activities eligible as climate finance as defined in the Principles.

The data presented in this document on four of the seven Latin American members of IDFC (BNDES, BANCOLDEX, NAFIN and CAF) are the data they reported to IDFC, which were classified in accordance with the IDFC methodology rather than on the basis of the eligible activities defined in the Principles (as the Principles were introduced only recently). CABEI data were also reported to IDFC using this format. However, CABEI data for this study were compiled from documents available on the CABEI website.

This study uses the IPCC definition of climate finance (Gupta and others, 2014). The document includes data on resources approved for climate change mitigation and adaptation from different sources and financial instruments. The information reported includes data on public funds and domestic and international flows. No data were included on funding from other private sources, foundations or NGOs, from pension and insurance funds, from charities or from carbon tax or certified emission reductions. No data were reported on private banks and, in the case of green bonds, only the transactions of one Brazilian company and two Peruvian initiatives were reported. However, these data were not posted as resources mobilized by the two countries.

III. Current situation

According to Working Group III Contribution to the Fifth Assessment Report of IPCC, there are four paths to achieving decarbonization by 2100, defined on the basis of different energy and economic models and differing scenarios of economic growth and technological innovation[4] (IPCC, 2014b):

- Decarbonized electricity generation.
- Electrification (to increase reliance on clean electricity) and, where that is not possible, a switch to cleaner fuels.
- Improved efficiency and reduced waste in all sectors.
- Preservation and increase of carbon sinks such as forests and other vegetation and soils.

It is generally agreed that those are the pillars of carbon neutrality inasmuch as they are required to achieve climate change stabilization in a cost-effective way, no matter the level at which one wants to achieve stabilization (Fay and others, 2015).

There is also consensus on the need for a policy package with a battery of instruments —such as research, development and innovation support, performance standards and fiscal incentives for investments, financial instruments, social policies and compensation— to create an enabling environment for low-carbon policies to work. This requires efforts on three fronts:

- Ensure needed technologies.
- Ensure the needed infrastructure.
- Account for behavioural biases and other obstacles to changing habits.

The question is at what speed to proceed. Fortunately, there is no need for all countries to follow the same path or rhythm, and, as IPCC argues, multiple pathways can lead to decarbonization.

[4] The group analysed 31 models building on a variety of assumptions and technological possibilities to cover a wide range of possible futures. Those models are used to create hundreds of businesss-as-usual scenarios (scenarios that assume that no climate change policies are implemented), as well as mitigation scenarios associated with different targets for temperature or greenhouse gas concentrations.

All countries should progress with all four pillars but with flexibility as to when, where and how. The flexibility that entails is critical to keep costs down and to allow countries to follow paths that are better adapted to their economic and political realities.

While timing would seem to be a key element in tackling climate change, defining what is feasible has proved challenging. The feasibility question is not a technical question, but rather an economic, social and political one. Feasibility largely depends on economic costs and distributional impacts, as it is a function not only of which target is selected but also of which policies are implemented to get there (Fay and others, 2015).

The difference in cost between immediate and delayed action is significant. If additional mitigation efforts are delayed until 2030 and the target remains unchanged, the IPCC scenarios show an average 50% increase in medium-term costs (in the 2030-2050 period) and an average 40% increase in long-term costs (in the 2050-2100 period) (Fay and others, 2015).

How should countries decide to balance short-term versus long-term actions? One way is to focus on the peak date of global emissions —that is, the date at which global emissions start to decrease. In fact, the peak date has become a common indicator to measure the timing of efforts in developing countries with rapidly growing emissions— for example, in the recent United States-China pact on climate change, China committed to a peak date in 2030 or earlier (Fay and others, 2015).

Of course, the later the peak date, the higher the resulting temperature change or the larger the emission reductions that are needed after the peak year. Moreover, the rate of emission reduction that is required to reach various climate targets increases more than proportionally with the global peak date, so that delays in action have a strong impact on the efforts needed after the peak date. For instance, the required rate rises from less than 4% to between 5% and 8% when the peak date is delayed from 2015 to 2025. Therefore cost-effectiveness requires early action. In addition, today's investment decisions add to committed carbon emissions (Fay and others, 2015).

A. Financing needs for the transition to a low-carbon economy

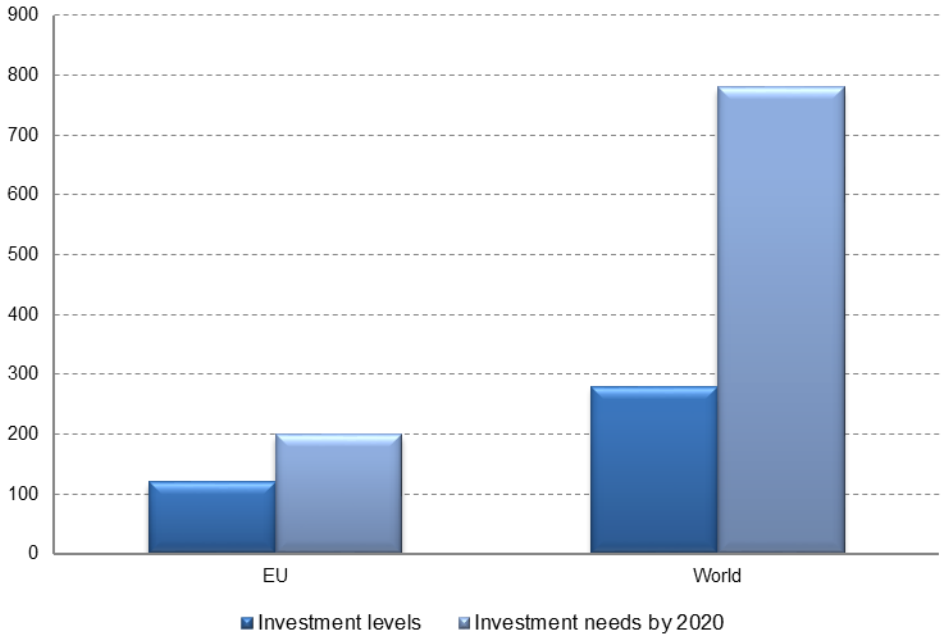
Different organizations have estimated financing needs to "green" the planet but, while their estimates vary widely, what they all agree upon is that considerable amounts of capital will be required (Lindenberg, 2014).

Few studies have addressed financing needs. Most have focused on mitigation and discuss issues relating to energy use. They tend to take a global approach and little of the information is disaggregated by region.

However, in spite of its limitations, such information does give an idea of the scale of the challenge facing individual countries and the world with regard to climate change mitigation and adaptation. It also allows a strategy to be defined and ways sought for implementing it.

Figure 1, illustrating the gap between climate investment needs to 2020 and investment in 2011/2012 worldwide and in the European Union, reveals that only 36% of global needs were met. While 60% of European Union needs were met, there were significant differences among its Member States (EC DG CLIMA, 2015). This is driving the search for alternative investments and new sources of capital.

Figure 1
Financing gap (between climate investment needs to 2020 and investment levels in 2011-2012)
(Billions of euros)



Source: Prepared by the authors, on the basis of EC DG Clima, *Shifting Private Finance Towards Climate-friendly Investments. Final Report*, 2015 [online] http://ec.europa.eu/clima/policies/finance/docs/climate-friendly_investments_en.pdf.

However, the biggest challenge is accessing capital at lower cost. In developing countries and emerging markets, interest rates tend to be much higher than in developed countries. For example, in India, a study found that two thirds of the full lifetime cost of a solar project came from interest rate payments. Increased access to capital from institutional investors could markedly decrease the interest rate for low-carbon projects, which again would have a material impact on the financial viability of the overall project (EC DG Clima, 2015). A lower interest rate would increase the availability of resources, as they would return to the system more rapidly.

A number of organizations are developing investment roadmaps for the low-carbon transition in key sectors. The International Energy Agency (IEA) and World Energy Council have focused on defining energy investment needs, OECD, on infrastructure investment, and Frankfurt School/ Bloomberg New Energy Finance, on low-carbon energy investments (EC DG Clima, 2015).

In addition, the European Commission, World Economic Forum, IPCC, UNFCCC, New Climate Economy, World Bank and World Resources Institute have produced estimates of financing needs to "green" the planet.

- The European Commission estimates that the European Union needs to invest an annual 270 billion euros in low-carbon energy, energy efficiency and transport (European Commission, 2013).
- At the European Union level, the European Commission's Impact Assessment: a Policy Framework for Climate and Energy in the Period from 2020 up to 2030 estimates investment needs at 193 billion euros per year for the period 2011-2030 (European Commission, 2014). This estimate refers to investments needed to modernize ageing infrastructure and avoid lock-in of inefficient technologies that would hamper European Union efforts to achieve its climate and energy targets (EC DG Clima, 2015).

- In its 2014 publication, IEA estimates that US$44 trillion in additional investment would be needed to decarbonize the energy system in line with the 2°C scenario by 2050 (IEA, 2014). In 2012, it estimated an investment need in the energy sector of 35.9 trillion (IEA, 2012).
- In 2012, IEA estimated that US$139 trillion in additional investment would be needed in the energy, construction, industry and transport sector to reduce emissions by 50% compared to 2005 levels (IEA, 2012).
- The World Economic Forum estimates additional, incremental investment needs of at least US$0.7 trillion per year to 2020 for clean energy infrastructure, low-carbon transport, energy efficiency and forestry, in order to limit the global average temperature increase to 2°C above pre-industrial levels (World Economic Forum, 2013).
- The World Resources Institute estimates that a total of US$900 billion per year in additional investments in energy supply and demand technologies[5] will be needed between now and 2050 in order to limit global temperature rise to 2ºC above pre-industrial levels. Of this, US$531 billion per year will need to take place in developing countries (Polycarp, Brown and Fu-Bertaux, 2013).
- New Climate Economy (NCE) estimates infrastructure requirements for a high-carbon economy, across transport, energy, water systems and cities, at around US$ 90 trillion (or an average of US$6 trillion per year) over the next 15 years. However, by combining renewable energy with reduced fossil fuel investment, more compact cities and more efficiently managed energy demand, low-carbon infrastructure will increase investment requirements by only an estimated US$270 billion a year (NCE, 2014).
- IPCC reports an investment requirement of US$31-360 billion per year to finance low-emissions generation technologies (renewables, nuclear and fossil-fuelled power plants with carbon capture and storage) over the period 2010-2029. This could be coupled with an increase of US$1-641 billion per year in energy efficiency investments in the building, transport and industry sectors during the same period (IPCC, 2014b).
- UNFCCC estimates that additional investments required to tackle climate change would represent 0.3-0.5% of global gross domestic product (GDP) and 1.1-1.7% of global investment in 2030. In absolute terms, it estimates that global additional investment for climate change mitigation of US$200-210billion will be necessary in 2030 (UNFCCC, 2007).

Financing needs for adaptation have been even more difficult to estimate, chiefly because required measures differ markedly and tend to be far-reaching. A great deal more research and analysis is required in this area. Little mention of the matter is made in the literature. The following data from the World Bank and UNFCCC were among the information found and reviewed.

- The World Bank estimates the total cost of adaptation, between 2010 and 2050, to range from US$75 billion to US$100 billion a year and that, in general, this represents less than 0.5% of global GDP and 0.2% of developing-country GDP. It estimates that this will fall to 0.12% in the period 2040-2049 but that the figure for South Asia will exceed 0.5% (World Bank, 2010b).

[5] Energy supply technologies are defined as investments in power generation, transmission and distribution; investments in oil, gas and coal exploration and extraction are not included. Energy demand technology includes the building, industry and transport sectors.

- In its 2007 report, UNFCCC estimates that additional funding for adaptation would range from US$49 billion to US$171 billion by 2030 (UNFCCC, 2007).

Table 5 shows estimated financing needs by various institutions.

Table 5
Estimated financing needs to "green" the planet
by selected institutions

Institution	Region	Sector	Period	Amount
European Commission	European Union	Low-carbon energy, energy efficiency and transport		270 billion euros per year
		Modernizing infrastructure and technologies, excluding transport	2011-2030	193 billion euros per year
International Energy Agency (IEA) (2014)	Global	Decarbonizing the energy system in line with the 2°C scenario	To 2050	US$44 trillion in additional investment
IEA (2012)	Global	Energy, construction, industry and transport sector, in order to reduce emissions by 50% compared to 2005 levels	2010/2050	139.9 trillion, distributed among: Energy: 35.9 Construction: 27.8 Industry: 11.2 Transport: 65.0
World Economic Forum	Global	Clean energy infrastructure, low-carbon transport, energy efficiency and forestry	To 2020	US$0.7 trillion per year
World Resources Institute (WRI)	Developing countries	Energy	To 2050	US$531 billion per year
New Climate Economy (NCE)	Global	Infrastructure for transport, energy, water systems and cities, renewable energy with reduced fossil fuel investment, more compact cities and energy efficiency	2015/2030	US$6.27 trillion per year
Intergovernmental Panel on Climate Change (IPCC)	Global	Low-emissions generation technologies	2010/2029	US$31-360 billion per year
		Energy efficiency in the building, transport and industry sectors		US$1-641 billion per year
United Nations Framework Convention on Climate Change (UNFCCC) (2007)	Global	Additional investment for adaptation	To 2030	US$49-171 billion
World Bank	Global	Adaptation	2010/2050	US$75-100 billion per year

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the respective institutions.

Preliminary estimates of the costs of inaction and economic benefits of climate change for Latin America and the Caribbean indicate that the overall effect will be negative and will increase over time. Under scenario A2, countries in temperate regions may lose as much as 1% of annual GDP by 2100, far exceeding the entire budgets of these nations' environment ministries and obliging countries to consider additional sources of finance, such as that available internationally (ECLAC,[6] 2010). The costs are likely to be higher in the Andean, Central American and Caribbean countries.

In Central America, the cumulative average cost to 2100 under scenario A2, at a discount rate of 0.5%, is estimated to be equivalent to US$73 billion at current prices or US$52 billion at 2002 prices. The estimated cumulative cost to 2100 under scenario B2 (which assumes better-positioned solutions) would be equivalent to US$44 billion at current prices or US$31 billion at 2002 prices —around 32% of the region's 2008 GDP at the same 0.5% discount rate. At a 4% discount rate, the equivalent would be 6% of the region's 2008 GDP. According to estimates, costs would tend to accelerate after 2050, when the accumulated emissions would lead to greater temperature rises. The Central American study considered agriculture, water resources, biodiversity and extreme events (hurricanes, storms and floods) (ECLAC, 2011).

In terms of GDP, costs in Central America under the A2 emissions scenario to 2100 would amount to 53.9% of GDP, while under scenario B2 they would amount to 32.4% of 2008 GDP at a 0.5% discount rate. By 2050, average costs could be equivalent to 10.4% of 2008 GDP, and to 7.7% under scenario B2 at the same discount rate.

Under scenario A2 to 2100, the cumulative costs in Central American countries would be highest for Belize and Nicaragua (94.7% and 89.8% of 2008 GDP respectively at a 0.5% discount rate), followed by Honduras (79.6%), Guatemala (63.6%), Costa Rica (46.6%), El Salvador (43.2%) and Panama (34.6%).

Under scenario B2, cumulative initial costs for the four sectors to 2100, at different discount rates and for different years up to 2020, are estimated to range from 0.5% of 2008 GDP in Costa Rica to 2.1% in Nicaragua at a 0.5% discount rate. The costs would increase over time and, by 2050, in Nicaragua and Belize, they would amount to 13.4% and 11.3% of 2008 GDP respectively. In Guatemala and Honduras, costs would equal 9% and 10%, in El Salvador and Costa Rica, around 6.5% and, in Panama, around 5.8%. The regional average by 2050 would be 7.7%. In the period 2050-2100, the costs would more than quadruple compared to 2050: the regional average would be 32.4%. The estimated costs to Panama would equal 23.9% of 2008 GDP, whereas those to Nicaragua and Belize would be 59% and 56% respectively (ECLAC, 2011).

Among other Latin American countries, costs would vary widely, with both gains and losses in GDP, depending on the climate scenario and discount rate applied. Table 6 shows ECLAC estimates of climate change costs to selected Latin American and Caribbean countries, in absolute and GDP terms, as published in various documents.

In Argentina, under scenario A2 to 2100, at a 0.5% discount rate, the costs would amount to US$180.2 billion. Under scenario B2, they would amount to US$159.2 billion. In GDP terms, this

[6] The point of departure for an analysis of the economics of climate change is the definition of a business-as-usual (BAU) baseline that can be used as a point of reference for comparisons with estimates of the economic impacts of probable climate—change scenarios— in this study, B2 and A2—and of the economic implications of adaptation and mitigation processes. The study considers four sectors —agriculture, biodiversity, water and extreme events— and two scenarios: A2 (assuming a robust, fossil-fuel-inensive international economy that generates an increase in atmospheric greenhouse gas concentrations far exceeding current levels, which leads to increasing temperatures, changing precipation patterns, rising average sea levels and higher frequency and intensity of extreme weather events, where technological change is highly fragmented and slower than in other scenarios) and B1 (assuming some degree of emissions mitigation through more efficient energy use and technological improvements).

would represent 98.8% under scenario A2 and 87.3% under scenario B2. The Argentina study covered the water, agriculture, biodiversity and ecosystems sector (ECLAC, 2014c).

Table 6
Costs of climate change to gross domestic product at current prices by 2100 under scenarios A2 and B2, applying a 0.5% discount rate

Country/scenario	Cost in billions of US dollars		Annual percentage of gross domestic product (GDP)		Cumulative percentage of GDP	
	A2	B2	A2	B2	A2	B2
Argentina (2005 prices)	136.34	32.89			98.85	87.35
Bolivia (Plurinational State of) (2007 prices)	81.3	36.82	1.63	0.74		
Chile (n.a.)	321.52	-25.91	1.1	-0.09		
Ecuador (2010 prices)	136.34	32.89			546	132
Mexico						30.6[a]
Paraguay (2008 prices)	80.28	50.52	1.0	0.6		
Peru (soles) (2010 prices)	69.0	50.7[a]	15.0	11.0[a]		
Uruguay (2008 prices)	90.5	17.19			278.5	50.8
Central America (in current dollars) (2008 prices)	73.0	44			53.9	32.4

Source: Prepared by the authors, on the basis of information from Economic Comission for Latin America and the Caribbean (ECLAC) studies.
[a] Scenario B1.

In the Plurinational State of Bolivia, direct losses resulting from climate change under scenario A2, at a 0.5% discount rate, would be US$81.3 billion (at constant 2007 prices). This would represent 1.63% of the annual net present value of GDP for the baseline scenario (period 2010-2100). Under scenario B2, the net present value of accumulated losses would be US$36.8 billion, equivalent to 0.74% of the annual net present value of GDP of the 2010-2100 baseline scenario (IDB, 2014).

In Chile, according to ECLAC (2012c), in absolute terms, the aggregate present value of impacts indicates that the cost associated with scenario A2, at a 0.5% discount rate, would amount to US$321.5 billion, while scenario B2 would bring the country gains of US$25.9 billion by 2100. These costs indicate that, under scenario A2, Chile could lose an annual 1.1% of GDP, whereas under scenario B2, it would gain 0.09% by 2100 at the same discount rate. The sectors considered in the study were water resources, agriculture and forestry, biodiversity and ecosystems, and fishery resources (ECLAC, 2012c).

In Ecuador, the results of an ECLAC study show that the aggregate impact of climate change to 2100 under scenario A2, at a 0.5% discount rate, would be a cumulative cost of US$136.3 billion, whereas under scenario B2, it would amount to US$32.9 billion. In terms of 2010 GDP, the impact on GDP to 2100, at the same discount rate, would be 546% under scenario A2 and 132% under scenario B2. The sectors analysed in the study were agriculture, water resources, biodiversity, marine and coastal resources, health, infrastructure, extreme events and the Galapagos Islands (ECLAC, 2012a).

In Mexico, Galindo (2009) estimates that, at a 4% discount rate, the cumulative costs of climate change to 2100 would amount to 6.2% of GDP at current prices and that, at a 0.5% discount rate, they would amount to 30% of GDP at current prices. The Mexican study considers scenarios A1B (where there is a balanced use of all energy sources), A2 and B1, and the agricultural, international tourism, land use, water and biodiversity sectors.

In Paraguay, the estimated sectoral impacts of climate change (on agriculture, health, extreme weather events, water resources, livestock and biodiversity) under scenario A2 to 2100, at a 0.5% discount rate, would amount to 1.0% of GDP and, under scenario B2, to 0.6% of GDP. In absolute terms, the costs would be US$ 80.3 billion under scenario A2 and US$50.52 billion under scenario B2 (ECLAC, 2014a).

In Peru, the estimated cumulative effect of climate change over the period 2010-2100, at a 0.5% discount rate, would range from 50.7 billion soles to nearly 69 billion soles, equivalent to an 11% loss of 2010 GDP under scenario B1 and a 15% loss under scenario A2. The study considers the agriculture, livestock, fisheries, mining, hydropower, tourism and health sectors, and three scenarios: A1B, A2 and B1 (ECLAC, 2014b).

In Uruguay, the cumulative cost of climate change to 2100, at a 4% discount rate, would amount to US$19.5 billion under scenario A2 and to just over US$2.5 billion under scenario B2. At a 0.5% annual discount rate, this cost could rise to US$90.5 billion under scenario A2 and to US$17.2 billion under scenario B2. In GDP terms, at a 4% discount rate per annum to 2100 averaged over both scenarios, climate change would have a cumulative impact of 25% of 2008 GDP. At a 0.5% discount rate, the impact would be 278.5% under scenario A2 and 50.8% under scenario B2, with a cumulative impact of 164.6% averaged over both scenarios. The sectors analysed were agriculture, biodiversity, water resources, energy, coastal resources, extreme events and tourism (ECLAC, 2012b).

According to estimates by the following authors, financing needs for Latin America and the Caribbean will range from US$40 billion to US$100billion per year by 2050, at a cost exceeding 2% of the region's 2010 GDP.

- Based on data from Stern,[7] the Climate and Development Knowledge Network (CDKN) estimates that the financing needs of Latin America and the Caribbean to 2030 would range from US$40 billion to US$80 billion per year for climate change mitigation and from US$8 billion to US$21 billion per year for adaptation to climate change impacts (CDKN, 2010).
- According to Vergara and others (2013), climate change impacts in Latin America and the Caribbean could cost around US$100 billion per year by 2050, equivalent to approximately 2.2% of 2010 GDP or 0.5% of projected GDP by 2050.
- The World Bank (2010b) estimates that the region will require between US$17 billion and just over US$21 billion for climate change adaptation between 2010 and 2050, depending on the scenario (see table 7).[8]
- Agrawala and others (2010) estimate that adaptation costs in the region, under a scenario where carbon dioxide (CO_2) emissions double,[9] would amount to around US$28 billion.
- IEA (2012) estimates that additional investment for the energy, construction, industry and transport sectors combined would amount to US$1.5 trillion by 2050.

[7] Nicholas Stern estimated that the resoures required to tackle climate change would be equivalent to 1-2% of global gross domestic product by 2030 (Stern, 2007).

[8] Gross sum represents the aggregate climate change adaptation costs incurred by countries with positive costs for a particular sector, ignoring all country and sector combinations resulting in gains (negative costs). The gross aggregation method (gross sum) sets negative costs in any sector in a country to zero before costs are aggregated for the country and for all developing countries. The X-sums net positive and negative items within countries but not across countries, and include costs for a country in the aggregate as long as the net cost across sectors is positive for the country. The net aggregate measure (net sum) nets negative costs within and across countries.

[9] The mitigation policy considered here is to stabilize equivalent carbon dioxide (CO2-e) concentrations at 550 parts per million (ppm) (corresponding to a temperature of around 2.5°C above pre-industrial levels at the beginning of the next century).

Table 7
Total annual costs of adaptation for all sectors, by region and climate change scenario, 2010-2050
(Billions of dollars at 2005 prices)

Scenario/cost aggregation type	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	Total
Wettest scenario	National Center for Atmospheric Research (NCAR)						
Gross sum	28.7	10.5	22.5	4.1	17.1	18.9	101.8
X-sum	25	9.4	21.5	3	12.6	18.1	89.6
Net sum	25	9.3	21.5	3	12.6	18.1	89.5
Driest scenario	Commonwealth Scientific and Industrial Research Organization (CSIRO)						
Gross sum	21.8	6.5	18.8	3.7	19.4	18.1	88.3
X-sum	19.6	5.6	16.9	3	15.6	16.9	77.6
Net sum	19.5	5.2	16.8	2.9	15.5	16.9	76.8

Source: World Bank, *The Costs to Developing Countries of Adapting to Climate Change. New Methods and Estimates. The Global Report of the Economics of Adaptation to Climate Change Study. Consultation Draft*, Washington, D.C., 2010.

