



GREEN BOND

IMPACT REPORT 2018

**10 YEARS OF
GREEN BONDS**

FROM EVOLUTION TO REVOLUTION



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“ We need bold action on climate change. It comes down to a simple choice: we continue with business as usual and hope for the best. Or we act now and build a resilient future. Our generation may not be able to solve all the problems related to climate change, but we can do our part to leave a better planet for the next generation. ”

**Kristalina Georgieva
Chief Executive Officer
The World Bank**

INTRODUCTION

10 YEARS OF GREEN BONDS: FROM EVOLUTION TO REVOLUTION

Ten years ago, a group of Swedish pension funds – through Skandinaviska Enskilda Banken (SEB) – looked for opportunities that support climate-friendly solutions. They wanted high quality, liquid products that would not carry additional project risk. They wanted information about how their investments would achieve impact. They approached the World Bank and we worked together to design a new product. The green bond was born.

Issued in November 2008, the bond created the blueprint for today's green bond market. It was the first to define the criteria for projects eligible for green bond support; include a recognized climate research institution, CICERO, as a second opinion provider; and add impact reporting as an integral part of the process. The market has since expanded from early issuances by other multilaterals to bonds issued in a wide range of markets, currencies and structures by private companies, banks, utilities and governments.

The World Bank's first green bond received strong support from the market and interest from others, including climate policymakers, Ceres and the Climate Bond Initiative. They raised awareness for the challenges of climate change and demonstrated the potential for institutional investors to support climate-smart investments through liquid instruments without giving up financial returns. It formed the basis for the green bond principles coordinated by ICMA, the International Capital Markets Association. It highlighted the social value of fixed income investments and need for a sharper focus on transparency.

The simple concept behind green bonds is now being applied to other labeled bonds. More and more investors recognize their power to support initiatives their stakeholders care about, and the ability to do so without giving up return. They are demanding more and better data, to understand the impact of their investments. Issuers are responding: they are engaging with investors to show how their bonds present opportunities to achieve financial and social returns and are increasingly focused on refining impact measurement and reporting.

Green bonds have sparked a revolution in thinking about sustainability, purpose and potential for liquid bond investments to achieve a positive impact. The Sustainable Development Goals (SDGs) are a helpful framework for investors and issuers to focus on areas beyond climate. The World Bank has started to engage investors around specific SDGs through a series of bonds to raise awareness for specific development challenges through its sustainable development bonds. Other issuers are following.

As we mark ten years of green bonds, we are proud of the role we played in sparking a sustainability revolution in the market. We are also deeply grateful for the support and vision of investors and partners in the market who are driving innovation and sustainable solution. Investors in World Bank green bonds have helped global energy savings equivalent to Chile's power consumption in 2015; supported reforestation projects in Mexico that have resulted in CO₂ emission reductions equivalent of 1.5 million barrels of oil consumed, and prevented 4,800,000 tons annually of untreated wastewater from following into rivers in China.

The challenge now is to ensure that we harness the revolution and momentum towards achieving the SDGs. In the future, for every investment, investors will be asking "how is this making a positive impact to society?" and will expect solid impact data as a response. There's a long way to go. But recognizing the urgency for action and the power of investment, collaboration, data and innovation will get us there.

George Richardson
Director, Capital Markets
The World Bank Treasury

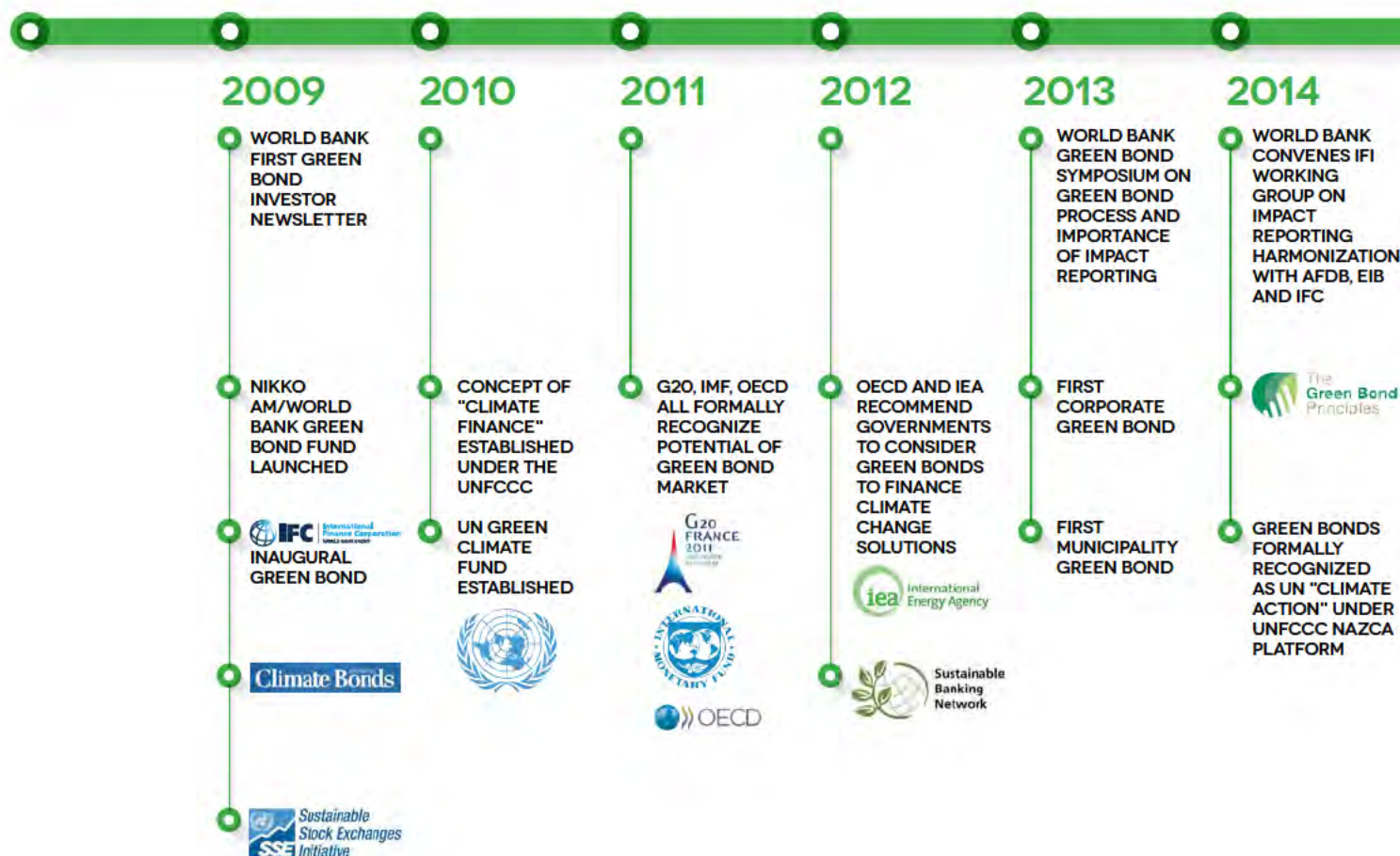
Heike Reichelt
Head of Investor Relations and New Products
The World Bank Treasury