B. How does climate finance flow?

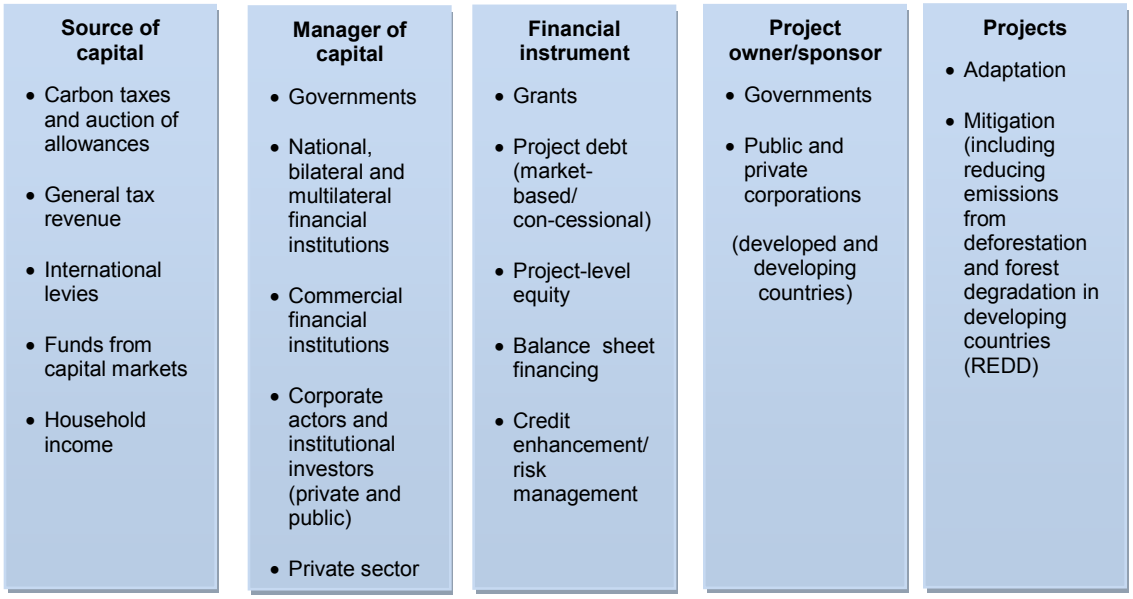
The global climate finance architecture is complex and has evolved over time. It is likely to see further diversification of sources, agents and channels both now and in the future, as a result of decisions taken at the twenty-first session of the Conference of the Parties (COP 21) in Paris in December 2015.

Climate finance is sourced either from capital markets or government budgets, and channelled through various national, bilateral and multilateral institutions, UNFCCC and a multitude of private financial intermediaries, such as banks, foundations and NGOs, as seen in diagram 1,[10] prepared on the basis of IPCC (2014a).

The vast majority of climate funds currently in operation were established between 2008 and 2011, with the exception of the Global Environment Facility (GEF). GEF was set up in 1991 to tackle environmental challenges, then replenished in 2001, when the Marrakesh Accords declared that the delivery of climate finance would be through replenishment of the GEF, bilateral and multilateral sources and three specially established funds: the Least Developed Countries Fund (LDCF); Special Climate Change Fund (SCCF); and Kyoto Protocol Adaptation Fund (AF) (Fenton and others, 2014).

[10] "Capital" includes all relevant financial flows. The size of the boxes is not related to hte magnitude of the financial flow.

Diagram 1
Climate finance



Source: Intergovernmental Panel on Climate Change (IPCC), *Technical Summary*, *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, New York, Cambridge University Press, 2014.

In institutional terms, the Bali Action Plan (adopted in 2007 by the thirteenth session of the Conference of the Parties, COP13) established a subsidiary body under UNFCCC called the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA), which leads negotiations on enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation (Guzmán, n/d).

The UNFCCC Copenhagen Accord in December 2009 and the Cancun Agreements at COP16 in Mexico in December 2010 committed developed countries to jointly mobilizing US$100 billion per year by 2020 to support climate change mitigation and adaptation activities in developing countries. The funds for these activities are expected to come from public, private, bilateral, multilateral and alternative sources of finance. The Cancun Agreements specify that such finance should be new and additional to ODA (UNDP, 2011).

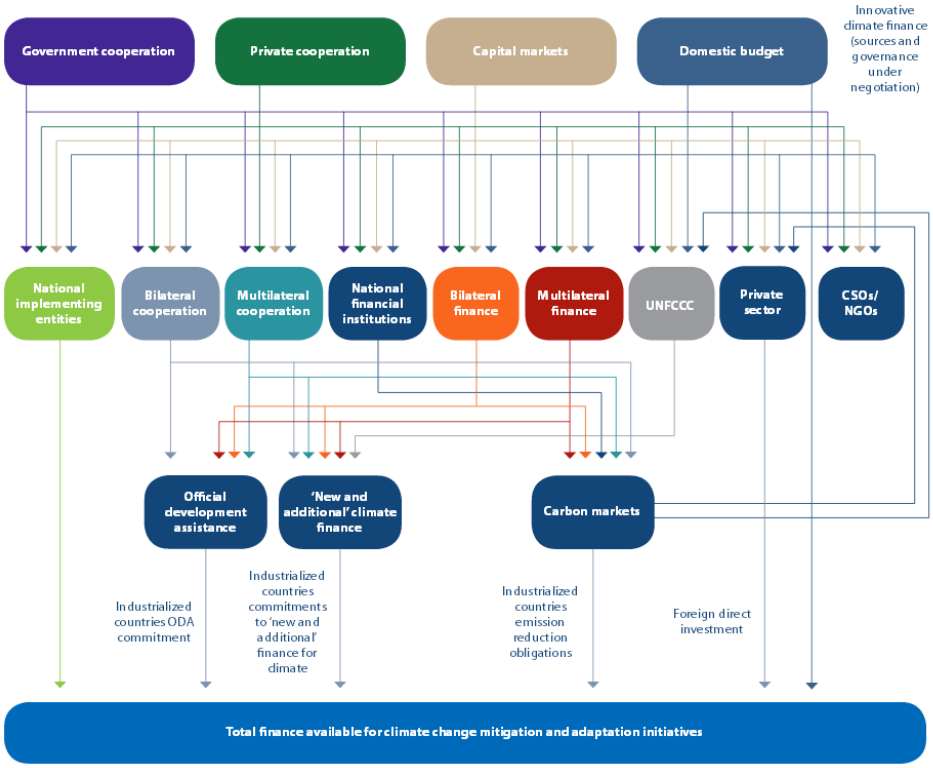
In early 2010, the Secretary-General of the United Nations established a High-level Advisory Group on Climate Change Financing (UN AGF) to assess the feasibility of new and increased financial support for climate finance and to make proposals on where new sources of funds would come from to support a stronger commitment by developed countries. UN AGF released its report in November 2010, which focused on the identification of sources of climate finance. It concluded that mobilizing US$100 billion per year by 2020 would be "challenging but feasible." The report listed a range of options, both national and international, with a mix of public and private/market sources (UNDP, 2011).

In 2011, the seventeenth session of the Conference of the Parties (COP17) in Durban (South Africa) approved the Green Climate Fund (GCF), which has so far accredited 20 institutions and secured funding pledges from 35 developed and developing countries. By 31 July 2015, a total of 25 countries had signed contribution agreements/arrangements, bringing the total to US$5.76 billion equivalent (UNFCCC, 2015).

Broadly speaking, climate financing instruments can be grouped into three categories: those operating under UNFCCC and the Kyoto Protocol; those implemented by other international

organizations; and those working indirectly or independently from climate protection efforts, such as development banks (Samaniego and Schneider, 2015). Diagram 2 shows the sources, agents and channels through which climate finance flows today.

Diagram 2
Climate change finance: sources, agents and channels



Source: United Nations Development Programme (UNDP), Catalyzing Climate Finance. A Guidebook on Policy and Financing Options to Support Green, Low-Emission and Climate-Resilient Development, New York, 2011. https://www.cbd.int/financial/climatechange/g-climateguidebook-undp.pdf]

A growing number of actors are addressing these issues. The most important are: developed countries, through bilateral initiatives; World Bank and multilateral development banks (MDBs), through the administration of Climate Investment Funds (CIF) and the Global Environment Facility (GEF); the Adaptation Fund under the Kyoto Protocol; and regional and national development banks.

Multilateral banks and national development banks are playing an increasing role in scaling up funding for climate change. Private banks also have financial instruments for safeguarding the environment and reducing emissions, funded by own resources or by transfers from a variety of sources. National trusts have also risen to prominence, such as Brazil's Amazon Fund and funds that manage national resources, such as Mexico and Brazil's climate funds, which are funded almost entirely from their national budgets.

Below is a description of the main institutions that have provided finance to the region, identifying instruments and initiatives and, where information was available, quantifying their operations, which include debt instruments, grants and loans.

1. Climate funds

Just as there is no consensus on how to define climate finance, neither has agreement been reached on what is meant by climate funds. This document defines climate funds as independent structures funded by the State or other sources, with an earmarked, rolling budget that, in most cases, has been rolled over repeatedly. Climate funds are managed by Governments, institutions such as international, regional or national development banks, other agencies such as the United Nations Development Programme (UNDP), or entities established specifically for the purpose.

Most of the funds currently in operation are multilateral and many are managed by the World Bank. Their main focus is mitigation.

Table 8 shows the most important funds and their basic features, while table 9[11] shows available resources according to data from Climate Funds Update.

Table 8
Climate funds and their basic features

Fund	Type	Manager	Focus	Entry into operation
Special Climate Change Fund (SCCF)	Multi	Global Environment Facility (GEF)	Adaptation	2002
Least Developed Countries Fund (LDCF)	Multi	GEF	Adaptation	2002
Strategic Priority for Adaptation (SPA)	Multi	GEF	Adaptation	2004
Global Environment Facility Trust Fund - Climate Change focal area (GEF 4)	Multi	GEF	Adaptation, mitigation - general	2006
MDG Achievement Fund – Environment and Climate Change thematic window	Multi	United Nations Development Programme	Adaptation, mitigation - general	2007
Australia's International Forest Carbon Initiative	Bi	Government of Australia	Mitigation - reducing emissions from deforestation and forest degradation in developing countries (REDD)	2007
Global Climate Change Alliance (GCCA)	Multi	European Commission	Adaptation, mitigation - general, mitigation - REDD	2008
Strategic Climate Fund (SCF): Forest Investment Program (FIP), Scaling Up Renewable Energy in Low Income Countries Program (SREP) and Pilot Program for Climate Resilience (PPCR)	Multi	World Bank	Adaptation, mitigation - general, mitigation - REDD	2008
Forest Carbon Partnership Facility − Carbon Fund (FCPF-CF)	Multi	World Bank	Mitigation - REDD	2008
Clean Technology Fund (CTF)	Multi	World Bank	Mitigation - general	2008

[11] The Climate Investment Funds (CIF), through two separate trust funds —Clean Technology Fund (CTF) and Strategic Climate Fund (SCF)— support the efforts of developing countries to mitigate and adapt to climate change through grants, concessional loans and risk mitigation instruments for leveraging large-scale funding from the private sector, multilateral development banks and other sources. SCF includes three funds: Forest Investment Program (FIP); Scaling Up Renewable Energy in Low Income Counries Program (SREP); and Pilot Program for Climate Resilience (PPCR).

Table 8 (concluded)

Fund	Type	Manager	Focus	Entry into operation
Congo Basin Forest Fund (CBFF)	Multi; regional donor	African Development Bank	Mitigation - REDD	2008
Global Energy Efficiency and Renewable Energy Fund (GEEREF)	Multi	European Commission	Mitigation - general	2008
Germany's International Climate Initiative	Bi	Government of Germany	Adaptation, mitigation - general, mitigation - REDD	2008
Norway's International Climate and Forest Initiative	Bi	Government of Norway	Mitigation - REDD	2008
United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD)	Multi	United Nations Development Programme/ Food and Agriculture Organization of the United Nations/ United Nations Environment Programme	Mitigation - REDD	2008
Amazon Fund	Multi; national donor	National Economic and Social Development Bank (BNDES)	Mitigation - REDD	2009
Adaptation Fund (AF)	Multi	Trust World Bank	Adaptation	2009
Forest Carbon Partnership Facility (FCPF) Readiness Fund	Multi	World Bank	Mitigation - REDD	2009
Scaling Up Renewable Energy in Low Income Countries Program (SREP)	Multi	World Bank	Mitigation - general	2009
Indonesia Climate Change Trust Fund (ICCTF)	Multi; national donor	Indonesian National Development Planning Agency (BAPPENAS)	Adaptation, mitigation - general, mitigation - REDD	2010
Global Environment Facility Trust Fund - Climate Change focal area (GEF 5)	Multi	GEF	Adaptation, mitigation - general	2010
International Climate Fund	Bi	Government of the United Kingdom	Adaptation, mitigation - general, mitigation - REDD	2011
Adaptation for Smallholder Agriculture Program (ASAP)	Multi-donor	International Fund for Agricultural Development (IFAD)	Adaptation	2012
Global Environment Facility Trust Fund - Climate Change focal area (GEF 6)	Multi	GEF	Adaptation, mitigation - general	2014
Green Climate Fund	Multi	World Bank (trustee)	Adaptation, mitigation - general, mitigation - REDD	2015

Source: J. Samaniego and Heloisa Schneider, "Financiamiento para el cambio climático en América Latina en 2013" (LC/W.656), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2015.
Note: Multi: multilateral and Bi: bilateral

Diagram 3 shows the architecture of bilateral and multi-donor climate funds currently in operation and the related institutional framework where the web of relationships is not always clear to the uninitiated. As the architecture and operational model of such funds tends to be complex, access to them may require specific skills that are lacking in many countries, especially in the developing world, which goes some way to explaining why the funds are not used to the full.

Between 2002 and July 2015, a total of US$35.247 billion was pledged through these instruments, 49% of which was actually deposited and 39% was approved. Table 9 shows that less than 20% of the total US$17.125 billion deposited was disbursed.

The main beneficiaries were Asian and African countries, which together received more than 50% of the total resource allocation. As figure 2 shows, Latin America and the Caribbean received 20% of the funds.

A number of Latin American and Caribbean countries received climate funds, as seen in table 10 showing amounts approved by fund and by country in 2014. The funding approved for the region accounted for just over US$310 million of the total US$1.685 billion approved in 2014 (or 18.4%). The main beneficiaries were Asian and African countries, which received 22% and 21% of the funding respectively (Climate Funds Update).[12]

Among Latin American and Caribbean countries, Brazil received 18.4% and Chile, 16.7%, of the funding respectively. In the case of Brazil the funds came chiefly from the Forest Investment Program (FIP), while the source of Chile's funding was CTF.

Table 9
Specific climate funds available as of July 2015
(Millions of dollars)

Fund	Committed	Deposited	Approved	Disbursed
Global Climate Change Alliance (GCCA)	326.15	326.15	347.07	
Amazon Fund	1 034.10	916.39	509.92	179.66
United Kingdom's International Climate Fund	6 002.00	1 318.00	1 459.66	
Adaptation Fund (AF)	485.60	471.56	318.03	112.52
Forest Carbon Partnership Facility (FCPF)	827.87	556.09	87.66	21.07
Clean Technology Fund (CTF)[a]	5 267.00	5 080.00	4 151.57	429.00
Special Climate Change Fund (SCCF)	348.98	340.74	277.89	
Indonesia Climate Change Trust Fund (ICCTF)	21.01	11.21	9.51	
Congo Basin Forest Fund (CBFF)	186.02	164.65	82.12	52.01
Global Energy Efficiency and Renewable Energy Fund (GEEREF)	169.50	163.50	89.07	
Global Environment Facility Trust Fund - Climate Change focal area (GEF 4)	1 082.98	1 082.98	953.03	953.03
Global Environment Facility Trust Fund - Climate Change focal area (GEF 5)	1 350.00	776.74	865.10	544.06
Global Environment Facility Trust Fund - Climate Change focal area (GEF 6)	1 101.12	1 034.25	93.15	18.37
MDG Achievement Fund Environment and Climate Change thematic window	89.50	89.50	89.52	
Least Developed Countries Fund (LDCF)	934.49	929.12	963.00	

[12] See [online] http://www.climatefundsupdate.org/data, accessed on 8 October 2015.

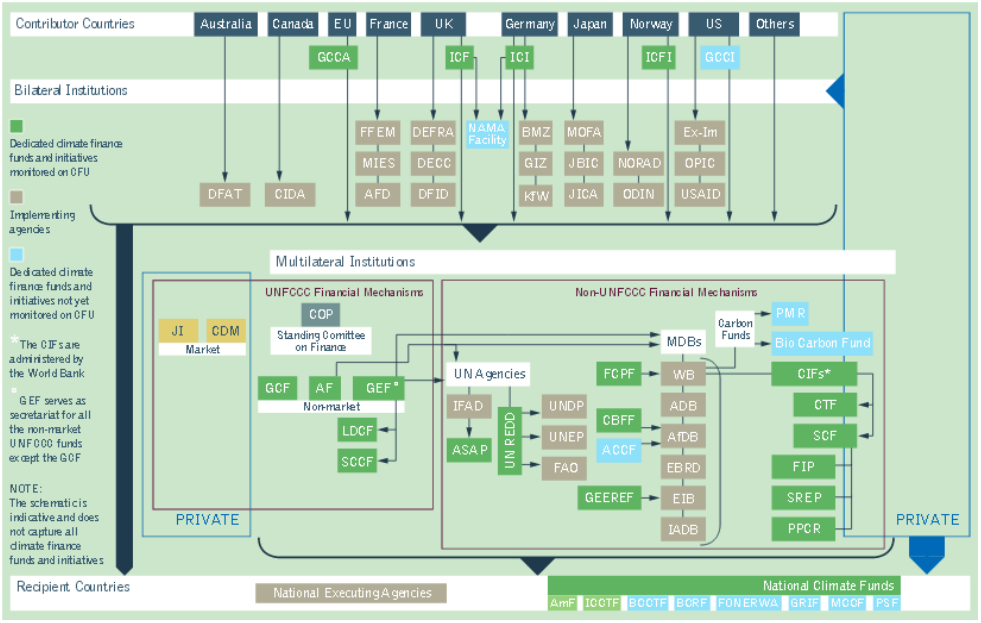
Table 9 (concluded)

Fund	Committed	Deposited	Approved	Disbursed
Green Climate Fund	10 199.50			
Germany's International Climate Initiative	1 081.84	1 081.84	1 368.12	
Norway's International Climate and Forest Initiative	1 607.82		304.68	
Australia's International Forest Carbon Initiative	216.27	67.06	159.04	
Adaptation for Smallholder Agriculture Program (ASAP)	366.46	326.44	219.00	7.57
Forest Investment Program (FIP)[a]	639.00	517.00	291.98	3.77
United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD)	267.76	235.42	240.63	226.68
Scaling Up Renewable Energy in Low Income Countries Program (SREP)[a]	525.00	520.00	164.83	2.82
Pilot Program for Climate Resilience (PPCR)[a]	1 117.00	1 117.00	841.31	35.78
Total	35 246.97	17 125.64	13 885.89	2 586.34
Percentage of total	100.0	48.6	39.4	7.3

Source: Prepared by the authors, on the basis of data from Climate Funds Update [online] http://www.climatefundsupdate.org/data
[a] Climate Investment Funds (CIF)

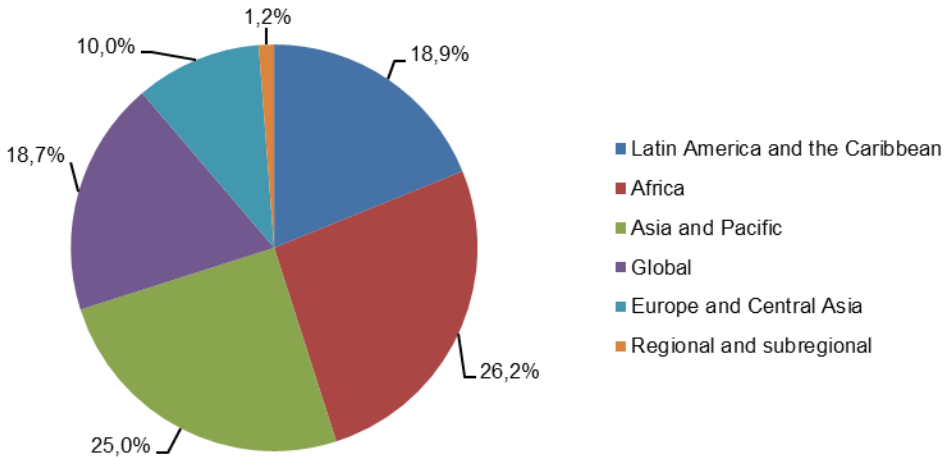
As Brazil has been the sole beneficiary of the Amazon Fund to date, this funding was not included in the analysis of climate funds but was counted among the resources reported by BNDES.

Diagram 3
Global climate finance architecture



Source: S. Nakhooda, C. Watson and Liane Schalatek, "The Global Climate Finance Architecture", Heinrich Böll Stiftung North America, 2013 [online] http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9312.pdf.

Figure 2
Global distribution of climate change funds as of June 2015
(Percentage of the total dollar amount)



Source: prepared by the authors, on the basis of data from Climate Funds Update [online] http://www.climatefundsupdate.org.

Honduras and Saint Lucia were also major climate fund beneficiaries, receiving 9.8% and 9.0% respectively of total funding approved in 2014. They were followed by Dominica, with 7.3%, Costa Rica with 5.4% and Belize with 4.5%. In the case of Saint Lucia and Dominica, the approved funds were allocated mainly to the Pilot Program for Climate Resilience (PPCR) and, in the case of Honduras, to CTF. In Belize and Costa Rica, the funds were allocated mainly to the Adaptation Fund and SCCF.

Of the total funds approved for the region, 33% were earmarked for climate change adaptation and the remainder for mitigation. Forest initiatives were allocated 27% of the funds and energy generation and supply initiatives were allocated 29%, making a total of 56%. Energy generation and supply initiatives include a US$48 million geothermal power project for Chile, to be implemented by IDB. This is the most important project approved in the region in 2014 because of the amounts involved.

Table 10
Climate funds approved in Latin America and the Caribbean in 2014
(Millions of dollars)

Country	Adaptation Fund (AF)	Clean Technology Fund (CTF)	Forest carbón Partnership Facility (FCPF)	Forest Investment Program (FIP)	Germany's Inter-national Climate Initiative	GEF5	Scaling up renewable energy in low income countries program (SREP)	Special Climate Change Fund (SCCF)	Pilot Program for climate resilience (PPCR)	Program UNREDD	Total	Percentage of total
Argentina						3.08				3.84	6.92	2.2
Belize	6.0							8.0			14.00	4.5
Brazil				57.00							57.00	18.4
Chile		48.75				0.35		2.60			51.70	16.7
Colombia					0.34	2.69					3.03	1,0
Costa Rica	9.97					1.78		5.15			16.90	5.4
Cuba	6.07										6.07	2.0
Dominica						1.73			21		22.73	7.3
Ecuador						1.78					1.78	0.6
El Salvador			3.6								3.60	1.2
Guatemala			3.6								3.60	1.2
Guyana			3.8								3.80	1.2
Haití									8.0		8.00	2.6
Honduras		20.0	3.8			1.22	5.5				30.52	9.8
Jamaica						1.25					1.25	0.4
Mexico			3.8	3.0		1.01					7.81	2.5
Paraguay						2.2					2.20	0.7
Peru			3.8		7.73	1.58					13.11	4.2
Regional						10.90		7.49			18.39	5.9
Saint Vicent and Grenedines						1.73					1.73	0.6
Saint Lucia						1.0			27.0		28.00	9.0
Suriname			0.2								0.20	0.1
Trinidad y Tobago						3.50					3.50	1.1
Venezuela (Bolivarian Republic of)						4.66					4.66	1.5
Total	22.04	68.75	22.60	60.00	8.07	40.46	5.50	23.24	56.00	3.84	310.50	100.0

Source: Prepared by the authors, on the basis of data from Climate Funds Update, June 2015.

(a) NAMA Facility

This study also counted as climate funds resources approved by the NAMA Facility,[13] a joint programme of the German, United Kingdom and Danish Governments and the European Commission, which donated 205 million euros to the programme between 2013 and 2015 for funding NAMAs.

The NAMA Facility provides tailor-made support for the implementation of ambitious and transformational NAMAs in developing countries. The Facility conducts competitive calls and selects the most ambitious and promising NAMA support projects for funding.

So far, the NAMA Facility has made two calls for projects and nine projects around the world are now receiving funding. The selected projects cover different sectors, such as transport, renewable energy, agriculture and forestry, and come from a range of countries, including five in Latin America and the Caribbean: Chile, Colombia, Costa Rica, Mexico and Peru.[14]

In 2014, two projects in Latin America and the Caribbean received NAMA Facility funding: one in Mexico and one in Colombia. Both were approved in 2014, with the Mexican project scheduled to start in mid-2014 and the Colombian project, in January 2015. These data were posted as "climate funds" received by each country. Table 11 shows the characteristics of each project.

Table 11
Characteristics of projects being implemented with NAMA Facility funding in Latin America and the Caribbean in 2014
(Millions of dollars)

Country	Project title	Description	Implementing body	Implementation period	Amount	
					Project total	NAMA Facility
Mexico	NS 108-NAMA for New Residential Buildings	The project aims to improve electrical, fossil-fuel and water efficiency in the residential sector, taking a "whole house" approach. Efficiency benchmarks are set for total primary energy demand based on building type and climate	Ministry of Agrarian, Territorial and Urban Development (SEDATU)	5 years	895.3	17.0
Colombia	NS 127-Colombia TOD NAMA	The project aims to trigger transformational change of the urban template of Colombian cities to lock in efficient travel patterns that will bring destinations and origins closer together, making non-motorized and transit modes easier to use	National Development Finance Office (FINDETER) and Centre for the Promotion of Transit-Oriented Development (CIUDAT)	4 years	19.0	18.5

Source: Prepared by the authors, on the basis of NAMA Pipeline Analysis and Database [online] http://namapipeline.org/ and Ecofys, "NAMA Database Pipeline: September 2015" [online] http://www.nama-database.org/nama-db-pipeline.xls.