2008

THE FIRST GREEN BOND

WORLD BANK ISSUED THE FIRST LABELLED GREEN BOND FOR MAINSTREAM INSTITUTIONAL INVESTORS





THE WORLD BANK

Treasury | IBRD • IDA

10 YEARS OF GREEN BONDS

FROM EVOLUTION TO REVOLUTION

2018

2015

FIRST HARMONIZED TEMPLATES FOR GREEN BOND IMPACT REPORTING PUBLISHED



FIRST GREEN COVERED BOND

COP21 PARIS AGREEMENT SIGNED AND UN SUSTAINABLE DEVELOPMENT GOALS LAUNCHED



2016

FIRST SOVEREIGN GREEN BOND

FIRST GREEN SCHULDSCHEIN



CHINA LAUNCHES G20 GREEN FINANCE STUDY GROUP

FINANCIAL STABILITY BOARD LAUNCHES TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD), RECOMMENDS GREEN BONDS



2017

WORLD BANK ADVISES FIRST GREEN SUKUK AND FIRST SOVEREIGN GREEN BOND FROM EMERGING MARKETS

USD 100BN OF CUMULATIVE GREEN BOND ISSUANCE

FIRST GREEN SUKUK

FIRST SOVEREIGN GREEN BOND FROM EMERGING MARKETS

FIRST GREEN COMMERCIAL PAPER



WORLD BANK GUIDE FOR PUBLIC SECTOR ISSUERS ON GREEN BOND PROCEEDS MANAGEMENT & REPORTING



IFC GUIDANCE FOR GREEN SOVEREIGN ISSUERS



USD 500BN OF CUMULATIVE GREEN BOND ISSUANCE

Green Loan Principles

EUROPEAN COMMISSION LAUNCHES SUSTAINABLE FINANCE ACTION PLAN



PROJECT SUMMARY

The mission of the World Bank (International Bank for Reconstruction and Development, IBRD) is to end extreme poverty and promote shared prosperity in a sustainable manner. Tackling climate change plays a critical role in achieving these goals. Through World Bank Green Bonds, investors make an impact by supporting the financing of a wide range of projects across many sectors that are addressing climate change around the world.

ISSUANCE

In the past 10 years, the World Bank has issued 147 green bonds in 20 currencies for approximately US\$11 billion in funding to support the transition to low-carbon and climate resilient growth. As of June 30, 2018, US\$4.8 billion of Green Bonds were outstanding.

COMMITMENTS AND DISBURSEMENTS

At the end of the fiscal year 2018, there were 91 eligible projects and a total of US\$15.4 billion in commitments. Of these commitments, US\$8.5 billion in Green Bond proceeds were allocated and disbursed to support projects in 28 countries and another US\$6.8 billion had yet to be disbursed.

By Sector

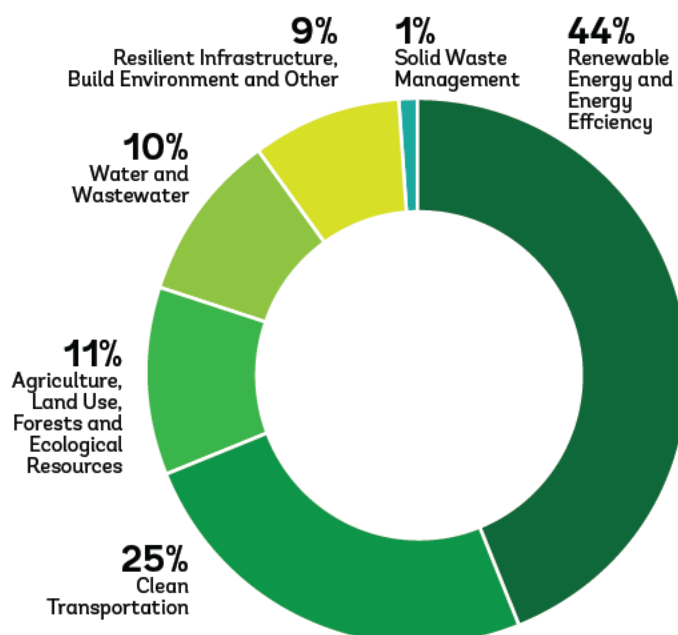
As of June 30, 2018, Renewable Energy and Energy Efficiency and Clean Transportation projects represented the largest sectors in the Green Bond eligible project portfolio. Together, these sectors made up approximately 69% of Green Bond commitments.

Amounts in Eq. US\$ billion (may not add up due to rounding)	Committed ^{a/}			Allocated and Outstanding ^{b/}
	Mitigation	Adaptation	Total	
Renewable Energy and Energy Efficiency	6.1	0.1	6.1	3.7
Clean Transportation	5.0	0.2	5.2	2.2
Water and Wastewater	0.1	1.2	1.3	0.8
Solid Waste Management	0.1	0	0.1	0.1
Agriculture, Land Use, Forests, and Ecological Resources	0.5	1.2	1.8	0.9
Resilient Infrastructure, Built Environment and Other	0.3	0.7	0.9	0.7
Total	12.0	3.4	15.4	8.5
Percentage	78%	22%	100%	

Notes:

a/ Committed amount net of cancellations for eligible projects for which the loans are disbursing.

b/ Green Bond proceeds allocated to support financing of disbursements to eligible projects net of loan repayments. Not adjusted for matured bonds that were not replaced with new green bonds.



By Region

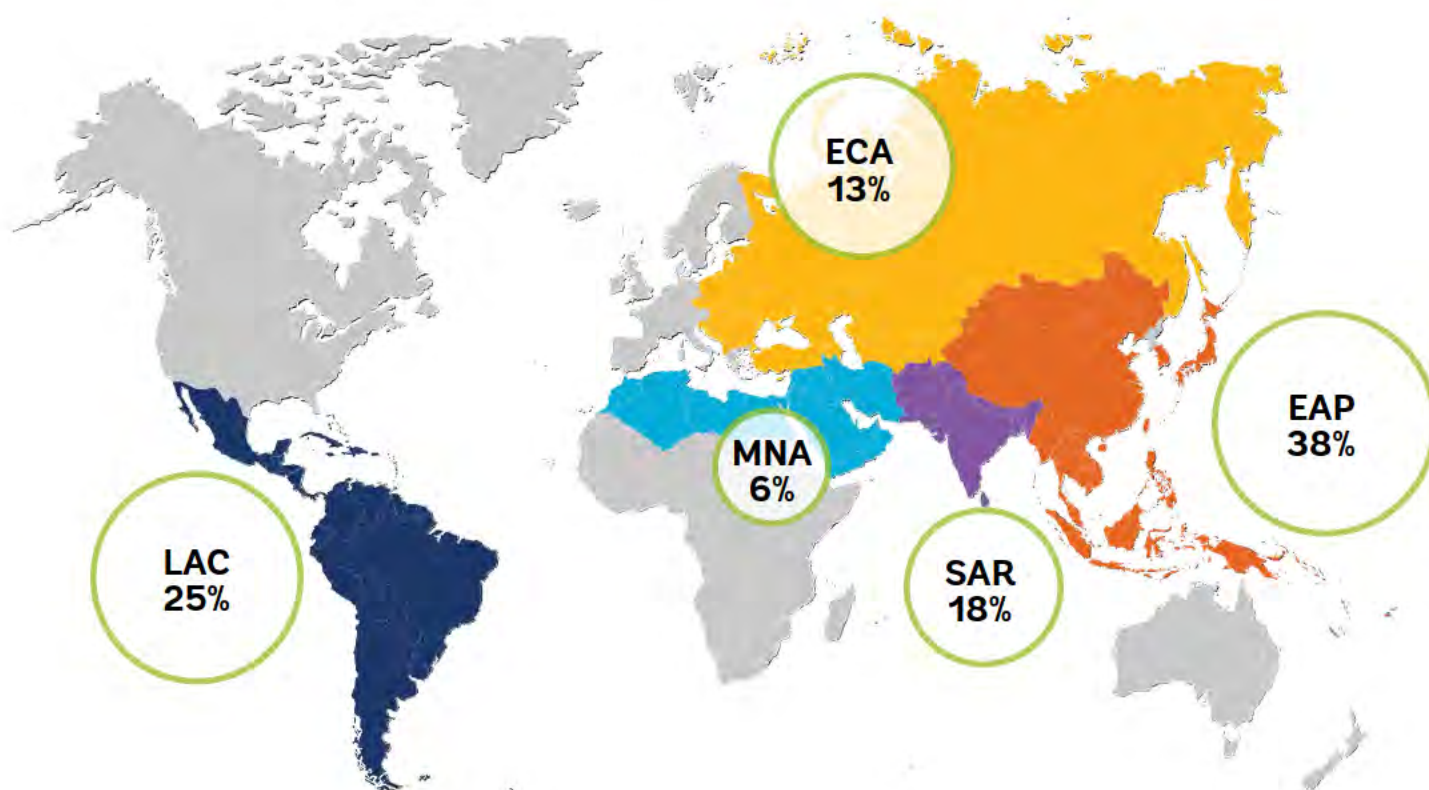
As of June 30, 2018, the East Asia and Pacific Region, at 38%, was the largest regional exposure by share of commitments in the Green Bond eligible project portfolio.

Amounts in Eq. US\$ billion (may not add up due to rounding)	Committed ^{a/}	Allocated & Outstanding ^{b/}
East Asia & Pacific (EAP)	5.9	3.0
Europe & Central Asia (ECA)	1.9	1.3
Latin America & Caribbean (LAC)	3.9	2.6
Middle East & North Africa (MNA)	0.9	0.3
South Asia (SAR)	2.8	1.4
Total	15.4	8.5

Notes:

a/ Committed amount net of cancellations for eligible projects for which the loans are disbursing.

b/ Green Bond proceeds supporting financing of disbursements to eligible projects net of loan repayments. Not adjusted for matured bonds that were not replaced with new green bonds.