[13] The NAMA Facility was announced at the Conference of the Parties in Doha in 2012. Its donors are: the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB); the United Kingdom's Department of Energy and Climate Change (DECC); Denmark's Ministry of Energy, Utilities and Climate and its Ministry of Foreign Affairs, MFA); and the European Commission.

[14] See [online] http://www.nama-facility.org/start.html

The third call for projects was held between April and July 2015, with a total of 42 NAMA support project outlines submitted, including nine from Latin America and the Caribbean: one each from Antigua and Barbuda, Bolivia, Colombia, Dominica, Dominican Republic, Ecuador and Mexico; and two from Guatemala.[15]

In addition to these resources, this study counts resources slated to be funded from national sources, which countries have committed for NAMAs. While it is conceivable that these funds are covered by external resources requested by implementing bodies,[16] this study counts them as "own resources" because no such resources were identified among the funds of the institutions analysed.

The countries that managed such funds were: Chile, Colombia, Dominican Republic and Mexico. In the accounting of these resources, in Table 2 on climate finance flows to Latin America and the Caribbean in 2014, the funding for Dominican Republic's NAMA NS 149 was divided by 15, which is the number of years the NAMA is expected to last. For the other countries, the total amount anticipated on the NAMA submission date was considered, given than the periods involved ranged from one to three years.

Total resources involved in NAMA initiatives amounted to US$261 million, of which an estimated US$212 million will be funded by national sources. Table 12 show the characteristics of the projects included in the accounting.

Table 12
Characteristics of projects being implemented with own resources in Latin America and the Caribbean in 2014
(Millions of dollars)

Country	Project title	Description	Implementing body	Implementation period	Amount	
					Project total	Local financing
Chile	NS 126-Santiago Transport Green Zone (STGZ)	STGZ comprises four specific initiatives to promote low-carbon modes of transport to be implemented in specific areas of Santiago city, including the historic district	Santiago city council	2 years	17.6	8.0
Colombia	NS 119-Integrated Improve-ment of Road-based Freight Sector in Colombia	Involves a freight logistics policy, a freight improvement programme and freight vehicle scrappage and fleet renewal	Ministry of Transport	2 years	15.0	15.0

[15] See [online] http://www.nama-facility.org/news/101215-extended-information-on-42-nama-support-project-outlines-received-in-the-3rd-call-of-the-nama-facility.html

[16] No reference to ongoing finance was found in the databases accessed: NAMA Pipeline Analysis and Database [online] http://namapipeline.org/ and Ecofys (2015) "NAMA Database Pipeline: September 2015" [online] http://www.nama-database.org/nama-db-pipeline.xls. However, all projects came under the "external support" category.

Table 12 (concluded)

Country	Project title	Description	Implementing body	Implementation period	Amount	
					Project total	Local financing
Mexico	NS 111- NAMA for Sustainable Housing Retrofit	The purpose of this nationally appropriate mitigation action (NAMA) is to broaden the scope of NS 108-NAMA for New Residential Buildings to achieve greater energy efficiency and greenhouse gas emissions reductions	Ministry of Agrarian, Territorial and Urban Development (SEDATU)	1 year	2.5	1,503
	NS 112-Urban NAMA	The purpose of this NAMA, like that of NS 111- NAMA, is to broaden the scope of NS 108-NAMA for New Residential Buildings to achieve greater energy efficiency and greenhouse gas emissions reductions	SEDATU	1 year	0.90	0.90
Dominican Republic	NS 118-Energy Efficiency in Public Sector	This NAMA involves the implementation of energy efficiency measures identified in National Energy Commission (CNE) audits	National Council for Climate Change and the Clean Development Mechanism (CNCCMDL)	3 years	145 300	145 300
	NS 149-Reducing Greenhouse Gas Emissions (GHG) Emissions in Pig Farms in the Dominican Republic	The purpose of this NAMA is to reduce greenhouse gas emissions through anaerobic digestion in the country's pig farms	CNCCMDL	15 years	80.0	41.2
Total					261.31	211.9

Source: prepared by the authors, on the basis of NAMA Pipeline Analysis and Database [online] http://namapipeline.org/ and Ecofys, "NAMA Database Pipeline: September 2015" [online] http://www.nama-database.org/nama-db-pipeline.xls.

2. National climate funds

IDB defines a national climate fund as a financial mechanism that allows countries to collect, blend and manage all incoming revenue streams, both international and national, related to climate change into one, centralized fund (Meirovich, Peters and Ríos, 2013).

According to UNDP (2011), national climate funds make it easier to combine climate finance from public, private, bilateral and multilateral sources to fund actions enabling countries to meet their climate-change and development priorities.

In most cases, the finance for national climate funds comes from a range of sources —domestic and foreign, public and private— with few instances where they are financed solely from the national budget. One exception outside Latin America and the Caribbean is the Bangladesh Climate Change Trust Fund, which is financed solely from the national budget. In Latin America and the Caribbean, the exception is Colombia's national adaptation fund (set up to assist with adaptation measures for communities affected by La Niña phenomenon in 2010-2011), which has been made a separate item under the "overheads" heading in Colombia's national budget. All other such

instruments, including those of Latin America and the Caribbean, provide for the possibility of raising funds from non-State sources. However, in practice —at least in the case of the Brazilian and Mexican climate funds, which mobilize the biggest volume of resources in the region— they are funded by the State, even though the law establishing them provides for external sources of capital to supplement State funding.

Below is a brief description of the Mexican, Colombian and Brazilian climate funds. As limited public information was available on the funds analysed, not all the data are equally detailed and up to date.

For the purposes of this study, the data on the Mexican and Brazilian funds were posted under the banks that manage the funds. In the case of the Mexican fund, this information is included in the data reported by NAFIN, while for the Brazilian fund it is included in the data reported by BNDES and Banco do Brasil. In the case of Banco do Brasil, the data were posted as "other funds", as were those of Colombia, and are duly indicated in the respective tables.

(a) Colombia's national adaptation fund

While Colombia's national adaptation fund to assist with adaptation measures for communities affected by La Niña phenomenon in 2010-2011 does not address climate change explicitly, the fund has been counted as a climate change instrument because it is intended to mitigate the risk of natural phenomena, which are set to increase in line with expected future global climate changes.

The adaptation fund was established by Decree 4819 of December 2010 with the aim of identifying, structuring and managing projects, conducting procurement, providing and transferring resources for the rehabilitation, construction and reconstruction of infrastructure for transport, telecommunications, environment, agriculture, public services, housing, education, health, water and sewage, wetlands, strategic floodplains, economic rehabilitation of agricultural and livestock sectors affected by the heavy rains, and any other actions required by La Niña phenomenon in 2010-2011, as well as to permanently prevent any prolongation of its effects in order to mitigate and prevent risk and subsequently protect the public from current economic, social and environmental threats (Samaniego and Schneider, 2015).

The 2010-2011 La Niña (positive, or cold, phase of the El Niño Southern Oscillation) was seen as the biggest disaster in Colombia's history. It affected 4.4 million people (9% of the total population) and 1,041 municipal districts (or 93% countrywide). Between April 2010 and December 2011, a total of 740 people died, more than 13,000 homes were destroyed and nearly 700,000 were damaged. It caused economic losses of US$7.8 billion, mainly from destruction of infrastructure, flooding of agricultural land and payment of government subsidies (Hoyos and others, 2013). The impact of La Niña episode in 2010-2011 was more intense than any to have occurred between 1970 and 2010. An indication of the increasing intensity and geographical coverage of La Niña episodes over this period is the rise in the number of people injured or affected and the number of homes affected, as table 13 shows.

Table 13
Recorded disaster events and physical losses caused by La Niña episodes, between 1970 and 2011
(Absolute values)

Episode	Recorded disaster events	Deaths	People injured or affected	Homes destroyed	Homes affected
1970-1972	1 515	821	678 885	7 046	14 450
1973-1976	1 366	1 010	204 998	6 886	5 157
1983-1984	117	153	30 991	417	216
1984-1985	813	257	243 796	2 424	1 307

Table 13 (concluded)

1988-1989	782	502	717 293	3 644	7 018
1995-1996	1 009	185	1 179 117	6 807	39 081
1998-2001	2 338	527	3 217 389	9 846	56 337
2005-2006	1 041	268	1 227 861	4 658	54 550
2007-2008	1 519	242	2 206 232	5 258	80 632
2010-2011	4 362	740	4 493 830	13 422	671 587

Source: Corporación OSSO, "La ruralidad, la fragilidad urbana y el fenómeno La Niña en Colombia, 1970-2011", background paper prepared for the Global Assessment Report on Disaster Risk Reduction 2013, Geneva, 2013.

The initial budget of the national adaptation fund was set at 14 trillion Colombian pesos, which in 2012 was reduced by the Ministry of Finance and Public Credit (MinHacienda) to 9.3 trillion Colombian pesos (around 6% of the national budget for 2012) until 2014 (Fondo Adaptación, 2013). In October 2013, an increase of 5.7 trillion Colombian pesos in the share of future budgetary appropriations was approved for the period 2014-2018 (Ministry of Finance and Public Credit, 2013).

For 2015, the national budget earmarked 1.525 trillion Colombian pesos for the adaptation fund, equivalent to US$519 million (or 0.7% of the national budget). Table 14 shows the performance of the adaptation fund budget from 2012 to 2015.

Table 14
Funding approved for Colombia's national adaptation fund (2012-2015)

National budget					
(Trillions of Colombian pesos)	2012[a]	2013[a]	2014[b]	2015[b]	Total
Total national budget	165,276	185,524	199,854	203,658	
Adaptation Fund	1,027	2,020	1,026	1,525	5,597
Millions of dollars	545.96	1,074.0	512.50	519.4	2,652
Percentage of total	0.6	1.1	0.5	0.7	

Source: Prepared by the authors, on the basis of Ministry of Finance and Public Credit of Colombia, "Presupuesto general de la Nación", 2011, 2012, 2013 and 2014.
[a] 1 US$ of 14 August 2014: 1,882 Colombian pesos.
[b] 1 US$ of 13 August 2015: 2,000 Colombian pesos. See [online] http://www.colombia.com/cambio_currency/.

By the end of 2014, the adaptation fund had made operating and investment commitments worth 1,022,700,800,000 Colombian pesos (or 99.6% of the current budget of 1,026,356,000,000 Colombian pesos). According to Colombia's budget implementation report as at 31 December 2014 (Fondo Adaptación, 2015), these commitments led to liabilities of 22,503,100,000 Colombian pesos and a total of 20,935,790,000 Colombian pesos were disbursed, corresponding to 2.05% of the committed amount, as table 15 shows.

Table 15
Implementation of Colombia's 2014 expenditure budget
(Millions of Colombian pesos as of 31 December 2014)

Item	Initial budget	Current budget (A)	Budget availability certificate (CDP)	Available appropria-tion	Commitments (C)	Liabilities	Payments (P)	Percentage committed (C/A)	Percentage implemented (P/C)
Payroll costs	17 331.0	17 444.0	17 313.6	124.1	16 814.1	16 783.4	16 645.6	96.4	99.0
Overheads	2 845.0	3 580.0	3 347.2	232.3	2 896.5	2 729.4	2 419.5	80.9	83.5
Subtotal operating costs	20 176.0	21 024.0	20 660.8	356.4	19 710.6	19 512.8	19 065.2	93.7	96.7
Transfers to the public sector	425.0	1 432.0	1 432.0	0.0	1 431.1	1 431.01	1 431.1	99.9	100.0
Other transfers	5 000.0	3 900.0	3 900.0	0.0	1 559.11	1 559.11	439.54	39.9	28.2
Subtotal transfers	5 425.0	5 332.0	5 332.0	0.0	2 990.2	2 990.2	1 870.6	56.1	62.6
Investment	1 000 000.0	1 000 000.0	1 000 000.0	0.0	1 000 000.0	0.0	0.0	100.0	0.0
Total	1 025 601.0	1 026 356.0	1 025 992.8	356.4	1 022 700.8	22 503.1	20 935.8	99.6	2.05

Source: Financial Information Integrated System, 2015 [online] http://www.minhacienda.gov.co/HomeMinhacienda/siif.

After a report by the Comptroller-General of the Republic, in September 2015, warned of the low implementation rate of adaptation fund projects, the adaptation fund's governing council authorized resource delivery to be decentralized as part of a streamlining strategy. In addition, a rule was introduced into the National Development Plan 2014-2018 stating that, until 31 December 2018, the adaptation fund was allowed to procure works privately, which should streamline the process. Private-sector procurement means that the adaptation fund is not governed by Law 80 on public procurement. Nor would the fund's activity be halted by the enactment of a law on electoral guarantees because it is understood that the nature of its work requires the fund to be able to resolve emergency issues quickly.

(b) Mexico's Climate Change Fund

Mexico is one of the few Latin American and Caribbean countries to have a specific climate fund: the Climate Change Fund (FCC). Mexico's General Law on Climate Change[17] of 2012 established the fund in order to raise and channel public, private, domestic and international financial resources to support the implementation of actions to curb climate change. It prioritizes adaptation-related actions in implementing the fund's resources. The General Law on Climate Change allows the assets of Mexico's Climate Change Fund to be drawn from: the government budget and other public funds; taxes, levies, fees and royalties as provided for under applicable law; grants from national or international individuals and legal entities; contributions from other Governments and from international organizations; the value of any certified emission reductions from projects implemented in the United Mexican States that may be acquired by the Fund voluntarily in the market; and any other resources obtained in accordance with other legal provisions (Barrientos, 2013). The Fund's resources are deposited with NAFIN, acting as trustee.

Information published in national tender 07/15 indicates that, until September 2015, the Climate Change Fund was funded solely by the Mexican Federal Government. They are non-reimbursable funds.

The beneficiaries may be:

- Agencies and devolved and decentralized bodies of Mexico's Federal Public Administration (AFP).
- Public sector entities.
- State and municipal governments.
- Private sector entities.
- Civil society organizations.
- Academic organizations.
- Individuals.

[17] The General Law on Climate Change (Ley DOF 06-06-2012), Chapter VII, articles 80-86, established the Climate Change Fund (FCC).

The public trust agreement of November 2012 was drawn up with the Secretariat of Finance and Public Credit (SHCP)[18] as settlor and NAFIN as trustee. The Secretariat of Environment and Natural Resources (SEMARNAT), jointly with the General Directorate of Climate Change Policies (DGPCC), is the unit responsible for the Fund.

Article 82 of the General Law on Climate Change[19] lists the following items for which Climate Change Fund resources are intended.

- Actions for climate change adaptation.
- Projects that contribute simultaneously to climate change mitigation and adaptation.
- Development and implementation of actions to mitigate emissions in line with the priorities of the National Strategy for Climate Change, Special Climate Change Programme and Federal State programmes relating to climate change, in particular, projects in the areas of: energy efficiency; development of renewable and second-generation biofuels; disposal or use of fugitive methane and gas emissions associated with the exploration of coal ore deposits; and development of sustainable transport systems.
- Education, sensitization, awareness-raising and information programmes for the transition to a low-carbon economy incorporating climate change adaptation.
- Studies and assessments.
- Research, innovation, technological development and technology transfer projects.
- Purchase of certified emission reductions.
- Other climate change-related projects and actions considered strategic by Mexico's Interministerial Commission on Climate Change (CICC).[20]

According to the SEMARNAT third annual report for 2014-2015 (SEMARNAT, 2015), during the reporting period the Climate Change Fund had at its disposal Mx$102 million (equivalent to US$6 million[21]) for adaptation and climate change mitigation projects. Between September 2014 and August 2015, the technical committee approved five projects worth a total of US$2.8 million:

- Two for climate change education and sensitization.
- One for implementing municipal systems of zero-carbon public transport and urban mobility.
- One for climate change adaptation with co-benefits in the form of blue carbon sequestration and storage.
- One for the use of compressed natural gas as a fuel for vehicle fleets.

As more detailed information on the Climate Change Fund could not be found in the literature or on the websites of the Fund's management and administration bodies (SEMARNAT and NAFIN),

[18] Secretariat of the Interior (SEGOB), Secretariat of Finance and Public Credit (SHCP), Secretariat of Social Development (SEDESOL), Secretariat of Environment and Natural Resources (SEMARNAT), Secretariat of Energy (SENER), Secretariat of Economic Affairs (SE), Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) and Secretariat of Communications and Transport (SCT), 2014. Climate Change Fund National Tender 01/14: to support an audiovisual project for climate change education and environmental and cultural sensitization.

[19] General Law on Climate Change (Ley DOF 06-06-2012).

[20] The Interministerial Commission on Climate Change was established by presidential decree in 2005. It comprises 10 Secretariats and is coordinated by the Secretariat of Environment and Natural Resources (SEMARNAT).

[21] For 2015 values, the exchange rate of Mx$ 16.85 on 7 September 2015 was used. See [online] https://www.imf.org/external/np/fin/data/rms_mth.aspx?SelectDate=2015-09-30&reportType=REP.

below is a description of the three latest national tenders, which are available on the SEMARNAT website,[22] to give an idea of the Fund's focus and the amount of resources allocated to each project.

- National tender 01/14 to support an audiovisual project for climate change education and environmental and cultural sensitization: Mx$8million (equivalent to US$595,000).[23]
- National tender 07/15 to support education, sensitization and awareness-raising projects: Mx$10million (equivalent to US$593,000).
- National tender 06/15 to identify the regulatory requirements for meeting INDC commitments for mitigating short-lived climate pollutants and to develop legislation to regulate their main emission sources: Mx$10million (equivalent to US$593,000).

(c) Brazil's Climate Fund

Brazil's National Fund on Climate Change (Fundo Nacional sobre Mudança do Clima), or Climate Fund, was established by Law 12114/2009 and regulated by Decree 7343/2010 as one of the instruments of Brazil's National Policy on Climate Change (PNMC), which was established by Law 12187/2009. The purpose of the Fund is to finance projects, studies and initiatives focusing on climate change mitigation (impact reduction) and adaptation.

The Fund is attached to the Ministry of the Environment (MMA). It provides two types of funding: reimbursable and non-reimbursable. Reimbursable funds are managed by BNDES. Non-reimbursable funds are managed directly by the Ministry of the Environment. While the Fund is financed from a variety of sources, in practice (as in Mexico), the biggest, though not the only, contributor is the State through the budget. According to the law instituting the Fund, its funding sources are:

- 60% of oil royalties,
- appropriations contained in Brazil's Annual Budget Law (LOA),
- resources from agreements, settlements, contracts and covenants concluded with federal, state, district and municipal government agencies and bodies,
- grants from national and international, public or private entities,
- loans from national and international financial institutions,
- reversal of unspent annual balances,
- interest payments and loan repayments.

The Fund covers 12 areas, subdivided into themes and project lines, which are distributed between the two types of support (reimbursable and non-reimbursable), as follows.

(i) Non-reimbursable funds cover five areas:

- Area 1 technology development and dissemination.
- Area 2 adaptive practices for the sustainable development of the semi-arid region.
- Area 3 education, training, skill development and mobilization.

[22] See [online] http://www.semarnat.gob.mx/sites/default/files/documentos/cambio_climatico_19092014.pdf http://www.semarnat.gob.mx/sites/default/files/documentos/convocatoria_7.pdf y http://www.semarnat.gob.mx/sites/default/files/documentos/convocatoria_6.pdf (7 September 2015).

[23] For 2014 values, the exchange rate of Mx$13.433 on 31 September 2014 was used. See [online] https://www.imf.org/external/np/fin/data/rms_mth.aspx?SelectDate=2015-09-30&reportType=REP.

- Area 4 adaptation of society and ecosystems.
- Area 5 monitoring and evaluation.

(ii) Reimbursable funds cover seven areas:

- Area 1 infrastructure.
- Area 2 renewable energy.
- Area 3 industry.
- Area 4 combating desertification.
- Area 5 sustainable cities and climate change.
- Area 6 native forest.
- Area 7 carbon management and services.

The Fund is managed by a steering committee chaired by the executive secretary of the Ministry of the Environment who plays a strategic role in guiding the committee.

Over three years of operation, the Fund's budget totalled R$1.173 billion (equivalent to US$525 million). Table 16 shows the composition of its budget, by source of financing, in 2012, 2013 and 2014.

Table 16
Budget of Brazil's Climate Fund defined in the Annual Resource Allocation Plans (PAAR) of 2012, 2013 and 2014

Annual Resource Allocation Plan	Source of financing	Brazilian real (R$)
2012[a]	142 - Oil and natural gas royalties	29 100 000
	100[b] - Regular resources	360 000 000
	Other own resources	4 627 000
	Total	393 727 000
2013[a]	142 - Oil and natural gas royalties	20 292 000
	196 - Grants from individuals and national public and private institutions	8 096 000
	100 - Regular resources, for reimbursable financing	360 000 000
	Other own resources	414 000
	Total	388 802 000
2014[c]	280 - Own resources	19 648 000
	196 - Grants from individuals and national public and private institutions	10 000 000
	100 - Regular resources, for reimbursable financing	360 000 000
	Other own resources	352 000
	Total	390 000 000
	GRAND TOTAL	1 172 529 000

Source: Ministry of the Environment, *Plano Anual de Aplicação dos Recursos (PAAR)*, Brasilia, 2012; *Plano Anual de Aplicação dos Recursos* (PAAR), Brasilia, 2013; and *Atlas em execução com os recursos não reembolsáveis*, Brasilia.
[a] Exchange rate US$1 = R$2.16.
[b] Revenue stream 100 (regular resources, for reimbursable financing) is managed by the National Economic and Social Development Bank (BNDES).
[c] Exchange rate US$1 = R$2.39.

Between 2011 and 2014, around R$196 million were invested in initiatives for: structuring Brazil's National Policy on Climate Change; adaptation of vulnerable groups to climate change; and mitigation and off-setting carbon emissions (MMA, 2014b).

Of this total, the Climate Fund provided 189 projects with non-reimbursable funds totalling around R$96 million, for the deployment of infrastructure for collecting and processing climate-related information, emissions monitoring, development of technical and scientific methodologies and procedures, risk and impact assessment prevention and pilot projects for recovery and adaptation in vulnerable areas of coastal and semi-arid ecosystems, deforested areas and underpopulated areas (MMA, 2014b).

According to data from BNDES,[24] in 2014 a total of US$2.4 million was disbursed as BNDES-managed reimbursable financing. A total of US$4.5 million (R$10.8 million) was disbursed as non-reimbursable financing (Portal Brasil, 2014). According to the Ministry of the Environment, (MMA, 2014a), a sharp reduction in this amount is expected in 2015, bringing it to R$7.5 million (equivalent to US$3.1 million).

(d) Brazil's Amazon Fund

Apart from its Climate Fund, Brazil implements the Amazon Fund (Fundo Amazônia),[25] aimed at projects conducted in the Amazon biome that help to achieve the objectives of Brazil's National Policy on Climate Change, for reducing emissions and greenhouse gases.

The Amazon Fund is managed by BNDES whose work and decision-making is supported by a Guidance Committee (COFA) with members representing Brazil's Federal Government, the States of the Legal Amazon region and civil society organizations.

The Fund is responsible for raising donor funding for non-reimbursable investments designed to prevent, monitor and control deforestation, as well as to promote the conservation and sustainable use of the Amazon rainforest.

Although the Amazon biome is the main focus of the Amazon Fund, it also promotes the implementation of deforestation monitoring and control systems in other Brazilian biomes and in other tropical member countries of the Amazon Cooperation Treaty Organization (ATCO), including the transfer of satellite tracking technology from Brazil's National Institute for Space Research (INPE).

The Amazon Fund is not a government programme but a fund-raising mechanism in support of projects that accord with policies already approved by the Brazilian Government. It funds government policies such as the Action Plan for Prevention and Control of Deforestation in the Legal Amazon (PPCDAM) and Sustainable Amazon Plan (PAS).

Fund-raising is based on the actual reduction of CO_2 emissions, meaning that in order to be able to raise new funding, evidence must be provided that emissions have been reduced in the Amazon. As the Fund is not a programme and has no budget, its funding is performance-related.[26] Between 2009 and 31 December 2014, the Amazon Fund received grants totalling the equivalent of US$867.43 million from the Government of Norway, US$28.32 million from Germany and US$5.63 million from Brazilian multinational energy corporation, Petrobras (BNDES, 2015).

By the end of 2014, the Amazon Fund had approved 64 projects worth a total of R$1.039 billion. Fifty-four of the projects (78%) received funding. However, by the end of 2014 the

[24] Personal communication with the Environment Division (AMA/DEMAM) of the National Economic and Social Development Bank (BNDES).
[25] Decree 6527/08.
[26] See [online] http://www.amazonfund.gov.br/FundoAmazonia/fam/site_en/Topo/FAQ/

Fund had disbursed only R$391 million, representing just over one third of the projects in its portfolio, with 43% of all disbursements to projects throughout the Fund's six years in operation taking place in 2014 (around R$168 million) (see table 17) (BNDES, 2015). Some of the funding-access problems cited by civil society sources include complex rules of access, bureaucracy and lack of access to information on Amazon Fund procedures.