PROJECT IMPACT HIGHLIGHTS

91 WORLD BANK PROJECTS ELIGIBLE FOR GREEN BOND FINANCING

5 ADDITIONAL PROJECTS COMPLETED IN FY18 FOR A TOTAL OF **30**

16

RENEWABLE ENERGY & ENERGY EFFICIENCY PROJECTS COMPLETED (3 IN FY18)



68,050 GWh
IN ANNUAL ENERGY SAVINGS

EQUIVALENT TO



THE TOTAL ELECTRICITY CONSUMED IN 2015 IN CHILE ABOUT 50,644 TONS OF CO₂ EQUIVALENT AVOIDED



6,580 GWh
ANNUAL ENERGY PRODUCED FROM RENEWABLE RESOURCES

EQUIVALENT TO



THE TOTAL POWER GENERATED BY 1,240 WIND TURBINES RUNNING FOR ONE YEAR IN THE US



2,094 MW
RENEWABLE CAPACITY FROM SOLAR, WIND, AND HYDRO TECHNOLOGIES

EQUIVALENT TO



CO₂ EMISSION FROM 780 TONS OF BURNED COAL AVOIDED EVERY YEAR



24,400
RURAL HOUSEHOLDS ARE ELECTRIFIED BY SOLAR VOLTAIC SYSTEMS IN MEXICO & PERU

8

WATER, WASTEWATER & SOLID WASTE MANAGEMENT PROJECTS COMPLETED (1 IN FY18)



442,650 HECTARES
WITH NEW, REHABILITATED OR RESTORED IRRIGATION SERVICES IN THE DOMINICAN REPUBLIC, TUNISIA & INDONESIA

4,800,000 TONS
OF UNTREATED WASTEWATER PREVENTED FROM FLOWING INTO RIVERS ANNUALLY IN CHINA

28 WASTE DUMPS
IN BRAZIL & MOROCCO CLOSED OR REHABILITATED

4

AGRICULTURE, LAND USE, FORESTS, ECOLOGICAL RESOURCES, RESILIENT INFRASTRUCTURE & BUILT ENVIRONMENT PROJECTS COMPLETED



774,600 HECTARES
OF FOREST RESTORED OR REFORESTED IN CHINA & MEXICO

6,000,000 TONS
OF CO₂ EMISSIONS REDUCED DUE TO REFORESTATION IN MEXICO

EQUIVALENT TO



1.2 MILLION CARS OFF THE ROAD FOR ONE YEAR



6,600,000 PEOPLE
BENEFITED FROM FLOOD PROTECTION IN CHINA

15% INCREASE
IN CATASTROPHE INSURANCE COVERAGE IN MACEDONIA & SERBIA

2

CLEAN TRANSPORTATION PROJECTS COMPLETED (1 IN FY18)



25% DECREASE
IN TRAVEL TIME FOR 4 MILLION PUBLIC TRANSPORT PASSENGERS

+

A FLEET OF **52,000 BICYCLES** IMPLEMENTED

BOTH IN XI'AN, CHINA



40% INCREASE
IN ANNUAL PASSENGER-TRIPS

+

ADDITIONAL **60,000 PEOPLE** WITH ACCESS TO QUALITY URBAN TRANSPORT SERVICES

BOTH IN XINJIANG, CHINA

Sources: US Environmental Protection Agency Greenhouse Gas Equivalencies Calculator, CIA World Factbook

WORLD BANK GREEN BOND PROCESS

Green Bond Eligible Projects

All World Bank bonds support sustainable development because the net proceeds from the sale of the bonds are used by the World Bank (IBRD) to support financing of sustainable development projects and programs in IBRD's member countries. They fit well within all investor mandates, especially investment strategies that incorporate environmental, social and governance factors. The World Bank Green Bonds are a subset of its sustainable investment opportunities. Green Bond eligible projects promote the transition to low-carbon and/or climate resilient growth in World Bank client countries targeting climate change mitigation and adaptation. The World Bank's eligibility criteria were independently reviewed by the Center for International Climate and Environmental Research at the University of Oslo (CICERO).

Two-Stage Process to Identify Green Bond Eligible Projects

1. All projects supported by the World Bank go through a rigorous review and approval process to ensure that they meet countries' development priorities. The process includes: (i) early screening to identifying potential environmental or social impacts and designing policies and concrete actions to mitigate any such impacts; and (ii) approval by the Board of Executive Directors – a resident board with 25 chairs representing member countries.
2. Environmental specialists then screen approved World Bank projects to identify those that meet the World Bank's Green Bond eligibility criteria.