Table 17
Amazon Fund: projects approved between 2009 and 2014
(Brazilian reais)

Year	Number of projects approved	Total amount of support	Amount disbursed to projects
2009	5	70 303 338.87	-
2010	8	119 891 704.43	11 105 966.90
2011	9	69 299 105.77	59 740 091.49
2012	13	179 466 341.93	71 205 781.69
2013	14	332 003 810.00	80 903 376.19
2014	21	268 578 173.00	167 954 502.53
Total	69	1 039 542 474.00	390 909 718.80

Source: National Economic and Social Development Bank (BNDES), *Activity Report 2014. Amazon Fund 2014*, 2015.

According to data reported by BNDES,[27] BNDES managed US$72.5 million on behalf of the Amazon Fund in 2014.

It is a little premature to judge the impact of the Amazon Fund because, by late 2013, only the first three projects had been concluded (with the financial implementation of a further 18 projects more than 50% complete). The Fund's contribution to mitigation has not been ascertained either. Over the same period, Brazil has also implemented a number of policies to tackle climate change, managed by various forest-related organizations. The Amazon Fund has doubtless contributed to the declining trend in deforestation that has been seen in the Amazon region over the past 10 years.

(e) Brazil's low-carbon agriculture plan

Brazil's sector plan for mitigation and adaptation to climate change to consolidate a low carbon economy in agriculture (ABC Plan) is one of the sector plans established under Article 3 of Decree 7390/2010 regulating Brazil's National Policy on Climate Change. The ABC Plan was established in 2010.

Although, strictly speaking, the ABC Plan is not a fund because its resources derive mainly from a variety of rural credit lines (from BNDES resources and own resources of BNDES-accredited banks), this document includes the Plan's resources in the "other national funds" category rather than among funds mobilized by development banks because of the Plan's nature, specificity and defined term.

When the ABC Plan was established, an estimated R$197 billion was deemed necessary to achieve its proposed goals, to be financed from the national budget or through lines of credit. Of this total, R$157 billion in rural credit was earmarked to fund the proposed activities in the Plan's various programmes. The national budget is to fund R$33 billion of the costs (MAPA, 2012).

[27] Personal communication with the Environment Division (AMA/DEMAM) of the National Economic and Social Development Bank (BNDES).

The Plan comprises seven programmes, six of which relate to mitigation technologies and one to climate change adaptation actions. The Plan is nationwide and the term is 10 years (2010-2020), with regular review and updates.

- Programme 1: rehabilitation of degraded pastures.
- Programme 2: integrated crop-livestock-forest systems.
- Programme 3: no-till farming.
- Programme 4: biological nitrogen fixation.
- Programme 5: planted forests.
- Programme 6: animal waste treatment.
- Programme 7: climate change adaptation.

It has a specific credit line —Programme for Reducing Greenhouse Gas Emissions in Agriculture (ABC Programme) approved by a resolution of the Central Bank of Brazil (BACEN no. 3896 of 17/08/10). It was set up at BNDES, with BNDES funding, and is subject to Brazil's general rules on rural credit.

For the 2013/2014 crop year, loans worth RS 4.5 billion were expected to be granted. By February 2014, a total of R$2.534 billion (equivalent to US$1.060 billion) had been contracted, with Banco do Brasil accounting for 93% of the credits granted (Observatório do Plano ABC, 2015b).

In the balance sheet of the ABC Plan credit line (July 2010 to April 2015),[28] a total of 32,000 contracts worth R$10.4 billion were concluded. Of this total, 86% were managed by Banco do Brasil (MAPA, 2015).

In June 2015, the total financial contribution of the ABC Programme managed solely by Banco do Brasil totalled R$8.9 billion, having grown by 37.2% in the 12 months since June 2014, when the total was R$6.52 billion. For this study, the ABC data posted as part of Brazil's total climate change finance were solely Banco do Brasil resources, which were equivalent to US$1,014 billion in the 2014/2015 crop year (Banco do Brasil, 2015).

Table 18 shows the trend in funding managed by Banco do Brasil and BNDES, the two institutions operating as the ABC Programme's first- and second-tier credit banks.

In July 2015, the ABC Plan observatory published a study to assess the potential contribution of Brazil's agriculture sector to mitigating climate change, which concluded that not only is the sector fully able to reduce its carbon footprint but it could even take the lead in tackling climate change in Brazil. This reinforces the urgent need to expand the ABC Plan, given its ability to promote the rational use of natural resources and production inputs. The study also concludes that the emissions reduction potential of Brazilian agriculture is more than 10 times greater than the target set by the ABC Plan[29] and that, between 2012 and 2023, the adoption of just three of the technologies provided for in the ABC Plan (grassland restoration, integrated crop-livestock farming and integrated crop-livestock-forest farming) on 52 million hectares of degraded pasture would be enough to cut 1.8 billion tonnes of CO_2 equivalent (tCO_2eq) through avoided emissions and carbon stored in the soil (Observatório do Plano ABC, 2015a).

[28] This is the most up-to-date information published up to 22 October 2015.

[29] 1.168 billion tonnes of CO_2 equivalent (tCO_2eq) emissions and 1.259 billion t CO_2eq, of estimated total emissions by 2020: a total of 3.236 billion t CO_2eq.

Table 18
Funding for the Programme for Reducing Greenhouse Gas Emissions in Agriculture (ABC Programme) managed by Banco do Brasil and the National Economic and Social Development Bank (BNDES)
(Millions of reais)

	2010/2011		2011/2012		2012/2013		2013/2014		2014/2015[a]	
	P	I	P	I	P	I	P	I	P	I
Programme for Reducing Greenhouse Gas Emissions in Agriculture (ABC Programme)	2 000	418.5	3 150	1 526.1	3 400	2 993.1	4 500	2 364.3	4 500	2 533.9
National Economic and Social Development Bank (BNDES)		304.9	2 300	310	1 900	370.3	500	199.1	500	176.9
Banco do Brasil		113.6	850	1 216.1	1 500	2 622.8	4000	2 165.3	4000	2 357.1

Source: J. Samaniego and Heloisa Schneider, "Financiamiento para el cambio climático en América Latina en 2013" (LC/W.656), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2015; and Observatório do Plano ABC, *Análise dos recursos do Programa ABC. Foco na Amazônia legal - Potencial de redução de GEE e estudo de caso sobre o Programa ABC em Paragominas*, May 2015.
Notes: P: Programmed. I: Implemented.
[a] Data for the eight-month period from June 2014 to February 2015.

The study's authors point out that this estimate is conservative, given the study's methodology and scope: it ignores other technologies in the ABC Plan, such as biological nitrogen fixation in non-soy crops; includes only the 1,285 municipal districts with degraded pastures; and considers only cattle and seven crops (rice, maize, wheat, sugar cane, beans, cotton and pasture). This universe accounts for 13% of total emissions from the agricultural sector, which was responsible for 32% of Brazil's CO_2 equivalent emissions in 2010 (Observatório do Plano ABC, 2015a).

3. Multilateral development banks

MDBs have been actively involved in climate finance. In 2014, seven[30] major MDBs[31] together provided US$28.35 billion in finance for climate change-related initiatives. This was a 16% increase over 2013, when the total was US$23.8 billion, according to the Joint Report on MDB Finance 2014.

[30] African Development Bank (AfDB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), Inter-American Development Bank (IDB), World Bank (WB) and International Finance Corporation (IFC).

[31] Multinational development banks (MDBs) are supranational institutions established by sovereign States, which are their shareholders. Their remit reflect the development aid and cooperation policies established by these States. MDBs provide financial assistance to developing countries, typically in the form of loans and grants, for investment projects and policy-based loans. The main MDBs are: the World Bank, International Fund for Agricultural Development (IFAD), which operate globally; subregional MDBs (European Investment Bank (EIB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), Development Bank of Latin America (CAF), Inter-American Development Bank (IDB) Group, African Development Bank, (AfDB) and Islamic Development Bank (IsDB)); and regional MDBs (Caribbean Development Bank (CDB), Central American Bank for Economic Integration (CABEI), East African Development Bank (EADB), West African Develoment Bank (BOAD), Black Sea Trade and Development Bank (BSTDB) Eurasian Development Bank (EDB)).

Of this total, 82% (US$23.3 billion) was earmarked for mitigation and the remaining 18% (US$5.1 billion), for adaptation.

Of the total commitments, 91% came from MDBs' own resources and the remaining 9% (or US$2.6 billion) came from external sources, such as bilateral or multilateral donors, GEF and CIF (AfDB and others, 2015).

An average 22% of the total financial resources of this group of MDBs was allocated to climate change-related initiatives. The bank with the biggest climate portfolio is the European Bank for Reconstruction and Development (EBRD), with a 36% share (compared with 31% in 2013). IDB, the group's only Latin America and Caribbean member, devoted 12% of its financial activities to climate finance in 2014 —a 4 percentage-point increase over 2013 when the figure was 8% (AfDB and others, 2014 and 2015).

In 2012, Latin American and Caribbean countries were the main beneficiaries, with 18% of total MDB finance. In 2013, the region received 12% of the funds, having been displaced by non-European Union and Central Asian countries, which received 22% of MDB funding. In 2014, the Latin American and Caribbean region once again became a major beneficiary (17%), the largest being South-east Asia, with 21% (AfDB and others, 2013, 2014 and 2015).

Table 19 on the distribution of combined resources earmarked by the seven MDBs for mitigation and adaptation worldwide in 2012, 2013 and 2014, by sector, shows an increase in finance for sustainable transport initiatives, in the case of mitigation, and for the agriculture sector, in the case of adaptation (AfDB and others, 2015).

In 2014, the Latin American and Caribbean region received 9% of all finance earmarked for adaptation and 18% of all finance for mitigation (AfDB and others, 2015).

Table 19
Combined resources earmarked by the seven multilateral development banks for mitigation and adaptation worldwide, by sector (2012- 2014)
(Percentages of total)

Mitigation				Adaptation			
Sector	Percentage share			Sector	Percentage share		
	2012	2013	2014		2012	2013	2014
Renewable energy	36	25	35	Energy, transport, and other built environment and infrastructure	36	30	23
Agriculture, forestry and land use	6	4	2	Agriculture and ecological resources	34	20	36
Energy efficiency	17	23	22	Coastal and riverine infrastructure		22	17
Sustainable transport	23	22	27	Water and wastewater systems	8	16	11
Energy efficiency, renewable energy and other financing through financial intermediaries or similar		15	9	Industry, extractive industries, manufacturing and trade			5
Water and wastewater systems	2	1	1	Institutional capacity			5
Other	16	10	4	Other	22	12	5
Total	100	100	100		100	100	100

Source: African Development Bank (AfDB) and others, *2014 Joint Report on Multilateral Development Banks' Climate Finance.* 2015; *Joint Report on MDB Climate Finance 2013*, 2014; and *Joint Report on MDB Climate Finance 2012,* 2013.

(B) World Bank

The World Bank Group's work on climate change focuses on five key areas: building low-carbon, climate-resilient cities; promoting climate-smart agriculture and nurturing forest landscapes; accelerating energy efficiency and investment in renewable energy; supporting work to end fossil fuel subsidies; and developing carbon pricing to get prices right for reducing emissions (World Bank, 2015a).

The World Bank approved US$6 billion for 33 projects in Latin America and the Caribbean in the 2015 fiscal year.[32] Support included US$5.7 billion in loans from the International Bank for Reconstruction and Development (IBRD)[33] and US$315 million in commitments from the International Development Association (IDA). The sectors allocated the most funding were: health and other social services (US$1.6 billion); public administration, law and justice (US$1.3 billion); and education (US$1 billion). As regards lending by theme, social protection and risk management received 31%, followed by human development (18%) and social development, gender and inclusion (12%). Environment and natural resources management was allocated 2% in 2015, compared with 8% in 2013 and 9% in 2014 (World Bank, 2015a) (see table 20).

Table 20
Commitments and disbursements for Latin America and the Caribbean in the fiscal years 2011-2015

Institution	Commitments *(millions of dollars)*					Disbursements *(millions of dollars)*				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
International Bank for Reconstruc-tion and Development (IBRD)	9 169	6 181	4 769	4 609	5 709	8 376	6 726	5 308	5 662	5 726
International Development Association (IDA)	460	448	435	460	315	322	342	273	306	383
Total	9 629	6 629	5 204	5 069	6 024	8 698	7 068	5 581	5 968	6 109

Source: World Bank, *Annual Report 2015*, Washington, D.C., 2015.

[32] Authors' note: the reporting period runs from 1 July 2014 to 30 June 2015.

[33] The World Bank comprises five institutions:

(i) International Bank for Reconstruction and Development (IBRD), which lends to Governments of middle-income and creditworthy low-income countries.

(ii) International Development Association (IDA), which provides interest-free loans —called credits— and grants to Governments of the poorest countries (together, IBRD and IDA make up the World Bank).

(iii) International Finance Corporation (IFC), which is the largest global development institution focused exclusively on the private sector. It helps developing countries to achieve sustainable growth by financing investment, mobilizing capital in international financial markets, and providing advisory services to businesses and Governments.

(iv) Multilateral Investment Guarantee Agency (MIGA), which was created in 1988 to promote foreign direct investment into developing countries to support economic growth, reduce poverty, and improve people's lives. MIGA fulfills this mandate by offering political risk insurance (guarantees) to investors and lenders.

(v) International Centre for Settlement of Investment Disputes (ICSID), wich provides international facilities for conciliation and arbitration of investment disputes.

In 2014, resources worth US$1.398 billion were approved for climate projects in the region. Of this total, 30% s went to Brazil, 22% to Ecuador and 15% to Colombia. Table 21 lists the projects and beneficiary countries.

Table 21
Projects for tackling climate change financed by the World Bank in Latin America and the Caribbean in 2014

Project	Country	Amount approved	Percentage of total	Approval date
BO Access and Renewable Energy (P127837)	Bolivia (Plurinational State of)	50	3.6	27 May 2014
BO Improving Employability and Labour Income of Youth (P143995)	Bolivia (Plurinational State of)	20	1.4	15 May 2014
BR Bahia Sustainable Rural Development (P147157)	Brazil	150	10.7	27 June 2014
BR ES Integrated Sustainable Water Management Project (P130682)	Brazil	225	16.1	28 March 2014
BR Strengthening Public Management and Territorial Development Technical Assistance Loan (P126735)	Brazil	48	3.4	12 February 2014
HN and NI Catastrophe Risk Insurance (P149895)	Honduras y Nicaragua	24	1.7	18 June 2014
CO Access with Quality to Higher Education (P145782)	Colombia	200	14.3	1 April 2014
D Disaster Vulnerability Reduction (APL3) (P129992)	Dominica	17	1.2	1 May 2014
EC Manta Public Services Improvement Project (P143996)	Ecuador	100	7.2	8 August 2013
EC Quito Metro Line One (P144489)	Ecuador	205	14.7	25 July 2013
GY Flood Risk Management (P147250)	Guyana	11.9	0.9	4 June 2014
GY Secondary Education Improvement (P147924)	Guyana	10	0.7	4 June 2014
HT Center and Artibonite Regional Development (P133352)	Haiti	50	3.6	19 May 2014
HT Cultural Heritage Preservation and Tourism Sector Support (P144614)	Haiti	45	3.2	19 May 2014
J Integrated Community Development Project (P146460)	Jamaica	42	3.0	14 March 2014
NI Sustainable Rural Water Supply and Sanitation Sector (P147006)	Nicaragua	30	2.1	18 March 2014
PE Cusco Transport Improvement (P132505)	Peru	120	8.6	28 February 2014
6O (APL2) LC Disaster Vulnerability Reduction (P127226)	Saint Lucia	41	2.9	4 June 2014
Market Instruments for Climate Change Mitigation in Chile (P130378)	Chile	3	0.2	27 August 2014
Market Instruments for Climate Change Mitigation in Mexico (P129553)	Mexico	3	0.2	31 October 2014
Colombia Partnership for Market Readiness (P129531)	Colombia	3	0.2	31 October 2014
Total		1 397.9	100.0	

Source: Prepared by the authors, on the basis of World Bank databases [online] http://www.worldbank.org/en/topic/climatefinance/overview#1 and http://maps.worldbank.org/p2e/mcmap/map.html?code=LCR&level=region&indicatorcode=0553&title=Latin%20America%20And%20Caribbean&org=ibrd.

(a) Climate Investment Funds

Although the Climate Investment Funds (CIF) are not a bank, for the purposes of this document it was deemed fitting to include them in the MDB category because CIF are distributed mainly through MDBs and have disbursed a large amount of finance for climate change mitigation and adaptation worldwide.

CIF were established in 2008 and CIF-implementing MDBs include IDB, AfDB, Asian Development Bank, EBRD and World Bank Group.

CIF comprise funds to support developing countries in their transition to low-carbon development. The funds are designed to contribute to both development and tackling climate change. Through CTF and the Strategic Climate Fund (SCF), CIF support climate change mitigation and adaptation through grants, concessional funds and risk mitigation instruments that leverage financing from the private sector, MDBs and other sources. SCF comprises three funds: Forest Investment Program (FIP); Scaling Up Renewable Energy in Low Income Countries Program (SREP); and Pilot Program for Climate Resilience (PPCR).

The projects relate to such issues as clean technology, sustainable forest management, increased energy access through renewable energy and climate-resilient development.

As of 31 December 2014, US$4.4 billion in CIF funding (54% of total pledged resources of US$8.1 billion) had been approved by MDBs, with an additional US$34 billion in co-financing from other sources to implement 127 projects (of 291 in the pipeline) in 44 of the 63 pilot countries. CIF is expected to achieve an overall co-finance ratio of 1:7.7, meaning that for every CIF dollar, US$7.70 is being invested by other organizations (Climate Investment Funds Administrative Unit, 2014).

CIF cumulative disbursements as of 31 December 2014 stood at US$1.26 billion, with CTF accounting for 90.5% of this total (see table 22). Only 29% of the total finance approved has been disbursed. The fund with the best disbursement rate was CTF, with 35% (Climate Investment Funds, 2015).

Table 22
Climate Investment Funds: cumulative disbursements by fund
(Millions of dollars)

Year	Clean Technology Fund (CTF)	Pilot Program for Climate Resilience (PPCR)	Forest Investment Program (FIP)	Scaling Up Renewable Energy Program (SREP)	Total
2014	513.5	43.9	5.4	11.3	574.1
2013	260.5	29.7	7.2	3	300.4
2012	152.8	12.1	1.1	0.9	166.9
2011	94.7	4.6	0.2	0.3	99.8
2010	116.1	0.4	0	0	116.5
Total	1 137.6	90.7	13.9	15.5	1 257.7

Source: Climate Investment Funds (CIF), CIF Disbursement Report (For reporting period July 1 - December 31, 2014), Washington, D.C., 2015.

According to data published by Climate Funds Update, the four CIF approved resources worth US$709.7 million in 2014. Latin America and the Caribbean received 27% of this total (US$190.2 million). CTF was the fund that disbursed the most resources, providing US$68.7 million for two projects; one for Honduras and the other for Chile. The country that received the most resources was Brazil, with 30% of the total. Chile came second with 26%.

In 2013, climate funds totalled US$145.84 million, distributed among seven projects. In the same year, CTF accounted for 85% of all resources from these funds. In 2014, its share was 31%.

The difference between the two values —the one published by CIF (2015) and the data in the Climate Funds Update database[34]— is a result of the chosen cut-off date for information and whether projects are approved or disbursed. While Climate Funds Update data are updated in June 2015 and relate to amounts approved, CIF data are updated in 31 December 2014 and relate to amounts disbursed. This study uses Climate Funds Update data, presenting CIF data only to benchmark the performance of these funds worldwide. Table 23 shows amounts approved in Latin America and the Caribbean in 2013 and 2014, by country and by fund.

[34] See [online] climatefundsupdate.org/data.

Table 23
Climate Investment Funds projects approved in Latin America and the Caribbean in 2013 and 2014
(Millions of dollars)

	Clean Technology Fund (CTF)		Forest Investment Program (FIP)		Scaling Up Renewable Energy in Low Income Countries Program (SREP)		Pilot Program for Climate Resilience (PPCR)		Total		Percentage of total	
	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014
Brazil			16.54	57.0					16.54	57.0	11.3	30.0
Chile	49.0	48.75							49.0	48.75	33.6	25.6
Colombia	74.35								74.35		51.0	
Dominica								21.0		21.0		11.1
Haiti								8.0		8.0		4.2
Honduras		2.0			2.95	5.5			2.95	25.5	2.0	13.4
Mexico			3.0	3.0					3.0	3.0	2.1	1.6
Saint Lucia								27.0		27.0		14.2
Total	123.35	68.75	19.54	60.0	2.95	5.5		56.0	145.84	190.25	100.0	100.0

Source: Prepared by the authors, on the basis of data from Climate Funds Update [online] www.climatefundsupdate.org/data.

4. Regional development banks

(a) European Investment Bank

The European Investment Bank (EIB) has been authorized to lend in Latin America since 1993, when the first mandate for Asia and Latin America was approved by the Council of the European Union. On 1 July 2014, the European Union's new external lending mandate, covering the period 2014-2020, entered into force, providing for a ceiling of almost 2.3 billion euros for operations in Latin America. In addition, in some cases EIB can provide lending from own resources under the Climate Action and Environment Facility or the Strategic Projects Facility, amounting to a combined total of 2 billion euros. This provides extra possibilities for EIB to support energy and environmental projects of interest to the European Union (EIB, 2014). This goes to explain the importance of EIB as a climate finance provider in the region, providing 2.8% (US$607 million) of the total in 2014. It contributed 3.4% (US$665 million) of total climate finance in 2013.

Latin American countries eligible for EIB financing are: Argentina, Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Plurinational State of Bolivia and Uruguay.

In 2013, resources for climate-related projects in the region totalled US$665 million, of which 38% were regional and rest were distributed among Brazil, Costa Rica, Paraguay and Nicaragua. The main focus was renewable energy.

In 2014, EIB lending in Latin America and the Caribbean totalled 650 million euros, mainly for five projects. Of this total, 500 million euros (equivalent to US$607 million) were for the following climate change-related initiatives (shown in table 24) (EIB, 2014).

- 150 million euros to support small and medium-sized enterprises (SMEs) and midcaps in Mexico.
- A 150 million-euro loan for climate change mitigation, especially large and medium-scale renewable energy schemes in Chile.
- A 200 million-euro loan to finance the acquisition of passenger train sets to provide regional passenger services in São Paulo (Brazil). The project is expected to bring an overall improvement to the environment by reducing transport-related emissions.

Table 24
Climate-related lending by the European Investment Bank in Latin America and the Caribbean in 2014

Country	Euros	Dollars	Project
Brazil	200.00	242.82	São Paulo Rolling Stock
Chile	150.00	182.12	150 million euros for climate action projects in Chile
Mexico	150.00	182.12	Latin American Global Loan for Small And Medium-sized Enterprises and Midcaps
Total	500.00	607.05	

Source: European Investment Bank (EIB), "EIB financing in Latin America", 2014 [online] http://www.eib.org/attachments/country/factsheet_latin_america_2014_en.pdf.
Note: 1 euro = US$ 1.214100 on 31 December 2104 [online] https://www.imf.org/external/np/fin/data/rms_mth.aspx?SelectDate=2014-12-31&reportType=REP

(b) Inter-American Development Bank

The Inter-American Development Bank (IDB) is considered to be the leading source of development finance for Latin America and the Caribbean. Its mission is to help eradicate poverty and inequality and to promote sustainable economic growth. It operates as a traditional bank that not only provides loans, grants and technical assistance but also conducts research. IDB provides soft loans to its most vulnerable member countries through the Fund for Special Operations (FSO).

IDB is currently owned by 48 member states, including 26 borrowing members, all in Latin America and the Caribbean, which have a majority stake in IDB.[35]

To monitor the distribution of its lending, IDB divides countries into Groups I and II based on per capita GDP. It channels 63% of its lending volume to Group I countries: Argentina, Bahamas, Barbados, Bolivarian Republic of Venezuela, Brazil, Chile, Mexico, Trinidad and Tobago and Uruguay. On the basis of their lower per capita GDP, IDB channels 35% of its lending volume to Group II countries: Belize, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Plurinational State of Bolivia and Suriname.

The IDB has the mandate to devote at least 50% of its operations and at least 40% of its resources to programmes that promote social equity and reduce poverty.

The IDB Group, comprising IDB, the Inter-American Investment Corporation (IIC) and the Multilateral Investment Fund (MIF), offers flexible financing solutions through lending and grants, providing sovereign and non-sovereign guaranteed financing for economic and social development in the region.

- IIC focuses exclusively on the establishment, expansion and modernization of SME.
- MIF works with the private sector to develop, finance and implement innovative business models that benefit entrepreneurs and poor and low-income households.

The IDB Group's financial products include loans, grants, guarantees and equity investments (the latter available from IIC and MIF). IDB also provides financing for national and regional technical cooperation programmes in areas ranging from institutional strengthening to knowledge transfer.

The aim of the IDB Climate Change Action Plan 2012-2015 is to help IDB borrowing member countries to adapt to climate change and reduce their greenhouse gas emissions, through lending, technical cooperation and knowledge creation, in the following sectors:

- Land use and forestry.
- Agriculture and livestock.
- Energy efficiency.
- Sustainable urban transport.
- Water resource management and sanitation.
- Renewable energy.

[35] Of the 48 IDB member countries, 22 are non-borrowing members, meaning that they provide capital and have voting representation in the IDB Board of Governors and Board of Executive Directors according to their capital subscriptions. IDB non-borrowing member countries include the United States, Canada, Japan, Israel, Republic of Korea, People's Republic of China and 16 European countries: Austria, Belgium, Croatia, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden and Switzerland and United Kingdom.

IBD has set the goal of increasing its share of lending to climate change-related projects to 25-30% by 2020 (see box 1).

Box 1
Inter-American Development Bank's climate finance goal

The Inter-American Development Bank (IDB) announced the goal of doubling the volume of its climate-related financing by 2020. In order to increase investments in adaptation, particularly for the countries within the region that are most vulnerable to the impacts of climate change, IDB also committed to screen all relevant projects for climate risks and resilience starting in 2018.

The new IDB climate finance goal is to assist Latin American and Caribbean countries in meeting their commitments in terms of intended nationally determined contributions (INDCs). To that end, IDB will increase the use of instruments to leverage private-sector finance, including financing for adaptation and climate resilience. The consolidation of all private-sector operations of the IDB Group into a single entity that will begin to operate on 1 January 2016 will also enhance its ability to develop and offer innovative financial products such as green bonds.

The new climate finance goal is dependent on demand from IDB clients, as well as the Bank's continued access to external sources of concessional finance, including the Climate Investment Funds, Green Climate Fund and bilateral funds. This aspirational goal will also need to be formalized by the IDB Board of Governors.

To accelerate these efforts to mainstream climate and sustainability through IDB Group operations, the Bank is also considering changes to its climate and sustainability division that will allow it to have a much broader impact in both the public and private sectors.

The new goal is based on the joint approach by multilateral development banks (Joint MDB approach) for climate finance tracking and reporting. Based on this methodology, IDB has devoted a yearly average of 14% of its financing to climate-related projects over the past three years (2012-2014). Doubling that volume would lead to a level of climate lending averaging between 25% and 30% of total IDB approvals by 2020.

Source: Inter-American Development Bank (IDB), "IDB aims to double financing for climate change", press release, 8 October 2015 [online] http://www.iadb.org/en/news/news-releases/2015-10-08/double-financing-for-climate-change,11272.html

Since 2012, the methodology used by IDB for climate finance tracking and reporting has been the joint approach of multilateral development banks (Joint MDB Approach) in the Joint Report on MDB Climate Finance, both for the MDB Report and for the OECD Development Assistance Committee (DAC). While the Joint MDB Approach was not used to classify operations in 2011 and earlier, it was used for 2012, 2013 and 2014 data. IDB also uses its own methodology to determine compliance with its lending target for climate change, sustainable energy and environmental sustainability, which also covers other areas, targeted only at loans and not based on the Joint MDB Approach.

According to the IDB Infrastructure and Environment Sector (INE), total funding of US$2.491 billion was approved for climate change in 2014, distributed among countries in the region and region-wide. As table 25 shows, total IDB approvals doubled from 2013 to 2014. The biggest beneficiaries were Peru, Brazil, Mexico and Uruguay (with 35.5%, 15.7%, 11.6% and 8.6% respectively). Together, these countries received 71% of all lending of which 96% was earmarked for climate change mitigation and 91% for technology provision (renewable energy, low-carbon power generation and energy efficiency).

In 2013, total funding of US$1.241 billion was approved, with Argentina, Chile and Uruguay the main beneficiaries (see table 25).

Table 25
Funds approved for Latin American and Caribbean countries in 2013 and 2014 by the Inter-American Development Bank (IDB)
(Millions of dollars)

Country	2013		2014	
	Total	Percentage of total	Total	Percentage of total
Argentina	302.2	24.4	8.8	0.4
Chile	165.8	13.4	173.4	7.0
Uruguay	142.3	11.5	213.6	8.6
Brazil	115.7	9.3	390.4	15.7
Ecuador	103.7	8.4	185.3	7.4
Trinidad and Tobago	89.7	7.2		
Colombia	67.4	5.4	5.8	0.2
Mexico	67.3	5.4	288.4	11.6
Regional (includes several countries)	42.4	3.4	19.2	0.8
Guyana	30.7	2.5	37.7	1.5
Peru	30.7	2.5	883.9	35.5
Haiti	26.8	2.2	23.7	1.0
Honduras	13.1	1.1	50.6	2.0
Bolivia (Plurinational State of)	13.1	1.1	9.7	0.4
Suriname	9.4	0.8	20.9	0.8
Barbados	6.4	0.5	0.5	0.0
Guatemala	4.6	0.4	33.5	1.3
Nicaragua	3.7	0.3	15.6	0.6
Panama	2.0	0.2	3.8	0.2
Costa Rica	1.3	0.1	3.6	0.1
El Salvador	1.2	0.1	1.1	0.0
Bahamas	0.6	0.1		
Dominican Republic	0.5	0.0	75.5	3.0
Paraguay	0.2	0.0		
Jamaica	0.2	0.0	18.5	0.7
Venezuela (Bolivarian Republic of)	0.03	0.0	0.5	0.0
Belize			27.0	1.1
Suriname			20.9	0.8
Total	1 240.63	100.0	2 491.0	100.0

Source: Inter-American Development Bank (2015), *La economía del cambio climático en el Estado Plurinacional de Bolivia 2014*, Washington, D.C., 2014; and Climate Change Finance data as of July 2015.

(c) Development Bank of Latin America

The climate and green component of the operations of the Development Bank of Latin America (CAF) is accounted for using the methodology approved by the International Development Financial Club[36] of which CAF is a member.

In 2014, CAF approved a total of US$2.809 billion for projects with a green component. Of total green funding approved, 44% was earmarked for adaptation and 39% for mitigation. By country, the biggest beneficiaries were Peru, Brazil and Bolivarian Republic of Venezuela (with 16.8%, 16.7% and 13.3% respectively). A large share (15.2%) was earmarked for multinational projects (see table 26).

[36] See [online] http://www.idfc.org.

Table 26
Projects with a climate component financed by the Development Bank of Latin America (CAF)
(Millions of dollars)

	Adaptation		Mitigation		Adaptation and mitigation		Other environmental projects		Total (millions of US dollars)			
Country	2013	2014	2013	2014	2013	2014	2013	2014	2013	Percentage of total	2014	Percentage of total
Argentina	130.10	49.0	51.14	112.0	0	0.1	210.50	150.0	391.74	14.1	311.1	11.1
Bolivia (Plurinational State of)	0.02	75.0	96.83	0.1	0		72.11		168.96	6.1	75.1	2.7
Brazil	254.00	350.0	20.00	120.1	0	0.1	139.05	0.1	413.05	14.9	470.3	16.7
Chile			20.15	0.3	0	5.0			20.15	0.7	5.3	0.2
Colombia		0.2	0.14		0		0.36	50.0	0.51	0.0	50.2	1.8
Dominican Republic	33.00				0				33.00	1.2		0.0
Ecuador	0.21	57.4	120.18	14.6	0	100.0	275.10	5.3	395.49	14.3	177.2	6.3
Mexico	0.20		20.00	0.0	0				20.20	0.7	0.0	0.0
Multinational	0.82	300.3	30.42	125.5	0		0.52	0.7	31.76	1.1	426.4	15.2
Panama		100.0	100.30	101.0	0			0.1	100.30	3.6	201.1	7.2
Paraguay			50.00		0		0.01	50.0	50.01	1.8	50.0	1.8
Peru	603.81	300.5	49.63	170.0	0	0.1	0.35	0.4	653.79	23.6	471.1	16.8
Uruguay				197.5	0		75.00		75.00	2.7	197.5	7.0
Venezuela (Bolivarian Republic of)	116.25	14.0	300.00	260.1	0			100.0	416.25	15.0	374.1	13.3
Total	1 138.4	1 246.5	858.8	1 101.1	0	105.3	773.0	356.6	2 770.20	100.0	2 809.5	100.0

Source: Prepared by the authors, on the basis of data from the Development Bank of Latin America (CAF), 2015; and "Green and climate finance", Fact Sheet, 2014 [online] https://unfccc.int/files/adaptation/cancun_adaptation_framework/adaptation_committee/application/pdf/caf_factsheet_greenfinance.pdf.

(d) Central American Bank for Economic Integration[37]

In 2014, the Central American Bank for Economic Integration (CABEI) disbursed US$788 million through different intermediation programmes with the many intermediate financial institutions that form the network of CABEI strategic allies. Through financial intermediation, CABEI disbursed US$261.2 million to promote micro, small and medium-sized enterprise (MSME) via its various support programmes (Green MSMEs, Agribusinesses, Biodiversity-friendly MSMEs and MSMEs affected by Natural Disasters) and other high-impact sectors such as social housing, education, international trade and municipal development (PROMUNI Municipal Infrastructure Financing Program).

By 2014, CABEI had placed a total of more than US$2.802 billion through its network of strategic allies.

CABEI tackles climate change through the Green MSMEs Initiative, which receives financial support from the German government, through KfW, and from the European Union, through its Latin America Investment Facility (LAIF). CABEI is in charge of implementation.

The aim of the Green MSMEs Initiative is to contribute to protecting the climate and environment by encouraging environmental investment in the areas of energy efficiency and renewable energy (CABEI, 2015). The initiative provides both reimbursable and non-reimbursable financing.

Types of projects financed:

- Energy efficiency projects generating invoiced energy consumption savings of at least 15%.
- Renewable energy projects up to 5 megawatts (MW).

In 2014, disbursements under the initiative totalled US$17.5 million. Of this total, US$15.2 million were reimbursable funds and US$2.3 million were non-reimbursable. In 2013, combined disbursements by the two instruments were US$21.1 billion, of which 96% were reimbursable funds (see table 27).

Table 27
Financing under the Green MSMEs Initiative in 2013 and 2014
(Thousands of dollars)

Country	Reimbursable financing		Non-reimbursable financing		Total		Percentage of total	
	2013	2014	2013	2014	2013	2014	2013	2014
Guatemala	10 116	1 035	0.07	0.318	10 176	1 353	48.2	7.7
El Salvador	0.946	6 571	0.10	0.572	1 046	7 144	5.0	40.7
Honduras	4 491	1 289	0.29	0.428	4 781	1 717	22.7	9.8
Nicaragua	4 500	5 055	0.06	0.539	4 560	5 594	21.6	31.9
Costa Rica	0.24	1 293	0.23	0.437	0.46	1 731	2.2	9.9
Regional			0.07	0.083	0.07	8 226	0.3	0.0
Total	20 290	15 243	0.813	2 304	21 102	17 547	100.0	100.0

Source: Central American Bank for Economic Integration (CABEI), *2014 Annual Report, 2014* [online] http://www.bcie.org/uploaded/content/category/370966280.pdf; and *2013 CABEI Annual Report, 2013*.

[37] The information in this document on the activities of the Central American Bank for Economic Integration (CABEI) was compiled from its website and from the 2014 Annual Report of the Central American Bank for Economic Integration (CABEI), published [online] at http://www.bcie.org/uploaded/content/category/370966280.pdf.

In 2014, CABEI distributed non-reimbursable disbursements to technical assistance, energy studies and promoting the initiative, as follows.

- Technical assistance for intermediate financial institutions worth a total of US$1.1 million. Thirteen technical assistance initiatives were approved: one in Guatemala, three in El Salvador, four in Honduras, three in Nicaragua and two in Costa Rica.
- Financing energy studies worth US$910,000 for a total of 37 energy audits and 14 studies for renewable energy projects.
- Promoting the initiative, worth US$253,000, for publicizing and promoting support for small renewable energy and energy efficiency projects, through 21 events, 36 sponsorships and 17 activities to raise the initiative's profile region-wide.

5. Public development banks

A public development bank is a State-owned financial institution whose mandate is to promote socio-economic development by financing specific economic activities, sectors or segments. This definition contains two key elements: (i) public participation in the financial system; and (ii) the specific goal of providing financing for projects considered valuable for economic development, or that are key elements of national public policy (Olloqui, 2013).

Three of the sectors or segments traditionally targeted for intervention by public development banks are infrastructure, the rural sector and SMEs, chiefly because such initiatives are more risky (Olloqui, 2013).

In recent years, in response to the latest public policy priorities, public development banks have broadened their scope to include "new" issues and have come to play a key role in other sectors or segments, such as renewable energy, climate change adaptation and mitigation, education, low-income housing, microenterprises, and innovation and production chains, according to the new generation of productive development policies.

Public development banks have broadened their scope to include climate-change activities largely because Governments in Latin America and the Caribbean have shown interest in including such issues in their agenda and in increasing the involvement of public development banks in national strategies, in support of efforts to increase their productivity and competitiveness. Another reason is interest in policy changes in developed countries with which countries in the region have dealings.

Table 28 shows the results of an IDB survey in April 2012 on the financial instruments used by some Latin American and Caribbean public development banks to promote financing of climate change mitigation programmes.

Table 28
Instruments offered by selected Latin American and Caribbean public development banks to finance climate change mitigation programmes

Public development bank	Grants/TA	Tier 1 loan					Capital				Co-finance with other funds
		Tier 2 loans via LFIs[a]	LT investment loans	ST working-capital loans	Other	Guarantees	Other contingent facilities	Direct equity	Equity into funds	Management of funds	
AFD[b] (Paraguay)	X	√	√	√	√	X	X	X	X	√	X
BancoEstado (Chile)	√	√	√	√	X	X	X	X	X	√	√
BANCOLDEX (Colombia)	X	√	X	X	X	√	X	X	√	X	X
Development Bank of El Salvador (BANDESAL)	√	√	X	X	X	√	X	X	X	√	X
National Economic and Social Development Bank (BNDES) (Brazil)	X	√	√	√	√	X	X	√	√	√	X
Development Finance Corporation (COFIDE) (Peru)	√	√	X	X	X	X	√	X	X	√	X
Association of Development Financing Institutions (FINRURAL) Bolivia (Plurinational State of)	√	√	√	√	X	√	√	√	√	√	√
National Development Finance Office (FINDETER) (Colombia)	√	X	√	√	√	X	X	X	√	√	X
FIRA[c] (Mexico)	√	√	X	X	X	√	√	X	X	√	√

Source: Direct reporting from public development banks in response to a survey by the Inter-American Development Bank (IDB) in April 2012; and F. Olloqui (ed.), *Public Development Banks: Toward a New Paradigm?*, Washington, D.C., Inter-American Development Bank, 2013.

(*) Since 2012, under the Financial System Law to Promote Development, the Development Bank of El Salvador (BANDESAL) is authorized to provide direct or tier 1 loans. As of May 2012, BANDESAL had still not granted any tier 1 loans. Recently the bank has also established a credit line for renewable energy generation projects to provide direct or tier 1 loans.

TA = technical assistance; LT = long term; ST = short term.

[a] LFIs: local financial institutions.

[b] Paraguay's Development Finance Agency (AFD) is a second-tier public bank that promotes economic development and job creation by channelling funding for investment projects and loans, provided through banks, finance companies and accredited cooperatives (see [online] http://www.afd.gov.py).

[c] Trust Funds for Rural Development (FIRA) is a second-tier development bank that provides credit and guarantees, training, technical assistance and technology transfer to Mexico's agriculture, livestock, forestry, fisheries and agribusiness sectors. It comprises four public trusts, established by Mexico's Federal Government since 1954, where the settlor is the Secretariat of Finance and Public Credit (SHCP) and the trustee is Mexico's central bank, Banco de México (see [online] http://www.fira.gob.mx).

In 2012, members of the International Development Finance Club (IDFC), a group of regional, bilateral and national development banks,[38] agreed to increase their green finance contribution by US$6 billion compared with 2011, to a total of US$95 billion[39] (IDFC, 2013). In 2013, the green finance contribution totalled US$99 billion. IDFC pledged US$100 billion a year in green finance by 2015 (IDFC, 2014b). At the time of preparing this document, no fresh IDFC report had been released updating the data published in previous years.

The number of IDFC members reporting information on their climate finance portfolio rose from 14 in 2011 and 2012 to 18 in 2013. In 2013, 64% of all green finance (US$ 63 billion) was channelled to developing countries.

Latin American and the Caribbean members of IDFC are: Peru's COFIDE; Chile's BancoEstado; Brazil's BNDES; Mexico's NAFIN; and Colombia's BANCOLDEX. CAF and CABEI are regional bank members.

For the purposes of this document, the climate change data posted for these institutions are those reported by the institutions to IDFC, which, in turn, are sent directly to the authors, with the result that their accounting methodology is the same. National institutions for which information was available were BNDES, NAFIN and BANCOLDEX. With regard to regional development banks, data relating to CAF and CABEI are posted in the section concerning each institution.

Below is a description of climate-related resources mobilized by BNDES, NAFIN and BANCOLDEX, which are included in the 2014 resources reported in this document.

(a) National Economic and Social Development Bank (BNDES)

The Brazilian National Development Bank (Banco Nacional de Desenvolvimento Econômico e Social (BNDES)) is Brazil's most important public development institution, which operates as a first- and second-tier bank, as most of its resources are managed by other financial institutions. Indirect operations are conducted through a nationwide network of accredited financial institutions. As BNDES agents, these institutions have come to play the role of national development banks. Since most Brazilian banks are part of this network of agents, they are accredited to operate with BNDES credit lines. In indirect operations, the bank on-lends the financial resources to commercial, public or private banks, development agencies and cooperatives accredited by BNDES, and these agents are responsible for examining and approving the credit and for defining the guarantees and collateral. Business people usually apply to these on-lending financial agents for credit rather than to BNDES.

Banco do Brasil and Federal Economic Bank (Caixa Econômica Federal) are the national public institutions that intermediate the largest amount of BNDES resources. Banco Brasileiro de Desconto (BRADESCO), Banco Itaú BBA, ItaúUnibanco and Banco Santander are the private agents that perform

[38] The International Development Finance Club (IDFC), formed in 2011, is a group of 20 national, bilateral and regional development banks that share a similar vision of development finance and the global climate change challenges facing the international community. IDFC members are distributed across Europe, Asia, Central and South America and Africa.
(i) Regional development banks: Black Sea Trade and Development Bank (BSTDB); Central American Bank for Economic Integration (CABEI); Development Bank of Latin America (CAF); and West African Development Bank (BOAD).
(ii) Bilateral development banks: the French development agency, Agence Française de Développement (AFD); Germany's KfW; and Japan International Cooperation Agency, JICA).
(iii) National development banks: BancoEstado, National Economic and Social Development Bank (BNDES), China Development Bank (CDB), Development Bank of Southern Africa (DBSA), Industrial Development Bank of Turkey (TSKB), Nacional Financiera (NAFIN), KfW, BANCOLDEX, Caisse de Dépôt et de Gestion (CDG), Croatian Bank for Reconstruction and Development (HBOR), Indonesia Eximbank, Korea Finance Corporation (KoFC), Small Industries Development Bank of India (SIDBI) and Russia's Vnesheconombank (VEB).

[39] The amount of green finance not attributed to any category was reduced from US$25 billion to US$5 million. The difference is explained by lack of information concerning some banks for the 2011 fiscal year.

the largest number of BNDES indirect operations. Although no disaggregated data is available on their climate change-related, environmental or socio-environmental operations, these banks have several related products in their portfolio, in addition to BNDES fund transfers for such matters. In 2014, private banks intermediated BNDES funds worth a total of US$4,017,500,000, or 34.6% of all disbursements to the bank's "green economy" category (operations in renewable energy, energy efficiency, water resources and environmental sanitation, solid waste management, hybrid and electric buses and trucks, as well as Climate Fund projects).[40]

In 2013, under the heading of climate change, BNDES allocated US$ 11.3 billion directly, as a first-tier bank. Of this, 90% was earmarked for mitigation and 2% for climate change adaptation, with 99% of the funding provided in the form of concessional loans. The sector that received the most funds was renewable energy (57% of the total).

In 2014, the total was US$11.6 billion of which 92% was earmarked for climate change mitigation and the remaining 8% for other environmental initiatives. A total of 98% of all funds took the form of loans of which 96% were concessional. As in 2013, the sector that received the most funds was renewable energy, although its share shrank by 8 percentage points, which went instead to transport and agriculture.[41]

Table 29 shows resources mobilized in 2013 and 2014, by use, type of financial instrument and sector.

Table 29
Resources mobilized by the Brazilian National Economic and Social Development Bank (BNDES) in 2013 and 2014, by use, type of financial instrument and sector
(Millions of dollars at each year's prices)

Use, type of financial instrument and sector	2013		2014		Total	
	Total	Percentage	Total	Percentage	Total	Percentage
(A) Area						
Mitigation	10 213	90	10 729	92	20 942	91
Adaptation	228	2			228	1
Other environmental	863	8	900.1	8	1 763.1	8
(B) Financial instrument						
Concessional loans	11 200	99	11 205	96	22 405	98
Non-concessional loans			250	2	250	1
Other	104	1	175	2	279	1
(C) Sector						
Renewable energy	6 489	57	4 647.2	40	11 136.2	49
Agriculture, forestry and land use	1 256	11	2 244	19	3 500	15
Transport	2 426	21	3 735	32	6 161	27
Other	1 133	10	1 002.6	9	2 135.6	9
Total	11 304	100	11 629	100	22 933	100

Source: Prepared by the authors, on the basis of data from the National Economic and Social Development Bank (BNDES).

BNDES manages two specific climate funds: Brazil's Climate Fund and the Amazon Fund. These data were posted as resources mobilized by BNDES, although the resources are also discussed in the section on national climate funds.

[40] Data provided by the Environment Division (AMA) of the National Economic and Social Development Bank (BNDES), August 2015.
[41] Data provided by the Environment Division (AMA) of the National Economic and Social Development Bank (BNDES), August 2015.

(b) Nacional Financiera S.A. (NAFIN)

In Mexico, a major climate finance player is the national development banking institution, Nacional Financiera (NAFIN), which allocates funding for environmental protection through its sustainable projects support programme. The programme was established to provide short-, medium- and long-term finance to national and international companies and financial intermediaries that promote projects for improving natural resource management and use and creating added value, as well as for mitigating the effects of climate change.

The programme is in keeping with the objectives of the National Development Plan 2013-2018, which establishes lines of action for inclusive green growth and for promoting the natural heritage by creating wealth, competitiveness and employment. It targets Mexican companies with projects for promoting renewable energy, energy efficiency and the use of clean energy to tackle climate change. Essentially the programme seeks to foster the development and adoption of cleaner technology.

Financing schemes are designed, structured and implemented based on the specific characteristics of each project.

In 2014, NAFIN mobilized green finance worth US$210.3 million, 100% of which was in the form of concessional loans. All funds were earmarked for climate change mitigation, and 93% for renewable energy. In 2013, it mobilized a total of US$574 million.[42]

(c) BANCOLDEX

The State-owned export bank, BANCOLDEX (Banco de Comercio Exterior de Colombia S.A.), is Colombia's business development bank, which was incorporated as a mixed-capital public limited company, organized as a bank credit facility linked to the Ministry of Foreign Trade (MINCOMEX) and overseen by Colombia's financial regulator, Superintendencia Financiera de Colombia (SFC). BANCOLDEX was established by Article 21 of Law 7 of 1991.

It is a second-tier bank that designs and offers financial and non-financial instruments to boost the competitiveness, productivity, growth and development of micro, small and medium enterprises (MSMEs) in the export and domestic markets.

In 2011, 68% of total finance was allocated to "other disaster risk reduction". In 2012, 57% was allocated to supporting local, sectoral and/or national budgets for a climate change adaptation policy. In 2013, 88% of the finance was earmarked for environmental actions (Samaniego and Schneider, 2015).

In 2014, 99% of the US$18.8 million green finance mobilized was in the form of concessional loans of which 71% went to climate change mitigation and the remaining 29% went to other environmental initiatives. Of the total for mitigation, 94% was allocated to sustainable transport initiatives.

According to the BANCOLDEX Business Intelligence Department,[43] the bank's reports include only disbursements whose end use is clearly identified as special lines for which an additional form needs to be completed specifying the item being financed. As resources mobilized by other lines of credit for acquiring energy-efficiency and renewable-energy fixed assets are not counted, the information reported by BANCOLDEX might well be underestimating its role in tackling climate change.

Table 30 shows the flow of green finance from BANCOLDEX between 2011 and 2014, according to data reported by the bank to IDFC. It indicates that "green" finance shrank markedly between 2011 and 2013 before rising again in 2014. The reason for the decline is that, in 2011, Ministry of Foreign Trade funds at concessional rates were allocated to the La Niña disaster, which had

[42] Data provided by the Sustainable Projects Department of Nacional Financiera (NAFIN), May 2015.
[43] Information provided by email, 13 November 2014.

the direct effect of increasing fund investment. However, such concessional rates for special lines are not always attractive enough to encourage investment, explaining the decline observed in 2013 and even in early 2014 (direct communication with the BANCOLDEX Business Intelligence Department, 13 November 2014)

Table 30
BANCOLDEX total green finance for all sectors, regions and instruments
(Millions of dollars)

2011	2012	2013	2014
37.5	26.3	5.9	18.8

Source: Prepared by the authors, on the basis of data from BANCOLDEX, Business Intelligence Department, 2015.

6. Private banks

As yet, little information is available about the participation of private banks in climate finance. One of the reasons cited in personal communications from some private banks is that climate finance information is not posted individually for reasons of client confidentiality, making it impossible to quantify, except where a private bank acts as first-tier bank for the transfer of public funds. This certainly impacts on the results, which are very likely underestimated, making it difficult to assess private banks' participation and to quantify their potential contribution in such areas.