For more information about the World Bank Green Bond implementation guidelines and the eligibility criteria, see <http://pubdocs.worldbank.org/en/217301525116707964/Green-Bond-Implementation-Guidelines.pdf>.

CLIMATE CHANGE PROJECT EXAMPLES

MITIGATION

SOLAR AND WIND INSTALLATIONS

FUNDING FOR NEW TECHNOLOGIES THAT PERMIT SIGNIFICANT REDUCTIONS IN GREENHOUSE GAS EMISSIONS

REHABILITATION OF POWER PLANTS AND TRANSMISSION FACILITIES TO REDUCE GREENHOUSE GAS EMISSIONS

GREATER EFFICIENCY IN TRANSPORTATION, INCLUDING FUEL SWITCHING AND MASS TRANSPORT

WASTE MANAGEMENT (METHANE EMISSION) AND CONSTRUCTION OF ENERGY-EFFICIENT BUILDINGS

CARBON REDUCTION THROUGH REFORESTATION AND AVOIDED DEFORESTATION

ADAPTATION

PROTECTION AGAINST FLOODING (INCLUDING REFORESTATION AND WATERSHED MANAGEMENT)

FOOD SECURITY IMPROVEMENT AND IMPLEMENTING STRESS-RESILIENT AGRICULTURAL SYSTEMS (WHICH SLOW DOWN DEFORESTATION)

SUSTAINABLE FOREST MANAGEMENT AND AVOIDED DEFORESTATION



IMPACT REPORTING

The World Bank is committed to transparent reporting of its green and climate-related financing, including the projects that are part of its Green Bond program. Detailed information for all World Bank financed projects is available on the World Bank website <http://projects.worldbank.org>. Project summaries and impact indicators for Green Bond eligible projects are summarized on the investor website at: <http://treasury.worldbank.org/en/about/unit/treasury/ibrd/ibrd-green-bonds>.

The following section lists the 91 World Bank eligible projects supported by the financing of World Bank Green Bonds as of June 30, 2018. The projects are organized by sector. Selected results indicators, World Bank loan amount, share of loan amount to total project costs, and the amount of Green Bond proceeds that have been allocated to support disbursements to each project are disclosed. Annex 1 describes the reporting approach and should be read in conjunction with this report.

Interpreting Reported Results

The intention of impact reporting is to help investors develop a more detailed understanding of the climate and environmental impacts that can be expected or projected to result from Green Bond eligible projects. Several key results indicators have been selected and where possible quantified, but it is important to appreciate the inherent limitations of data reported. The main considerations to adequately interpret results are:

- **Scope of results:** Reporting is based on “ex-ante” estimates of climate and environmental impacts at the time of project appraisal and mostly for direct project effects, except as indicated where the results have been updated for actual results at the time of project completion.

- **Uncertainty:** An important consideration in estimating impact indicators and projecting results is that they are based on assumptions. While technical experts aim to make sound and conservative assumptions that are reasonable based on the information available at the time, the actual environmental impact of the projects generally diverge from initial projections. In general, behavioral changes or shifts in baseline conditions can cause deviations from projections.
- **Comparability:** Caution should be taken in comparing projects, sectors, or whole portfolios because baselines (and base years) and calculation methods may vary significantly. In addition, the cost structures between countries will also vary, so that developing cost-efficiency calculations (such as results per dollar invested) could, for example, place smaller countries with limited economies of scale at a disadvantage and will not take into consideration country-specific context.
- **Omissions and qualitative results:** Because the selected projects aim to provide social and developmental benefits as well as climate and environmental ones, they will have impacts across a much wider range of indicators than captured in the next section. Therefore, exclusively focusing on the reported indicators will leave out other important development impacts. Where quantitative data is unavailable, qualitative indicators have been included to illustrate other beneficial impacts.

To better understand the developmental impacts of projects and the broader country context, please view the full project documentation available on the World Bank website at <http://projects.worldbank.org/>.