The private banking sector is one of those heavily called upon to provide financial solutions and resources for tackling climate change. Given strained public finances in many developed countries, further recourse to private capital will be required for climate change mitigation and adaptation. In the 2011 Communiqué from the Cannes Summit, the G-20 leaders recognized the role of public finance and public policy in supporting green infrastructure investments in developing countries, as well as the need to encourage the scaling-up of private-sector green investment through market-based mechanisms (OECD, 2012).

Nonetheless, progress has been made despite the fact that information is not publicly available. A review of their websites reveals that several banks provide environmental credit and finance, apart from acting as first-tier banks to on-lend funds from national development banks, other banks such as IDB or climate fund managers.

A number of private banks across the world have committed funds to tackle climate change. They include: Goldman Sachs and Bank of America Merrill Lynch, which announced US$40 billion and US$ 50 billion for climate change, respectively, at the United Nations Conference on Sustainable Development (Rio+20) in 2012; Wells Fargo & Company, which pledged US$30 billion; and, more recently, Citigroup, which, in February 2015, announced a US$100 billion commitment over a 10-year period to tackle climate change (Citigroup, 2015).

The environmental investment plans of Bank of America Merrill Lynch include renewable energy and infrastructure projects and energy efficiency initiatives, together with loans for the purchase of hybrid and electric vehicles and assistance with building the appropriate infrastructure and with new water resource management technologies. Bank of America Merrill Lynch also acts as an underwriter for the initial public offerings of green companies. In addition, it plans to grant US$ 100 million to non-profit organizations and development finance institutions to promote environmental issues. In 2014, Bank of America Merrill Lynch announced the Catalytic Finance Initiative, a targeted US$10 billion total capital commitment across global financial institutions, investors, development finance institutions and foundations to stimulate new investment into high-impact, clean energy projects around the globe by 2020 (Bank of America, 2015). The initiative will focus on developing or advancing innovative financing structures that reduce investment risk, thereby attracting a broader range of the institutional investors. Bank of America Merrill Lynch itself committed US$1 billion to the initiative (Secretary-General of the United Nations, 2015).

Another noteworthy initiative by the private banking sector is the Portfolio Decarbonization Coalition,[44] a group of investors that commit to decarbonizing, between September 2014 and COP 21 in Paris in December 2015, a total of at least US$100 billion in institutional investment, as well as to measure and disclose the carbon footprint of at least US$500 billion in assets under management.

According to the Chief Executive Officer of Citigroup, with this US$ 100 billion initiative Citigroup will build on its leadership in renewable energy and energy efficiency financing to engage with clients to identify opportunities to finance greenhouse gas reductions and resource efficiency in other sectors, such as sustainable transportation. As part of its commitment to helping cities thrive during the current period of urban transformation, Citigroup will seek to finance and support activities that enable communities to adapt to climate change impacts and directly finance infrastructure improvements that increase access to clean water and manage waste, while also supporting green, affordable housing for clients, including in low- and moderate-income communities (Citigroup, 2015).

No such information is available on private banks in Latin America and the Caribbean, except in the case of Brazil, where private banks act as on-lenders of BNDES resources. In 2014, private banks on-lent a total of US$4.017 billion, representing 34.6% of total BNDES disbursements to the green economy. However, no information on on-lending is available on the banks' websites, nor is it identified in their reports or other documents.

Brazil is perhaps the only country in Latin America and the Caribbean to have introduced the environment explicitly into the activities of the country's financial sector, which it sees as playing a key role in leading the production sector towards a green economy. The Central Bank of Brazil is well aware of the importance of social and environmental risks in financial transactions and, back in 1995, it launched a Green Protocol —a protocol of intent signed by public financial institutions and the Ministry of the Environment (Samaniego and Schneider, 2015).

The Green Protocol includes five principles and a number of guidelines that encourage banks to offer lines of credit to improve people's standard of living and sustainable use of the environment. Some of the issues it addresses are: social and environmental impacts and costs in managing the assets of banking institutions; risk analysis of projects and financing; and responsible consumption of natural resources (Vasconcelos, 2011).

More recently, in April 2014, Brazil's National Monetary Council (CMN) approved Resolution 4327 establishing the guidelines to be followed by financial institutions and other institutions authorized to operate by the Central Bank of Brazil for implementing their social and environmental responsibility policies. Resolution 4327 requires all financial institutions regulated by the Central Bank to have a social and environmental responsibility policy and a governance structure for such issues, a system for managing social and environmental risk and a plan of action for the proper monitoring and mitigation of such risk. Every institution is required to launch its social and environmental responsibility policy plan during the first two months of 2015.

According to the Center for Sustainability Studies[45] of the São Paulo Business Administration School at Getulio Vargas Foundation (GVces/FGV-EASP and others, 2014), the constraints on analysing and concluding on the "green" initiatives of Brazil's financial sector are clear to see. The study warns of a dearth of detailed quantitative information, as well as products and services that are not counted as "green" and verification difficulties that hamper the socio-environmental risk analysis process. The study points to a lack of comparable information among financial institutions, making it

[44] The Portfolio Decarbonisation Coalition (PDC) has been confused with: the United Nations Environment Programme (UNEP) and UNEP Finance Initiative (UNEP/FI); Fourth Swedish National Pension Fund (AP4); Amundi (the leading European asset manager); and Carbon Disclousure Project (CDP).

[45] The banks analysed were: National Economic and Social Development Bank (BNDES); Federal Economic Bank (Caixa Econômica Federal); Banco do Brasil; Itaú Unibanco; Banco Bradesco; Banco Votorantim; HSBC; and Banco Santander Brasil.

impossible to ascertain amounts for each institution and total resources available for financing Brazil's green economy. It also points to the need to standardize the way in which this information is collected and managed in order to foster transparency and effective monitoring of the issue among Brazilian financial institutions, adding that standardization is important in maintaining competitiveness among the institutions. This is very likely true of most other countries in the region.

According to the study results,[46] most Brazilian banks have developed comprehensive, cross-cutting policies for considering socio-environmental issues in their processes for accepting new clients, assessing credit limits and granting and monitoring loans, adding that social and environmental aspects are already part of the important initial screening of clients. The requirements demanded by the banks include the provision of documents relating to environmental licensing, consultations using specific tools, lists such as the "slave labour blacklist"[47] and other criteria (GVces/FGV-EASP and others, 2014).

The study also concludes that all institutions studied have a social and environmental risk analysis policy that ranges from requiring clients to provide legal guarantees of conformity, to risk mitigation processes and the identification of new opportunities. The study sees Central Bank of Brazil Resolution 4327 of 25 April 2014 as a major milestone in promoting and supporting the dissemination of this practice among members of the Brazilian financial system, confirming the view that the biggest advances in environmental issues have stemmed from coordinated public policies, as in this case between Central Bank of Brazil, which regulates the financial system, and the Ministry of the Environment.

[46] The study proposes a four-level methodology for credit and financing analysis. Level 1 describes all of the sustainability policies of the financial institution. Level 2 looks at socio-environmental risk policies and the volume of resources subjected to socio-environmental screening for large projects which go through high-risk evaluations, as in the case of initiatives such as the Equator Principles, and which create enabling conditions for a transition towards a green economy. Level 3 takes a thematic and sectorial approach to the credit lines in accordance with the United Nations Environment Programme (UNEP) definition of a green economy, which can be seen in institutions through their policies and processes. Level 4 addresses the amount of specifically themed products and services.

[47] Interministerial Decree 2 of 12 May 2011 lays down the rules concerning Brazil's blacklist of employers caught exploiting workers in conditions analagous to slavery (dubbed the "dirty" list of slave labour). The Ministry of Labour and Employment (MTE) and Secretariat for Human Rights of the Presidency of the Republic (SDH) are in charge of maintaining and updating the blacklist, established in the register of employers of the Interministerial Decree.

IV. Additional sources of climate finance

2014 was a special year for climate finance in terms of the large number of announcements made at the United Nations Climate Summit in New York in September 2014, which was convened by the Secretary-General of the United Nations in support of the twentieth session of the Conference of the Parties (COP20) in Lima (Peru) in December 2014 and COP21 to be held in Paris (France) in December 2015.

Samaniego and Schneider (2015) list and quantify the initiatives announced by the various institutional, public, private, multilateral and bilateral actors, and the announcements and stock of specific climate funds. They warn of possible errors of quantification (as some of the announcements were made at public events or appear only on the respective websites and in press releases), saying that further communiqués might be issued at COP21 in 2015. They give an idea of the universe of potential resources, extending the range of support for countries. This document on Financing for Climate Change in Latin America and the Caribbean in 2014 uses and updates Samaniego and Schneider's data and adds new sources of financing, some potential (such as pension funds) and others already being implemented (such as green bonds).

1. Resource commitment

Based on the resources described below, as of July 2015 a total of around US$700 billion had been committed worldwide and was potentially available for climate change mitigation and adaptation to 2020.

Even though climate funds managed by various agencies and institutions had committed a total of US$35.250 billion as of July 2015, the actual stock of resources is only US$17.125 billion (50% of the total) because this is the amount that has actually been deposited so far. Of this amount 80% had already been approved but only 15% had been disbursed. Table 31 shows the total resources committed and disbursed by the climate funds listed in table 9 under the subsection on climate funds.

Table 31
Climate funds available as of July 2015
(Millions of dollars)

Funds	Committed	Deposited	Approved	Disbursed
Total	35 246.97	17 125.64	13 885.89	2 586.34
Percentage of total	100.0	48.6	39.4	7.3

Source: prepared by the authors, on the basis of data from Climate Funds Update [online] http://www.climatefundsupdate.org/data.

A number of countries made green fund commitments at the United Nations Climate Summit in 2014. G-20 pledged US$10 billion to the GCF (Doyle, 2014). The private sector announced its commitment to green growth and green business. Institutional investors pledged US$100 billion for decarbonization in 2015, through the International Development Finance Club (IDFC). Commercial banks pledged US$30 billion in green bonds[48] by 2015. Overall the green bond issuance target of US$70 billion in 2015 has almost been met. As of June 2015, US$65.9 billion had been issued, with a total universe of climate-aligned bonds outstanding of US$502.6 billion, but not all these issuances were by commercial banks. In fact, the leading green bond issuers were multilateral banks, including EIB and World Bank. At the 2014 Climate Summit, French cooperative bank Crédit Agricole S.A. (whose biggest shareholders are local banks, via regional banks) committed to underwriting U$20 billion in climate bonds in 2015. By June 2015, it had issued US$693 million in bonds and is the largest private underwriter (Climate Bonds Initiative, 2015).

Bank of America Merrill Lynch announced the Catalytic Finance Initiative, a targeted US$10 billion total capital commitment across global financial institutions, investors, development finance institutions and foundations to stimulate new investment into high-impact, clean energy projects around the globe by 2020. Bank of America Merrill Lynch itself committed US$1 billion to the initiative (Secretary-General of the United Nations, 2015).

At the United Nations Climate Summit in 2014, the global insurance industry also targeted to double the amount invested in Smart Risk Investing (SRI) to US$84 billion by December 2015, and to US$420 billion by 2020. Swiss Reinsurance Company Ltd (Swiss Re) committed to advising regional and municipal governments on climate risk resilience and offered them protection of US$10 billion against this risk by 2020 (Secretary-General of the United Nations, 2015).

In a press release on 18 February 2015, Citigroup announced a US$100 billion commitment over a 10-year period to tackle climate change (Citigroup, 2015).

The Portfolio Decarbonization Coalition commits to decarbonizing, by COP21 in Paris in December 2015, at least US$100 billion in institutional investment, as well as to measure and disclose the carbon footprint of at least US$500 billion in assets under management.

In 2014, MDBs pledged a total of US$8.13 billion worldwide from CIF funds, which are managed mainly by MDBs. As of 31 December 2014, 54% of total pledged resources had been approved, bringing the total finance available to US$3.7 billion (Climate Investment Funds Administrative Unit, 2014).

[48] Debt issuance for green projects.

In early October 2015, MDBs announced new climate finance commitments at the Annual Meetings of the World Bank Group and FMI (WBG/IMF Annual Meetings)[49] in Lima (Peru).

The World Bank pledged a one-third increase in climate financing to potentially US$29 billion per year by 2020, including direct financing and co-financing (World Bank, 2015c). Currently, 21% of the World Bank Group's funding is climate related. According to the World Bank Group's president, this could rise to 28% in 2020. The Bank Group now provides an average of around US$10 billion a year, which could increase to US$16 billion in 2020. In addition, the Bank Group plans to continue current levels of leveraging co-financing for climate-related projects, which could mean up to another US$13 billion in 2020.

The African Development Bank (AfDB) announced that it would increase its annual climate financing to a total of US$5 billion a year by 2020, distributed evenly between mitigation and adaptation (AfDB, 2015). It also announced that AfDB would pursue public and private co-financing opportunities and pledged to increase its climate spending to 40% of its total new investments by 2020.

The European Investment Bank (EIB) pledged to increase the proportion of its lending in support of climate-related investment in developing countries from 25% to 35% (EIB, 2015). Its president confirmed that EIB will provide well over US$110 billion for climate action projects around the world over the next five years.

IDB pledged to double the volume of its climate-related financing by 2020 and to increase the use of instruments to leverage private-sector finance, including financing for adaptation and climate resilience. Between 2012 and 2014, IDB devoted a yearly average of 14% of is financing to climate-related projects. Its pledge to double that volume would lead to a level of climate lending averaging between 25% and 30% of total IDB approvals by 2020.

Apart from resources pledged by various funds and institutions, there are other ways that could help to close the gap between funding needs and available resources, such as carbon pricing[50] and removal of fossil fuel subsidies.

According to the World Bank (2015d), putting a price on carbon through a carbon tax (as some Latin American and Caribbean countries, such as Mexico and Chile, have already done) or carbon market mechanism can raise revenue while also encouraging emissions reductions. The High -level Advisory Group on Climate Change Financing (UN AGF), convened by the Secretary-General of the United Nations in 2010, estimated that a price of US$25 per tonne on CO_2 emissions could mobilize US$25-50 billion per year if Governments allocated a small portion of carbon pricing revenues for developing countries.

The World Bank also believes that the removal and redirection of fossil fuel subsidies could be a potential source of climate change finance. There are over 550 measures that support fossil-fuel production or use in the 34 OECD member countries, costing an annual US$55-90 billion a year between 2005 and 2011 (OECD, 2012). According to IEA estimates, fossil fuel subsidies totalled US$55 billion in 2013, representing 0.7% of global GDP and 2% of government revenues, apart from benefitting the wealthiest sector of the population (World Bank, 2015c).

[49] The 2015 Annual Meetings of the World Bank Group (WBG) and the International Monetary Fund (IMF) in October 2015 in Lima (Peru) were the first to be held in Latin America and the Caribbean since 1967. The meetings consisted of plenary sessions, panel discussions and seminars, which addressed, *inter alia*, inequality, the economic slowdown, renewable energy, climate change, and the Bank's twin goals of ending extreme poverty by 2030 and boosting shared prosperity. The meetings brought together government ministers, development experts, chief executive officers and celebrities. For further information, see [online] http://sd.iisd.org/news/wbgimf-annual-meetings-address-climate-change-sdgs/ and http://www.imf.org/external/am/2015/index.htm.

[50] Putting a price on carbon when evaluating invesments, expressed as a change in future costs to the consumer, or a carbon tax, expressed as a change in current costs to the consumer.

The International Monetary Fund (IMF) believes (Coady and others, 2015) that eliminating post-tax subsidies in 2015 could raise government revenue by US$2.9 trillion (3.6% of global GDP), cut global CO_2 emissions by more than 20% (in Latin America and the Caribbean, by almost 25%) and cut premature air-pollution deaths by more than half. After allowing for the higher energy costs faced by consumers, this action would raise global economic welfare by US$1.8 trillion (2.2% of global GDP).

G-20 and Asia-Pacific Economic Cooperation (APEC) members recently agreed to phase out such subsidies. According to a study by Overseas Development Institute and Oil Change International (2015), in 2013-2014, total average annual G-20 national subsidies to fossil fuel (gas, coal and oil) production totalled US$77.811 billion. In the three Latin American G-20 countries, they were: US$4.949 billion in Brazil; US$2.192 billion in Argentina; and US$1.351 billion in Mexico (ODI/Oil Change International, 2015).

Table 32 shows a summary, derived from one financial year, of funds pledged by the various institutions. The table is only intended to give an idea of the volume of resources potentially available by 2020 and should not be taken as absolute. On this understanding, if the pledges of the actors mentioned in this section (climate funds, IDFC members, commercial banks, insurers and multilateral banks, through CIF and individually) were fulfilled, funds would total US$700 billion worldwide without increasing resource availability in 2015. Of this total, 24% was available in 2015 and the remaining 76% would be available by 2020.

Table 32
Potential sources of climate finance by type and amounts announced
(Billions of dollars)

Climate Invest-ment Funds (CIF) (stock as of 2015)	18 Interna-tional Develop-ment Finance Club (IDFC) members (in 2015)	Commercial banks (green bonds in 2015)	Climate funds (stock as of July 2015)	Insurance industry (total by 2020)	Citigroup (by 2020[a])	Multilateral banks (in 2020[b])	Total
3.7	100	50	17.12				170.8
				420	50	59.0	529.0
3.7	100	50	17.12	420	50	59.0	699.8

Source: Prepared by the authors, on the basis of J. Samaniego and Heloisa Schneider, "Financiamiento para el cambio climático en América Latina en 2013" (LC/W.656), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2015.
[a] The total is US$100 billion over a 10-year period but the table includes only funds relating to 2016, 2017, 2018, 2019 and 2020, which would total US$50 billion assuming an even distribution of US$10 billion per year.
[b] Includes commitments to 2020, without aggregating annual amounts: US$29 billion per year in 2020 from the World Bank; US$20 million per year to 2020 from the European Investment Bank (EIB); US$5 billion per year to 2020 from Inter-American Development Bank (IDB); and a total of US$5 billion to 2020 from the African Development Bank (AfDB).

In the hypothetical situation where 2015 pledges were maintained over the period, they would total US$854.5 billion outstanding by 2020 (excluding monetary adjustment or other factors, such as further pledges, which could impact on resources). If the US$854.5 billion were to be added to the US$529 billion by 2020, these resources could total nearly US$1,400 billion by 2020.

2. Pension funds and insurers

Pension funds have come to play a highly active role in tackling climate change and, at the United Nations Climate Summit in 2014, they announced the following commitments and targets.

- A coalition of pension funds (California State Teachers' Retirement System (CalSTRS), APG and PensionDanmark) pledged to allocate more than US$31 billion to low-carbon investments.
- Fourth Swedish National Pension Fund (AP4) pledged to decarbonize its share portfolio by US$20 billion.
- Second Swedish National Pension Fund (AP2) announced that it would start to redirect US$112 million in investments, divesting 12 coal mining companies and 8 oil and gas companies (AP2, 2014).
- California State Teachers' Retirement System (CalSTRS), a pension fund worth US$176 billion, announced that it would nearly triple its investments in clean energy to US$3.7 billion over the next five years (Reuters, 2014).
- Dutch pension fund, APG, pledged to double its clean energy investments to US$2.6 billion over the next three years.

However, this trend is not new in the sector, which has confirmed that the issue of green investments is here to stay. There is a growing understanding in the private sector of the risks that climate change poses to supply chains, business assets and society at large. As a result, investors, especially long-term investors like the major pension funds, which were represented at the meetings of ministers of finance and development with the heads of the World Bank and IMF in April 2015, have been increasing pressure on companies to shift towards cleaner investments and avoid high-emitting assets that could become stranded in an economy evolving away from fossil fuels (World Bank, 2015e). The climate ministerial was attended by 42 ministers of finance and development who also discussed phasing out fossil fuels, putting a price on carbon and mobilizing the finance needed for a smooth, orderly transition to a low-carbon economy.

In its third *Annual Survey of Large Pension Funds and Public Pension Reserve Funds* in 2014, OECD reviewed trends in assets and asset allocation by 104 such funds, which in total managed US$10.4 trillion in assets, one third of the total worldwide assets held by this class of institutional investor (OECD, 2014b). Table 33 shows the asset composition of the institutions that participated in the 2014 survey as compared with 2012 data.[51]

The growth in total assets between 2012 and 2013, from US$83.2 trillion to US$92.6 trillion, may stem from the number of institutions that took part in the survey. There were 86 in 2012 compared with 104 in 2013. The US$92.6 trillion in 2013 relates to the assets of 75 pension funds while the US$83.2 trillion in 2012 relates to 56 pension funds. Even though the averages for each group of institutions are lower in 2013 than in 2012, the amounts are equally significant.

In both years, the amounts far outstrip the GDP of OECD member countries. In 2012, they represented 180% of GDP in that year, compared with 195% in 2013.

The 2014 survey results show a low level of investment in infrastructure, despite evidence of a growing interest by pension fund managers. Considering total assets under management by the institutions that returned questionnaires in 2013, infrastructure investment in the form of unlisted equity and debt was US$80 billion, representing 1.0% of the total assets under management (OECD, 2014b).

[51] The 2012 survey included investment funds, insurers, pension funds and other bodies representing 86 institutions.

Table 33
Assets by type of institutional investor, 2012-2013
(Trillions of dollars)

Institution	2012		2013	
	Amount	Percentage of total	Amount	Percentage of total
Investment funds	30.0	36.1	34.9	37.7
Insurers	24.5	29.4	26.1	28.2
Pension funds	21.8	26.2	24.7	26.7
Public pension reserve funds	5.0	6.0	5.1	5.5
Other	1.9	2.3	1.8	1.9
Total	83.2	100.0	92.6	100.0
Gross domestic product of member countries of the Organization for Economic Cooperation and Development (OECD)	46.1		47.3	

Source: J. Samaniego and Heloisa Schneider, "Financiamiento para el cambio climático en América Latina en 2013" (LC/W.656), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2015; and Organization for Economic Cooperation and Development (OECD), *Annual Survey of Large Pension Funds and Public Pension Reserve Funds. Report on Pension Funds' Long-Term Investments*, 2014 [online] http://www.oecd.org/daf/fin/private-pensions/2014_Large_Pension_Funds_Survey.pdf.

This low investment in infrastructure has been on average stable. In 2010, the 28 funds that provided data on infrastructure investments reported a total direct exposure of US$41.9 billion, which represented 2.9% of total assets of funds investing in infrastructure that were surveyed at that time. In 2012, the infrastructure assets comprised 3.4% of total plan assets among the funds that reported infrastructure exposure, compared with 3% in 2013 (OECD, 2014b).

Even so, given their potential as a source of finance, these funds invest even less in green projects (OECD, 2013b). This seems to confirm the persistence of barriers and disincentives that limit such investments and the relevance and need for policymakers to address them.

Sixty institutions reported green investments in 2013, confirming a growing interest in this area. One of the findings of the 2013 survey is the scarcity of data on such investments, with funds using widely differing definitions and criteria to classify environmental, social and corporate governance. Some types of investments reported included specially screened equities, green bonds, and alternatives such as environmental technology infrastructure.

In 2013, the French pension fund, Établissement de Retraite Additionnelle de la Fonction Publique (ERAFP), reported that 27% of its total portfolio was invested in socially responsible equities. Sweden's AP2 invested 2.6% of the total fund in green alternatives such as forestry and farmland. Dutch pension fund Stichting Pensioenfonds ABP (ABP) reported investment of 2.7% of the fund in green equities and alternatives (see table 34).

A leader in the field is Denmark's public fund PensionDanmark, which invests 5% of assets under management in renewable energy infrastructure. The fund aims to increase this share to 10% by allocating a further US$ 1.5 billion over the next four years. The company believes that such investments are not only good for the climate but also make financial sense: assets invested in wind farms yielded a return of 9.1% in 2013, which was seen as very positive (Marandino, 2014).

Joint venture is another option, as in the case of a consortium of four Danish pension funds —PKA, Industriens Pensions, Lærernes Pension and Lægernes Pensionskass— which partnered with Danish energy company, DONG Energy, to acquire a 50% stake in a German offshore wind project worth US$812 million (Marandino, 2014).

These institutions are also choosing to invest in funds that bring together small projects, such as British insurer and pension provider, Prudential Plc, which bought 25% of NextEnergy Solar Fund Ltd., a fund that seeks to buy solar plants in the United Kingdom (Marandino, 2014).

However, it should not be assumed that all pension fund assets under management are available for investment in long-term projects, such as infrastructure or clean technology. Kaminker and Stewart (2012) report the World Economic Forum (WEF) estimate that less than 40% of the total assets[52] of institutional investors is available for long-term investment.

WEF believes that one of the constraints limiting the capital available is that assets are required to fund obligations in the near term and thus cannot have an indefinite horizon, allowing only around 25% of investors' assets to be used for long-term investing. Insurers and pension funds possess a set of liabilities that are well defined and some force them to service short-term obligations, putting more pressure on their investment decisions (Kaminker and Stewart, 2012).

Table 34
Green investments by selected pension funds: percentage of total
(Millions of dollars)

Country	Name of fund or institution	Total investment	Green investments (percentage of total)			
			Stocks	Bonds	Alternative green assets	Other
Netherlands	Stichting Pensioenfonds ABP (ABP)[a]	445 303	1.5	0.0	1.2	
Netherlands	Pensioenfonds Zorg en Welzijn (PFZW)	189 397	1.4			
United States of America	New York City Combined Retirement System	150 853	0.3			
South Africa	Government Employees Pension Fund (GEPF)	133 428		0.2	0.6	
Brazil	PREVI[b]	71 997				
Netherlands	Pensioenfonds Metaal en Techniek (PMT)	66 595			0.1	
United Kingdom	Universities Superannuation Scheme (USS)[c]	66 442				0.7
Denmark	PFA Pension	54 515	0.2		0.1	
United States	United Nations Joint Staff Pension Fund	51 366		0.2		
Sweden	Second Swedish National Pension Fund (AP2)	41 207		0.6	2.6	
	Fourth Swedish National Pension Fund (AP4)	40 456	2.7			
	Third Swedish National Pension Fund (AP3)	40 234		0.9		
France	Établissement de Retraite Additionnelle de la Fonction Publique (ERAFP)[d]	23 832	27.0			

[52] According to the World Economic Forum (WEF), only 38% of the total assets of institutional investors worldwide would be available for long-term investing.

Table 34 (concluded)

Country	Name of fund or institution	Total investment	Green investments (percentage of total)			
			Stocks	Bonds	Alternative green assets	Other
New Zealand	New Zealand Superannuation Fund	20 629				
Spain	FONDITEL	3 941	0.9		0.1	
Brazil	Fundação de Assistência e Previdência Social do BNDES (FAPES)	3 479	0.2			

Source: Organization for Economic Cooperation and Development (OECD), *Annual Survey of Large Pension Funds and Public Pension Reserve Funds. Report on Pension Funds' Long-Term Investments*, 2014 [online] http://www.oecd.org/daf/fin/private-pensions/2014_Large_Pension_Funds_Survey.pdf.

[a] The alternative green asset classes include hedge funds, natural resources, private equity, infrastructure and inflation-linked bonds.

[b] PREVI defines green investment as assets (such as stocks, exchange-traded funds and mutual funds) in which the underlying business(es) is/are somehow involved in operations aimed at improving the environment.

[c] Other green investments include renewable and other lower carbon infrastructure, cleantech private equity and a listed environmental technology fund.

[d] If investments based on the FTSE4Good or similar methodologies are considered as green investments, all investments in equity by ERAFP could be seen as green, since ERAFP applied an environmental, social and governance (ESG) best-in-class approach to all the equity mandates.

WEF mentions a further factor that determines the availability of capital from these institutions: risk appetite. After factoring low risk appetite into the equation, the amount of capital available drops to less than 10% of the total from long-term investors (Kaminker and Stewart, 2012).

Even so, if this rationale were to be applied to the assets under management of these institutions in Latin America and the Caribbean, for example, they could amount to more than US$65 billion of the total capital invested by these institutions, which in 2013 was US$731 billion. This could be used to finance investment across a range of sectors for climate change mitigation and adaptation in the region. In fact the amount might be even greater, considering that OECD data does not cover all countries in the region. This makes the amount —itself by no means negligible when compared to funds available from GCF (which had pledged just over US$9 billion by late 2014)— even more important.

OECD (2012) sees this as a potentially "win-win" situation. Given the current low interest-rate environment and weak economic growth prospects in many G-20 countries, pension funds are increasingly looking for "real" asset classes which can deliver steady (preferably inflation-adjusted) income streams with low correlations to the returns of other investments. Green infrastructure projects can provide pension funds with investments that potentially combine these sought-after characteristics.

They can offer stable and predictable cash flows (when backed by long-term contracts with investment grade counterparties), often with inflation protection (e.g. with indexed tariffs). Such projects typically have a lifespan of around 25 years, meaning that they suit the long-term investment horizons of pension fund liabilities and may potentially offer an illiquidity premium. Yet OECD estimates that less than 1% of pension fund assets globally are allocated directly to infrastructure investment, let alone to green projects.

According to Bloomberg New Energy Finance (BNEF, 2013), pension funds are starting to view renewable energy projects as long-term investments suited to their business model and flows of pension fund money into such projects are increasingly likely to be needed to enable European Union countries to meet their emissions targets. Accordingly, there is expected to be significant growth in the share of capital deployed by institutions such as pension funds, insurance companies and wealth managers (in particular via specialist funds or bonds) into operating-stage assets invested directly in European renewables projects.

In Latin America and the Caribbean, the use of these institutions' funds as fiscal agents for climate change has not been documented so far. However, studies of a group of countries in the region reveal their growing importance, especially for long-term investment projects, such as large infrastructure projects, which are key to both climate change mitigation and adaptation (Samaniego and Schneider, 2015).

A key indicator of the growing importance of these funds for countries' financial markets is total pension assets and their ratio to GDP. According to a study of four Latin American and Caribbean countries by SURA Asset Management (2013), the asset-to-GDP ratio ranged from 12% in Mexico to 57% in Chile at the end of 2012. According to Alonso and others (2009), the asset-to-GDP ratio —which is influenced by such factors as how long a country's capitalization system has been in operation (ranging from 16 years in Mexico to 32 years in Chile)— could even exceed 90% by 2050 in the case of Chile. Data from the Chilean Pensions Supervisor, Superintendencia de Pensiones (SP) (2014) show that Chile's asset-to-GDP ratio had already risen to 69.7% by November 2014. In the other three countries with more recent private pension systems (Colombia, Peru and Mexico), it is estimated that the asset-to-GDP ratio could rise to 40% by 2050 in the case of Mexico and Colombia and to around 60% in the case of Peru.

As of December 2013, the leading Latin American and Caribbean pension funds totalled US$731.5 billion, in absolute terms, of which Brazil accounted for 38%, Mexico 25% and Chile 22% (OECD, 2014a). Investments by Latin American and Caribbean pension funds accounted for 2.9% of the world total, 4 percentage points lower than in the previous year, possibly due in part to the sharp fall in natural resource prices (impacting directly on employment in the region and hence on revenue), coupled with the highly variable performance of the region's stock markets. Table 35 shows the performance of major stock exchanges in Latin America and the Caribbean in 2011, 2012 and 2013. Table 36 shows the investment performance of pension funds in some countries of the region between 2006 and 2013, compared with global performance, according to OECD.

Table 35
Market capitalization in Latin America and the Caribbean
(Millions of dollars)

	2011	2012	Percentage variation	2013	Percentage variation
BM&F BOVESPA (Brazil)	1 228 936.2	1 227 447.0	-0.12	1 020 455.3	-16.86
Mexican Exchange	408 689.8	525 056.7	+28.47	526 015.6	+0.18
Santiago Stock Exchange	270 289.1	313 325.3	+15.92	265 150.1	-15.38
Colombia Stock Exchange	201 295.5	245 396.5	+21.91	202 693.2	-17.40
Lima Stock Exchange	81 878.2	102 616.7	+25.33	80 977.5	-21.09
Buenos Aires Stock Exchange	43 579.8	34 254.8	-21.40	53 104.8	+55.03

Source: Güereña de la Llata and others, "Comportamiento de las bolsas de valores de América Latina, período 2011-2013", *Revista de Investigación Académica sin Frontera*, year 7, No. 19, Mexico City, 2014.

Pension funds have also come to play a key role as purchasers of financial securities and as a source of finance for longer-term investment projects, together with life insurance companies. According to the latest figures available for Mexico, Peru and Chile (the three countries studied by SURA Asset Management), pension funds owned 32-48% of the total stock of bonds issued by companies and placed on the market.

In addition there is the funding available to these companies and other borrowers through the financial system in the form of investment by pension funds (SURA Asset Management, 2013). Insurers are choosing to become involved early in both State and private risk prevention in a bid to reduce their costs and premiums. According to Kunreuther (2015), cheap, long-term loans encourage investment in risk reduction. He cites the example of risk-based flood insurance where the annual premium could be reduced by as much as 75% by investing in prevention (such as elevating property prone to flooding and protecting it from hurricanes), financed by cheap, long-term loans such as that offered by the Shore Up CT programme[53] run by the State of Connecticut (United States of America).

Swiss Re's sigma data (2015) show that total economic losses from natural disasters have averaged around US$180 billion annually in the last decade, with 70% of that uninsured. In 2014, there were 189 events and around 13,000 people died worldwide as a result of natural disasters. In Latin America and the Caribbean between 1974 and 2014, more than 80% of earthquakes and nearly 100% of storms were uninsured.

The insurance industry is expected to play an active role in disseminating information about risk and climate change. It will also benefit by supporting and encouraging adaptation through innovative product design, which can be done in collaboration with local authorities. Not only will this enhance its reputation, it will also lead to a more resilient building stock and an overall reduction of risk. On the investment side, there are new market opportunities associated with the transition to low-carbon economy. Investment in innovation and global capacity-building for new energy technologies and infrastructure does not only promise good returns but also contributes to the reduction of greenhouse gas emissions, which will ultimately create a more resilient society. To support this transition, the insurance sector should use its unique knowledge base to inform the debate on climate change and actively lobby Government to take action to reduce risks and curb emissions of greenhouse gases (The Geneva Association, 2013).

[53] In July 2014, the State of Connecticut initated its Shore UP CT programme designed to help residential or business property owners elevate buildings, retrofit properties with additional flood protection, or assist with wind-proofing structures on property that is prone to coastal flooding. This State programme, the first in the United States, enables homeowners to obtain a 15-year loan ranging from US$10,000 to US$300,000 at an annual interest rate of 2.75%. See [online] http://shoreupct.org/.

Table 36
Total investment of pension funds in Latin America and the Caribbean and globally
(Millions of dollars)

Country	2006	2007	2008	2009	2010	2011	2012	2013
Brazil	198 285.0	246 577.4	176 571.2	279 061.2	319 784.7	308 273.1	315 985.8	275 346.0
Mexico	96 665.5	103 622.1	90 798.8	107 810.6	134 749.4	132 380.8	146 288.4	181 255.0
Chile	88 293.5	111 276.6	74 312.7	118 052.5	148 437.0	134 962.3	162 021.0	162 988.0
Colombia	19 474.2	32 632.5	31 402.6	32 782.6	44 179.3	54 005.7	68 221.4	66 911.0
Peru	14 441.6	20 454.0	16 161.8	24 322.0	31 324.3	30 371.5	37 981.6	36 630.0
Costa Rica	1 496.3	1 691.2	20 181.1	2 369.2	2 833.5	3 507.5	4 354.9	5 453.0
Jamaica	1 968.0	2 470.5	2 448.5	2 489.7	3 026.4	3 276.5	3 137.2	2 873.0
Latin America and the Caribbean	420 624.1	518 724.3	411 876.7	564 398.1	684 334.6	666 777.4	737 990.3	731 456.0
World	17 952 408.0	19 836 132.6	15 955 219.7	18 327 302.6	20 437 438.3	21 348 728.2	22 531 913.0	25 436 798.0
Latin America and the Caribbean/ World	2.3%	2.6%	2.6%	3.1%	3.3%	3.1%	3.3%	2.9%

Source: Organization for Economic Cooperation and Development (OECD), *Pension Markets in Focus*, 2014.

In Latin America and the Caribbean there are already schemes linking climate change with insurers, with many schemes prompted by a State's decision to anticipate extreme events that could worsen in a scenario of climate change.

In Uruguay, the decision considered not only the environmental implications of using fossil fuels to replace climate-impacted water sources but also the fiscal deficits this might entail. Uruguay generates a substantial amount of energy through hydroelectric plants that rely largely on rainfall. The risk of lower-than-usual rainfall has become an increasing burden to the Uruguayan Government. In 2012, hydropower production slumped because of a prolonged drought, making it necessary for the Government to buy costly electricity produced from fossil fuels as a substitute. Not only was this bad for the climate, it also pushed the Government into a budget deficit. As a result, in 2014 the Uruguayan Government bought a US$ 450 weather coverage for importing electricity in the event of weather-induced power shortfalls. The insurance, bought with World Bank assistance, helps to reduce this financial risk. The payout amount will be determined by rainfall data and oil prices. If the Government needs to import electricity because of drought, it will automatically receive compensation. By removing a major source of budgetary uncertainty in Uruguay, this landmark transaction will support continued investment in climate-friendly hydropower generation (Swiss Re, 2014a).

In the Caribbean, the expected impacts of climate change relate to excessive rainfall. This led the reinsurer Swiss Re to develop —jointly with and at the request of several Caribbean Governments— the Caribbean Catastrophe Risk Insurance Facility (CCRIF),[54] a risk transfer instrument to protect a number of caribbean countries from the impact of tropic cyclones and earthquakes. CCRIF steps up protection for the countries, extending insurance cover to extreme rainfall. It estimates the impact of heavy rain using satellite data so that payouts can be made quickly without time-consuming damage and loss assessments. The countries covered by the new policy —Anguilla, Barbados, Dominica, Grenada, Haiti, Saint Lucia, Saint Kitts and Nevis and Saint Vincent and the Grenadines— did not have to wait long for payouts. The first payment was made to Anguilla in October 2014 following flooding caused by Hurricane Gonzalo just two weeks earlier. Some of the funds will be used to make the island more resistant to future flooding. The largest payment in 2014 was made to Barbados, which received US$1.3 million. The four payments on the new product totalled US$3.4 million in 2014 (Swiss Re, 2014b).

In 2007, the World Bank Group helped the Caribbean Community (CARICOM) to establish CCRIF as a caribbean-owned "parametric" insurance pool, which offers fast payout to its 16 caribbean member countries upon occurrence of pre-defined hurricane strengths and earthquake magnitudes within defined geographical locations. The instrument allows for fast payout because it is independent of actual damages. CCRIF offers participating countries an efficient and transparent vehicle to access the international reinsurance and capital markets (thereby avoiding adverse selection and moral hazard). As a self-sustaining entity, CCRIF relies on its own reserves and reinsurance to finance itself (World Bank, 2010a).

In 2006, Mexico issued the world's first ever catastrophe bond to be issued by a sovereign, with a three-year maturity and US$450 million coverage against large-scale earthquakes in the three highest-risk areas of the country. In 2009, the Government of Mexico issued its second catastrophe bond worth US$290 million, through the Natural Disaster Fund (FONDEN), to cover earthquakes and hurricanes. The bond had a three-year maturity.

[54] The Caribbean Catastrophe Risk Insurance Facility was established in 2007. See [online] http://www.ccrif.org/.

In 2012, Mexico launched its third catastrophe bond worth US$315 million with a three-year maturity, which was also allocated to FONDEN. The fund is used for infrastructure reconstruction. It is traditional reinsurance cover that supports hurricane damage. Although Mexico has insurance against catastrophes such as earthquakes (MultiCat), to be able to claim, an earthquake must be at least magnitude 8 on the Richter scale and hurricane intensity at least category 4, with the result that catastrophe bonds cover events not covered by insurance.

The World Bank, together with Swiss Re, Munich Re and Goldman Sachs, developed the MultiCat Programme as a flexible catastrophe bond-issuance platform allowing participants to buy insurance coverage for multiple perils, regions and countries. MultiCat Mexico 2009 issued a US$ 290 million series of notes in October 2009. The result is three-year coverage for a trio of specific risks against earthquakes (three areas around Mexico City), Pacific hurricanes (two areas) and Atlantic hurricanes (specifically the area around Cancun). FONDEN organizes bond issuance under the MultiCat Mexico programme.

3. Green bonds

Green bonds, created to raise US$80 trillion in funds from a global market for climate-friendly projects, were the fastest-growing climate-aligned financial instrument in terms of number and volume of transactions over the past year: 35 corporates issued US$36.6 billion in 2014, more than tripling the US$ 11 billion issued in 2013. As of June 2015, total green bonds outstanding were US$65.9 billion. This green bond market growth was driven mainly by corporates and municipal governments, more and more of which have entered the market (Climate Bonds Initiative, 2015).

Demand for this financial instrument is not just originating from investors with environmental, social and governance (ESG) mandates but remains high with mainstream investors interested in the green theme. However demand has not always translated into pricing differences — pricing remains largely in line with similar non-green bonds from the same issuers (Climate Bonds Initiative, 2014).

The largest issuers of green bonds are development banks and corporations. The biggest bank issuers are EIB, World Bank and German development bank KfW (with US$11.6 billion, US$8 billion and US$4 billion respectively). The biggest corporate issuers are GDF Suez, with 2.5 billion euros, and Électricité de France S.A. (EDF), with 1.4 billion euros (Climate Bonds Initiative, 2014).

As of June 2014, the universe of climate-aligned (green and other) bonds outstanding was an estimated US$502.6 billion. This includes bonds whose proceeds are used primarily for financing the transition to a low-carbon economy, classified as climate-aligned but “unlabelled” green bonds, and actual “labelled” green bonds. Using this filter, the climate-aligned bond universe in 2014 is seen to comprise US$244.4 billion in unlabelled climate-aligned bonds and US$35.83 billion[55] in labelled green bonds (Climate Bonds Initiative, 2014).

Labelled green bonds are bonds that earmark proceeds for climate or environmental projects, and have been labelled as “green” by the issuer. Labelled green bonds earmark 100% of the proceeds of the bond sale for projects or assets that fit within the Climate Bonds Taxonomy[56] of the Climate

[55] Data are posted only until 10 June 2014 but, in 2014, green bonds totalled US$3.6 billion.

[56] The Climate Bonds Taxonomy contains the definitions of the Climate Bond Standards and Certification Scheme [online] https://www.climatebonds.net/standards/taxonomy.

Bonds Initiative. Unlabelled bonds are bonds with proceeds financing climate-aligned assets (Climate Bonds Initiative, 2015).

The universe of US$502.6 billion climate-aligned bonds outstanding as of June 2014 comprised 1,900 bonds from approximately 280 issuers and remains dominated by the transport sector, with bonds worth US$358.4 billion, followed by the energy sector (US$74.7 billion) and financial sector (US$50.1 billion). China was the largest issuing country, with a 33% share (table 37) (Climate Bonds Initiative, 2014).

Table 37
Issuers of labelled and unlabelled climate (green) bonds by country, as of June 2015
(Billions of dollars)

Country	Amount	Percentage of total
Canada	25.0	5.0
China	164.0	32.7
European Union	51.0	10.2
France	49.0	9.8
Republic of Korea	24.0	4.8
Rest of the world	99.0	19.7
Supranationals	31.7	6.3
United Kingdom	58.5	11.6
Total	502.2	100.0

Source: Climate Bonds Initiative, *Bonds and Climate Change. The State of the Market 2014, 2014* [online] https://www.climatebonds.net/files/files/-CB-HSBC-15July2014-A4-final.pdf.

In Latin America and the Caribbean, three such bonds have been issued to date: two in Peru and one in Brazil.

In Peru, in August 2014, IFC issued a 20-year bond in Peruvian currency, for 118 million soles (approximately US$42 million), with an implied yield of 5.3% per annum. Peru's leading insurance company, RIMAC Seguros, is the sole investor in the bond.[57] In December 2014, Peruvian wind energy producer Energía Eólica S.A. (an indirect subsidiary of Contour Global)[58] issued a 20-year green bond for US$204 million with a coupon of 6% per annum. Goldman Sachs and Bank of America Merrill Lynch were the underwriters.[59]

Brazilian food producer, BRF S.A., issued a bond for 500 million euros (US$680.6 million) in May 2015, maturing in June 2022, with coupon of 2.750% per year (yield to maturity 2.822%), payable annually. BRF intends to use the proceeds to fund green projects in the areas of energy efficiency, greenhouse gas emission reduction, renewable energy, water management, waste management, sustainable and efficient packaging, sustainable forest management, reducing raw material use, as well as to pay fees and expenses associated with the bond issue (BRF, 2015).

According to a report by the Climate Bonds Initiative (2015), the region has great potential.

[57] See [online] http://www.climatebonds.net/2014/08/ifc-issues-first-peruvian-soles-denominated-pen-42m-15m-green-bond-domestic-investor-rimac

[58] See [online] http://www.contourglobal.com/

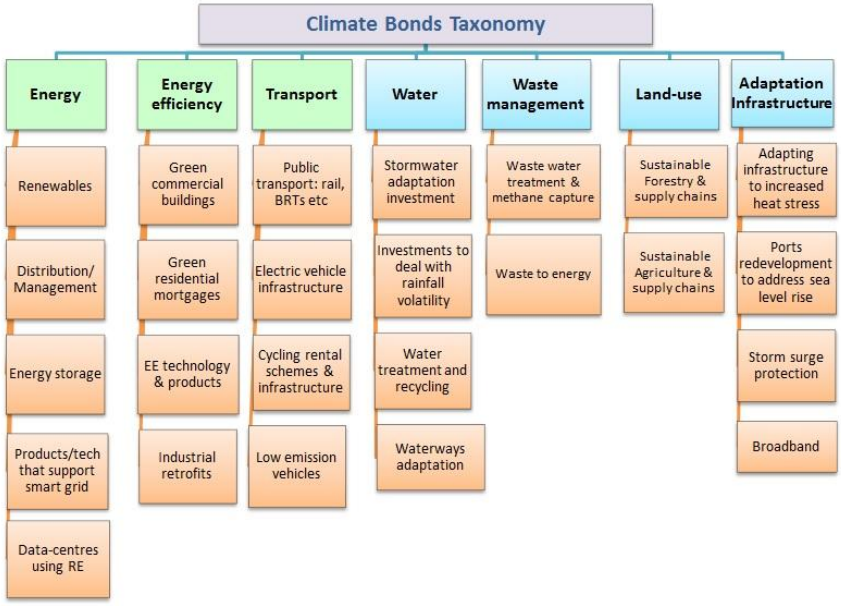
[59] See [online]: https://www.climatebonds.net/2014/12/last-reviews-year-peru%E2%80%99s-energia-eolica-204m-and-norway%E2%80%99s-vardar-41m-are-new-issuers-swedish#sthash.wjrz5rmf.dpuf.

- Brazil is so far preparing its role in the Green bond adventure behind the scenes, waiting out the difficult domestic investment climate. In 2014/2015, it established a Green Bond Market Development Committee, led by FEBRABAN, the Brazilian Federation of Banks. Brazil's potential may be as high as US$3 billion.
- In late October 2015, Mexico's NAFIN announced that it would be issuing green bonds to finance renewable energy projects (REVE, 2015). NAFIN estimates that its planned bond issues could total US$250-500 million. Mexico's potential is believed to be US$1 billion.

Even though they are considered to have great potential for leveraging large-scale finance for tackling climate change, green bonds have come under criticism, with one of the main concerns being the risk of greenwashing (where bond proceeds are allocated to assets with little or doubtful environmental value). This stems from a lack of clear and widely accepted guidelines for ensuring that a bond really is green, coupled with a lack of transparency in the information published by issuers and investors. Furthermore, issuer information does not allow funding to be traced, with the risk that it might come from dubious sources. The Climate Bonds Initiative was established to help remedy this. It is a non-profit organization registered in England and Wales that has been tracking the green-labelled market since its establishment in 2009 and publishes the list of labelled green bonds on its website.[60] However, the Climate Bonds Initiative does not track sources of finance.

The Climate Bonds Taxonomy is the green definitions of the Climate Bonds Standards and Certification Scheme. It is a public good resource that provides guidelines for prospective green bond issuers and investors. The aim is to encourage common definitions across global markets. The Climate Bonds Taxonomy is shown in diagram 4.

Diagram 4
Climate Bonds Taxonomy according to the Climate Bonds Initiative



Source: Climate Bonds Initiative [online] http://www.climatebonds.net/standards/taxonomy2.

[60] See [online] https://www.climatebonds.net/cbi/pub/data/bonds?items_per_page=All&order=field_bond_simple_issuer_name&sort=asc

The World Bank is one of the world's biggest issuers, having issued green bonds worth US$8.5 billion since 2008 through 100 transactions, applying the project eligibility criteria in the World Bank's Green Bond Framework, shown in table 38 (CICERO, 2015).

Table 38
Examples of eligible projects that meet the World Bank's eligibility criteria for green bonds

Mitigation	Solar and wind installations
	New technologies that permit significant reductions in greenhouse gas emissions
	Rehabilitation of power plants and transmission facilities to reduce greenhouse gas emissions
	Greater efficiency of transportation, including fuel switching and mass transport
	Waste (methane emissions) management and construction of energy-efficient buildings
	Carbon reductions through reforestation and avoided deforestation
Adaptation	Protection against flooding (including reforestation and watershed management)
	Food security improvement and implementing stress-resilient agricultural systems
	Sustainable forest management and avoided deforestation

Source: Center for International Climate and Environmental Research - Oslo (CICERO), "Second Opinion On World Bank's Green Bond framework", 2015 [online] http://treasury.worldbank.org/cmd/pdf/CICERO-second-opinion.pdf.

After corporates and other organizations began to take an interest in and issue green bonds themselves, further initiatives designed to enhance transparency and clarity for investors have been launched or are in the pipeline. They include: the Green Bond Principles, published in March 2015 by the International Capital Market Association (ICMA); the Expert Network on Second Opinions (ENSO) established by Oslo-based NGO, CICERO;[61] the CERES-led[62] investor initiative for bonds labelled green (A Statement of Investor Expectations for the Green Bond Market); and the Climate Bonds Initiative, which has provided the information for this section of the document. In addition, a number of green bond indices have been established to help increase the liquidity of green bonds, including the Solactive Green Bond Index[63] and Standard and Poor's Green Bond Index,[64] launched in March 2014 and July 2014 respectively. The planned launch of Barclays MSCI Green Bond was announced in mid-2014, although it is not yet operational.

[61] The Oslo-based Center for International Climate and Environmental Research (CICERO) is an independent, not-for-profit research institute that provides second opinions on institutions' framework and guidance for assessing and selecting eligible projects for green bond investments. It also assesses the framework's robustness in meeting the institutions' environmental objectives.

[62] See [online] http://www.ceres.org/files/investor-files/statement-of-investor-expectations-for-green-bonds/at_download/file.

[63] See [online] http://www.solactive.com/equity-indexing/faz-indices/?index=DE000SLA0FS4.

[64] See [online] http://www.us.spindices.com/indices/fixed-income/sp-green-bond-index.

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Annex

Table A.1
Eligible project categories (International Development Finance Club)

'Other' environment	
Water supply	Municipal / industrial / agriculture
Wastewater treatment	Municipal / industrial / agriculture
Industrial pollution control	Reduction of fluid and air pollutants from industry
Soil remediation and mine rehabilitation	Clean-up of hazardous waste sites
Waste management	Solid waste collection and treatment, recycling
Biodiversity	Forest species protection, biodiversity
Sustainable infrastructure	Improvement of general transport logistics, such as reduction of empty running
Green energy and mitigation of greenhouse gas (GHG) emissions	
Renewable energy supply	**Electricity generation**
	Wind power
	Geothermal power
	Solar power (concentrated solar power, photovoltaic power)
	Biomass or biogas power that does not decrease biomass and soil carbon pools
	Ocean power (wave, tidal, ocean currents, salt gradient, etc.)
	Hydropower plants, only if net emission reductions can be demonstrated
	Heat production
	Solar water heating and other thermal applications of solar power in all sectors
	Thermal applications of geothermal power in all sectors
	Thermal applications of sustainably-produced bioenergy in all sectors, including efficient, improved biomass stoves
Lower-carbon and efficient energy generation	Waste and wastewater Waste management and waste-to-energy projects that reduce methane emissions and generate energy Transmission and distribution systems Retrofit of transmission lines or substations and/or distribution systems to reduce energy use and/or technical losses, excluding capacity expansion Improving existing systems to facilitate the integration of renewable energy sources into the grid Power plants Renewable energy power plant retrofits Energy-efficiency improvement in existing thermal power plant Thermal power plant retrofit to fuel switch from a more GHG-intensive fuel to a different, less GHG-intensive fuel type Waste heat recovery improvements Conversion of existing fossil fuel-based power plant to cogeneration technologies that generate electricity in addition to providing heating/cooling
Production of long-lived products or equipment for the generation of renew able energy	Projects producing components, equipment or infrastructure dedicated to the renewable energy sector, e.g. blades for windmills, photovoltaic cells, boilers for cogeneration projects

Table A.1 (continued)

Energy efficiency in industry and buildings (projects dedicated to a significant energy efficiency improvement)	**Industry**
	Significant industrial energy-efficiency improvements through the installation of more efficient equipment, changes in processes, reduction of heat losses and/or increased waste heat recovery
	Installation of cogeneration plants that generate electricity in addition to providing heating/cooling
	More efficient facility replacement of an older facility (old facility retired)
	Commercial and residential sectors (buildings)
	Energy-efficiency improvement in lighting, appliances and equipment
	Substitution of existing heating/cooling systems for buildings by cogeneration plants that generate electricity in addition to providing heating/cooling
	Waste heat recovery improvements
	Retrofit of existing buildings: architectural or building changes that enable reducing energy consumption
	Efficiency of new buildings: use of highly efficient architectural designs or building techniques that enable reducing energy consumption for heating and air conditioning, exceeding available standards and complying with high energy efficiency certification or rating schemes
Process emissions in industry and fugitive emissions	Industrial processes
	Reduction in GHG emissions resulting from industrial process improvements and cleaner production (e.g. cement, chemicals), excluding carbon capture and storage
	Fugitive emissions
	Reduction of gas flaring or methane fugitive emissions in the oil and gas industry
	Coal mine methane capture
	Air conditioning and cooling
	Retrofit of existing industrial, commercial and residential infrastructure to switch to cooling agent with lower global warming potential
Sustainable transport	Vehicle energy efficiency fleet retrofit
	Existing vehicles, rail or boat fleet retrofit or replacement (including the use of lower-carbon fuels, electric or hydrogen technologies, etc.)
	Urban transport modal change
	Urban mass transit
	Non-motorized transport (bicycles and pedestrian mobility)
	Urban development
	Integration of transport and urban development planning (dense development, multiple land use, walking communities, transit connectivity, etc.), leading to a reduction in the use of passenger cars
	Transport demand management measures to reduce GHG emissions (e.g., speed limits, high-occupancy vehicle lanes, congestion charging/road pricing, parking management, restriction or auctioning of licence plates, car-free city areas, low-emission zones)
	Inter-urban modal transport
	Railway transport ensuring a modal shift of freight and/or passenger transport from road to rail (improvement of existing lines or construction of new lines)
	Waterways transport ensuring a modal shift of freight and/or passenger transport from road to waterways (improvement of existing infrastructure or construction of new infrastructure)

Table A.1 (continued)

Agriculture, forestry and land use	**Afforestation and reforestation**
	Afforestation (plantations) on non-forested land
	Reforestation on previously forested land
	Reducing emissions from the deforestation or degradation of ecosystems
	Biosphere conservation projects (including payments for ecosystem services)
	Sustainable forest management
	Forest management activities that increase carbon stocks or reduce the impact of forestry activities
	Agriculture
	Agriculture projects that do not deplete and/or improve existing carbon pools (reduction in fertilizer use, rangeland management, collection and use of bagasse, rice husks, or other agriculture waste, low tillage techniques that increase carbon contents of soil, rehabilitation of degraded lands, etc.)
	Reduction in energy use in traction (e.g. efficient tillage), irrigation, and other agriculture processes
	Livestock
	Livestock projects that reduce methane or other GHG emissions (manure management with biodigestors, etc.)
	Biofuels
	Production of biofuels (including biodiesel and bioethanol)
Carbon capture and storage	Projects for carbon capture and storage technology that attempts to prevent release of large quantities of carbon dioxide into the atmosphere from fossil fuel use in power generation and process emissions in other industries
Local, sectoral or national budget support to a climate change mitigation policy	Dedicated budget support to national or local authorities for climate change mitigation policy implementation
Adaptation to climate change **Water preservation**	Improvement in catchment management planning (to adapt to a reduction in river water levels due to reduced rainfall) Installation of domestic rainwater harvesting equipment and storage (to adapt to an increase in groundwater salinity due to sea level rise) Rehabilitation of water distribution networks to improve water resource management (to adapt to increased water scarcity caused by climate change) Agriculture-, natural resources- and ecosystem-based adaptation Conservation agriculture such as provision of information on crop diversification options (to adapt to an increased vulnerability in crop diversification options (to adapt to an increased vulnerability in crop productivity) Increased production of fodder crops to supplement rangeland diet (to adapt to a loss in forage quality or quantity caused by climatic changes) Adoption of sustainable fishing techniques (to adapt to the loss of fish stocks due to changes in water flows or temperature) Identification of protected ecosystem areas (to adapt to a loss of species caused by sudden temperature changes) Improved management of slopes basins (to adapt to increased soil erosion caused by flooding due to excess rainfall)

Table A.1 (concluded)

Coastal protection	Building of dykes to protect infrastructure (to adapt to the loss and damage caused by storms and coastal flooding, and sea level rise)
	Mangrove planting (to build a natural barrier to adapt to increased coastal erosion and to limit saltwater intrusion into soils caused by sea level rise)
Other disaster risk reduction	Early warning systems for extreme weather events (to adapt to an increase in extreme weather events by improving natural disasters management and reduce related loss and damage)
	Improved drainage systems (to adapt to an increase in floods by draining off rainwater)
	Insurance against natural disasters (to adapt better to extensive loss and damage caused by extreme weather events)
	Building resilient infrastructure, such as a protection system for dams (to adapt to exposure and risk to extreme weather impacts, such as flooding, caused by climate change)
	Monitoring of disease outbreaks and development of a national response plan (to adapt to changing patterns of diseases that are caused by changing climatic conditions)
Local, sectoral, or national budget support to a climate change adaptation policy	Dedicated budget support to a national or local authorities for climate change adaptation policy implementation

Source: H. Höhne and others, "Mapping of Green Finance Delivered by IDFC Members in 2011", 2012 [online] https://www.kfw-entwicklungsbank.de/migration/Entwicklungsbank-Startseite/Entwicklungsfinanzierung/Umwelt-und-Klima/Zahlen-Daten-Studien/Studien-und-Publikationen/2012_Mapping-Report.pdf.

Table A.2
Eligible project categories for adaptation according to the Joint MDB Mitigation Finance Reporting

Adaptation	Examples of specific sectors and subsectors
Water and wastewater systems	Water supplies Wastewater infrastructure Water resources management
Agricultural and ecological resources	Primary agriculture and food production Agricultural irrigation Forestry Livestock production Fishing Ecosystems (including ecosystem-based flood protection measures)
Industry, extractive industries, manufacturing and trade	Manufacturing Food processing, distribution and retail Trade Extractive industries (oil, gas, mining, etc.)
Infrastructure, energy and built environment	Construction Transport Coastal and riverine infrastructure (including for flood protection) Urban development Tourism Waste management Energy generation (including renewables) Energy transmission and distribution
Other	Financial services (banking, insurance) Institutional capacity (professional services, information and communication technologies) Human capacity (education, health)

Source: African Development Bank (AfDB) and others, *Joint Report on MDB Climate Finance 2013*, 2014.

Table A.3
Eligible project categories for mitigation according to the Joint MDB Mitigation Finance Reporting

1 Demand-side, brownfield energy efficiency
1.1 Commercial and residential sectors (buildings)
1.1.1 Energy-efficiency improvement in lighting, appliances and equipment
1.1.2 Substitution of existing heating/cooling systems for buildings by cogeneration plants that generate electricity in addition to providing heating/cooling
1.1.3 Retrofit of existing buildings: architectural or building changes that enable the reduction of energy consumption
1.1.4 Waste heat recovery improvements
1.2 Public services
1.2.1 Energy-efficiency improvement in utilities and public services through the installation of more efficient lighting or equipment
1.2.2 Rehabilitation of district heating systems
1.2.3 Utility heat loss reduction and/or increased waste heat recovery
1.2.4 Improvement in utility-scale energy efficiency through efficient energy use and loss reduction
1.3 Agriculture
1.3.1 Reduction in energy use in traction (e.g. efficient tillage), irrigation and other agricultural processes
1.4 Industry
1.4.1 Industrial energy-efficiency improvements through the installation of more efficient equipment, changes in processes, reduction of heat losses and/or increased waste heat recovery
1.4.2 Installation of cogeneration plants
1.4.3 More efficient facility replacement of an older facility (old facility retired)
2 Demand-side, greenfield energy efficiency
2.1 Construction of new buildings
2.1.1 Use of highly efficient architectural designs or building techniques that enable the reduction of energy consumption for heating and air conditioning, exceeding available standards and complying with high energy efficiency certification or rating schemes
3 Supply-side, brownfield energy efficiency
3.1 Transmission and distribution systems
3.1.1 Retrofit of transmission lines or substations to reduce energy use and/or technical losses, excluding capacity expansion
3.1.2 Retrofit of distribution systems to reduce energy use and/or technical losses, excluding capacity expansion
3.1.3 Improving existing systems to facilitate the integration of renewable energy sources into the grid
3.2 Power plants
3.2.1 Renewable energy power plant retrofits
3.2.2 Energy-efficiency improvement in existing thermal power plant
3.2.3 Thermal power plant retrofit or replacement to fuel switch from a more greenhouse gas (GHG)-intensive fuel to a different, less GHG-intensive fuel type
3.2.4 Waste heat recovery improvements

Table A.3 (continued)

4 Renewable energy
4.1 Electricity generation
4.1.1 Wind power
4.1.2 Geothermal power
4.1.3 Solar power (concentrated solar power, photovoltaic power)
4.1.4 Biomass or biogas power that does not decrease biomass and soil carbon pools
4.1.5 Ocean power (wave, tidal, ocean currents, salt gradient, etc.)
4.1.6 Hydropower plants, only if net emission reductions can be demonstrated
4.2 Transmission systems
4.2.1 New transmission systems (lines, substations) or new systems (e.g. new information and communication technology, storage facility, etc.) to facilitate the integration of renewable energy sources into the grid
4.3 Heat production projects
4.3.1 Solar water heating and other thermal applications of solar power in all sectors
4.3.2 Thermal applications of geothermal power in all sectors
4.3.3 Thermal applications of sustainably-produced bioenergy in all sectors, including efficient, improved biomass stoves
5 Transport 5.1 Vehicle energy efficiency fleet retrofit 5.1.1 Existing vehicles, rail or boat fleet retrofit or replacement (including the use of lower-carbon fuels, electric or hydrogen technologies, etc.) 5.2 Urban transport modal change 5.2.1 Urban mass transit 5.2.2 Non-motorized transport (bicycles and pedestrian mobility) 5.3 Urban development 5.3.1 Integration of transport and urban development planning (dense development, multiple land use, walking communities, transit connectivity, etc.), leading to a reduction in the use of passenger cars 5.3.2 Transport demand management measures to reduce GHG emissions (e.g. speed limits, high-occupancy vehicle lanes, congestion charging/road pricing, parking management, restriction or auctioning of licence plates, car-free city areas, low-emission zones) 5.4 Inter-urban transport and freight transport 5.4.1 Improvement of general transport logistics to increase energy efficiency of infrastructure and transport, e.g. reduction of empty running 5.4.2 Railway transport ensuring a modal shift of freight and/or passenger transport from road to rail (improvement of existing lines or construction of new lines) 5.4.3 Waterways transport ensuring a modal shift of freight and/or passenger transport from road to waterways (improvement of existing infrastructure or construction of new infrastructure)
6 Agriculture, forestry and land use
6.1 Afforestation and reforestation
6.1.1 Afforestation (plantations) on non-forested land
6.1.2 Reforestation on previously forested land
6.2 Reducing emissions from the deforestation or degradation of ecosystems
6.2.1 Biosphere conservation projects (including payments for ecosystem services)
6.3 Sustainable forest management
6.3.1 Forest management activities that increase carbon stocks or reduce the impact of forestry activities
6.4 Agriculture
6.4.1 Agriculture projects that do not deplete and/or improve existing carbon pools (reduction in fertilizer use, rangeland management, collection and use of bagasse, rice husks, or other agricultural waste, low tillage techniques that increase carbon contents of soil, rehabilitation of degraded lands, etc.)
6.5 Livestock
6.5.1 Livestock projects that reduce methane or other GHG emissions (manure management with biodigestors, etc.)
6.6 Biofuels
6.6.1 Production of biofuels (including biodiesel and bioethanol)

Table A.3 (concluded)

7 Waste and wastewater
7.1.1 Solid waste management that reduces methane emissions (e.g. incineration of waste, landfill gas capture, and landfill gas combustion)
7.1.2 Treatment of wastewater, if not a compliance requirement (e.g. performance standard or safeguard) as part of a larger project
7.1.3 Waste recycling projects that recover or re-use materials and waste as inputs into new products or as a resource
8 Non-energy GHG reductions
8.1 Industrial processes
8.1.1 Reduction of GHG emissions resulting from industrial process improvements and cleaner production (e.g. cement, chemicals)
8.2 Air conditioning and cooling
8.2.1 Retrofit of existing industrial, commercial and residential infrastructure to switch to cooling agent with lower global warming potential
8.3 Fugitive emissions and carbon capture
8.3.1 Carbon capture and storage projects (including enhanced oil recovery)
8.3.2 Reduction of gas flaring or methane fugitive emissions in the oil and gas industry
8.3.3 Coal mine methane capture
9 Cross-sector activities
9.1 Policy and regulation
9.1.1 National mitigation policy/planning/institutions
9.1.2 Energy sector policies and regulations (energy efficiency standards or certification schemes; energy efficiency procurement schemes; renewable energy policies)
9.1.3 Systems for monitoring the emission of greenhouse gases
9.1.4 Efficient pricing of fuels and electricity (subsidy rationalization, efficient end-user tariffs, and efficient regulations on electricity generation, transmission, or distribution)
9.1.5 Education, training, capacity-building and awareness-raising on climate change mitigation/sustainable energy/sustainable transport; mitigation research
9.2 Energy audits
9.2.1 Energy audits for energy end-users, including industries, buildings and transport systems
9.3 Supply chain
9.3.1 Improvements in energy efficiency and GHG reductions in existing product supply chains
9.4 Financing instruments
9.4.1 Carbon markets and finance (purchase, sale, trading, financing, guarantee and other technical assistance). Includes all activities related to compliance-grade carbon assets and mechanisms, such as Clean Development Mechanism (CDM), Joint Implementation (JI); Assigned Amount Units (AAUs), as well as well-established voluntary carbon standards like the Verified Carbon Standard (VCS) or the Gold Standard
9.4.2 Renewable energy and energy efficiency financing through financial intermediaries or similar (e.g. earmarked lines of credit; lines for microfinance institutions, cooperatives, etc.)
9.5 Low-carbon technologies
9.5.1 Research and development of renewable energy or energy efficiency technologies
9.5.2 Manufacture of renewable energy and energy efficiency technologies and products
9.6 Activities with greenhouse gas accounting
9.6.1 Any other activity not included in this list for which the results of ex ante greenhouse gas accounting (undertaken according to commonly agreed methodologies) show emission reductions that are higher than a commonly agreed threshold

Source: African Development Bank (AfDB) and others, *Joint Report on MDB Climate Finance 2013*, 2014.

Table A.4
Activities eligible for classification as climate mitigation finance
(Common Principles for Climate Mitigation Finance Tracking)

Category	Sub-category	Example
1. Renewable energy	1.1 Electricity generation	Wind power
		Geothermal power (only if net emission reductions can be demonstrated)
		Solar power (concentrated solar power, photovoltaic power)
		Biomass or biogas power that does not decrease biomass and soil carbon pools (only if net emission reductions can be demonstrated)
		Ocean power (wave, tidal, ocean currents, salt gradient, etc.)
		Hydropower plants (only if net emission reductions can be demonstrated)
	1.2 Heat production or other renewable energy application	Solar water heating and other thermal applications of solar power in all sectors
		Thermal applications of geothermal power in all sectors
		Wind-driven pumping systems or similar
		Thermal applications of sustainably-produced bioenergy in all sectors, including efficient, improved biomass stoves
	1.3 Transmission systems, greenfield	New transmission systems (lines, substations) or new systems (e.g. new information and communication technology, storage facility, etc.) and mini-grid to facilitate the integration of renewable energy sources into the grid
		Renewable energy power plant retrofits
		Improving existing systems to facilitate the integration of renewable energy sources into the grid
2. Lower-carbon and efficient energy generation	2.1 Transmission and distribution systems	Retrofit of transmission lines or substations and/or distribution systems to reduce energy use and/or technical losses, excluding capacity expansion
	2.2 Power plants	Thermal power plant retrofit to fuel switch from a more greenhouse gas (GHG)-intensive fuel to a different, less GHG-intensive fuel type
		Conversion of existing fossil fuel-based power plant to cogeneration technologies that generate electricity in addition to providing heating/cooling
		Waste heat recovery improvements
		Energy efficiency improvement in existing thermal power plant
3. Energy efficiency	3.1 Brownfield energy efficiency in industry	Industrial energy-efficiency improvements through the installation of more efficient equipment, changes in processes, reduction of heat losses and/or increased waste heat recovery
		Installation of cogeneration plants that generate electricity in addition to providing heating/cooling
		More efficient facility replacement of an older facility (old facility retired)
	3.2 Brownfield energy efficiency in commercial, public and residential sectors (buildings)	Energy-efficiency improvement in lighting, appliances and equipment
		Substitution of existing heating/cooling systems for buildings by cogeneration plants that generate electricity in addition to providing heating/cooling
		Retrofit of existing buildings: architectural or building changes that enable reducing energy consumption

Table A.4 (continued)

Category	Sub-category	Example
3. Energy efficiency	3.3 Brownfield energy efficiency in public services	Energy-efficiency improvement in utilities and public services through the installation of more efficient lighting or equipment
		Rehabilitation of district heating systems
		Utility heat loss reduction and/or increased waste heat recovery
		Improvement in utility-scale energy efficiency through efficient energy use, and loss reduction
	3.4 Vehicle energy efficiency fleet retrofit	Existing vehicles, rail or boat fleet retrofit or replacement (including the use of lower-carbon fuels, electric or hydrogen technologies, etc.)
	3.5 Greenfield energy efficiency in commercial and residential sectors (buildings)	Use of highly efficient architectural designs, energy efficiency appliances and equipment, and building techniques that reduce building energy consumption, exceeding available standards and complying with high energy efficiency certification or rating schemes
	3.6 Energy audits	Energy audits to energy end-users, including industries, buildings and transport systems
4. Agriculture, forestry and land use	4.1 Agriculture	Reduction in energy use in traction (e.g. efficient tillage), irrigation, and other agriculture processes
		Agriculture projects that do not deplete and/or improve existing carbon pools (reduction in fertilizer use, rangeland management, collection and use of bagasse, rice husks, or other agriculture waste, low tillage techniques that increase carbon contents of soil, rehabilitation of degraded lands, etc.)
	4.2 Afforestation and reforestation, and biosphere conservation	Afforestation (plantations) on non-forested land
		Reforestation on previously forested land
		Sustainable forest management activities that increase carbon stocks or reduce the impact of forestry activities
		Biosphere conservation projects (including payments for ecosystem services) targeting reducing emissions from the deforestation or degradation of ecosystems
	4.3 Livestock	Livestock projects that reduce methane or other GHG emissions (manure management with biodigestors, etc.)
	4.4 Biofuels	Production of biofuels (including biodiesel and bioethanol)
5. Non-energy greenhouse gas emissions	5.1 Fugitive emissions	Reduction of gas flaring or methane fugitive emissions in the oil and gas industry
		Coal mine methane capture
	5.2 Carbon capture and storage	Projects for carbon capture and storage technology that attempts to prevent release of large quantities of carbon dioxide into the atmosphere from fossil fuel use in power generation and process emissions in other industries
	5.3 Air conditioning and cooling	Retrofit of existing industrial, commercial and residential infrastructure to switch to cooling agent with lower global warming potential
	5.4 Industrial processes	Reduction in GHG emissions resulting from industrial process improvements and cleaner production (e.g. cement, chemical), excluding carbon capture and storage
6. Waste and wastewater		Treatment of wastewater, if not a compliance requirement (e.g. performance standard or safeguard) as part of a larger project
		Waste management and waste-to-energy projects that reduce methane emissions and generate energy (e.g. incineration of waste, landfill gas capture and landfill gas combustion)
		Waste-recycling projects that recover or re-use materials and waste as inputs into new products or as a resource (only if net emission reductions can be demonstrated)

Table A.4 (concluded)

Category	Sub-category	Example
7. Transport	7.1 Urban transport modal change	Urban mass transit
		Non-motorized transport (bicycles and pedestrian mobility)
	7.2 Transport-oriented urban development	Integration of transport and urban development planning (dense development, multiple land use, walking communities, transit connectivity, etc.), leading to a reduction in the use of passenger cars
		Transport demand management measures to reduce GHG emissions (e.g. speed limits, high-occupancy vehicle lanes, congestion charging/road pricing, parking management, restriction or auctioning of licence plates, car-free city areas, low-emission zones)
	7.3 Inter-urban transport	Railway transport ensuring a modal shift of freight and/or passenger transport from road to rail (improvement of existing lines or construction of new lines)
		Waterways transport ensuring a modal shift of freight and/or passenger transport from road to waterways (improvement of existing infrastructure or construction of new infrastructure)
8. Low-carbon technologies	8.1 Products or equipment	Projects producing components, equipment or infrastructure dedicated for the renewable and energy efficiency sectors
	8.2 Research and Development	Research and development of renewable energy or energy efficiency technologies
9. Cross-cutting issues	9.1 Support to national, regional or local policy, through technical assistance or policy lending, fully or partially dedicated to climate change policy or action	Mitigation national, sectorial or territorial policies/planning/action plan policy/planning/institutions
		Energy sector policies and regulations (energy efficiency standards or certification schemes; energy efficiency procurement schemes; renewable energy policies)
		Systems for monitoring the emission of greenhouse gases
		Efficient pricing of fuels and electricity (subsidy rationalization, efficient end-user tariffs, and efficient regulations on electricity generation, transmission, or distribution)
		Education, training, capacity-building and awareness-raising on climate change mitigation/sustainable energy/sustainable transport; mitigation research
		Other policy and regulatory activities, including those in non-energy sectors, leading to climate change mitigation or mainstreaming of climate action
	9.2 Other activities with net greenhouse gas reduction	Any other activity not included in this list for which the results of ex ante greenhouse gas accounting (undertaken according to commonly agreed methodologies) show emission reductions that are higher than a commonly agreed threshold
	9.3 Financial instruments	Carbon markets and finance (purchase, sale, trading, financing, guarantee and other technical assistance). Includes all activities related to compliance-grade carbon assets and mechanisms, such as Clean Development Mechanism (CDM), Joint Implementation (JI); Assigned Amount Units (AAUs), as well as well-established voluntary carbon standards like the Verified Carbon Standard (VCS) or the Gold Standard

Source: World Bank, 2015.

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