ELIGIBLE PROJECTS BY SECTOR

Target Results and Committed and Allocated Amounts



RENEWABLE ENERGY AND ENERGY EFFICIENCY



CLEAN TRANSPORTATION



WATER AND WASTEWATER



SOLID WASTE MANAGEMENT



AGRICULTURE, LAND USE, FORESTS, AND ECOLOGICAL RESOURCES




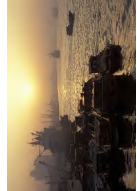




RESILIENT INFRASTRUCTURE, BUILT ENVIRONMENT, AND OTHER

Results should be read in conjunction with Annex 1, which describes the reporting approach.








RENEWABLE ENERGY AND ENERGY EFFICIENCY

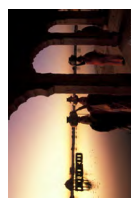




#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M	Project Life	Target Results					Committed US\$ mil	IBRD share	Allocated US\$ mil
					Annual Energy Savings MWh	Annual Energy Produced MWh	Renewable Capacity Added MW	Annual GHG Emissions Avoided Tons of CO ₂ Eq.	Other Results			
1		Belarus - Biomass District Heating (P146194 FY14): increase energy efficiency in district heating systems and replace natural gas with wood biomass as a renewable energy source.	M	20	236,000	1,660,000	106	420,000	Cumulative over 5 years: ● 1,180,000 MWh energy savings from efficiency investments. ● 2,100,000 tons of CO ₂ eq. emissions reduced.	90.0	100%	46.2
2		China - Beijing Rooftop Solar Photovoltaic Scale-Up (Sunshine Schools) Project (P125022 FY13): promote renewable energy in 1000 schools and other educational institutions.	M	20	na	100,000	100	89,590	● 10 to 15% of the schools' annual power use provided by renewable sources. ● 650,000 students in 1,000 schools benefit.	105.0	50%	24.9
3		China - Eco-Farming Project (P096556 FY09): promote sustainable farming systems and reduce greenhouse gas emissions (from methane and burning coal and firewood) benefiting rural communities with biogas systems.	M	20	na	~	~	900,000	● 400,000 - 500,000 rural households benefit with cleaner biogas-based cooking and heating systems. Updated for actual results at project completion.	119.8	27%	119.8
4		China - Energy Efficiency Financing (P084874 FY08, FY12): promote energy conservation in China's industrial sector supporting intermediary loans for energy efficiency projects in medium and large-sized manufacturing companies.	M	20	21,807,900	na	na	6,490,000	● 2,666,000 tons of coal eq. (tce) annual energy savings (assuming 150 subprojects). Updated for actual results at project completion.	300.0	45%	300.0
5		China - Financing for Air Pollution Control (P154669 FY16): reduce air pollutants and carbon emissions through lending for energy efficiency and clean energy, with a focus on the Jing-Jin-Ji and neighboring regions.	M	20	3,125,000			2,460,000	● 3,600 tons of particulate emissions (local air pollutant) reduced by EE and RE subprojects financed.	567.0	100%	107.4
6		China - Energy Efficiency Financing II Project (P113766 FY10): promote energy conservation in China's industrial sector through intermediary loans to energy efficiency projects.	M	20	20,200,000	na	na	4,930,000	Updated for actual results at project completion.	45.5	66%	45.5
7		China - Green Energy Schemes for Low-carbon City in Shanghai (P127035 FY13): promote greener city development with energy efficiency and renewable energy installations in commercial and government buildings.	M	20	621,700	~	~	165,000		100.0	41%	75.6



RENEWABLE ENERGY AND ENERGY EFFICIENCY







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					Annual Energy Savings MWh	Annual Energy Produced MWh	Renewable Capacity Added MW	Annual GHG Emissions Avoided Tons of CO ₂ Eq.	Other Results				
8		China - Jiangxi Shihutang Navigation & Hydropower (P101988 FY09): maximize inland waterway transport capacity as a low-carbon alternative to land transport and generate hydropower.	Both	20	na	472,000	120	450,000	● 4,400 hectares of crop land protected from flooding. ● RMB 26.6 million reduction in annual flood losses. Updated for actual results at project completion.	100.0	31%	100.0	
9		China - Liaoning Third Medium Cities Infrastructure (P099224 FY08): improve the energy efficiency and environmental performance of heating and gas services.	M	20	2,757,200	na	na	~	● 8,935 tons of sulphur dioxide avoided per annum. ● 11,659 tons of total suspended particles (local pollutant) avoided per annum. Updated for actual results at project completion.	165.0	51%	165.0	
10		China - Shandong Energy Efficiency (P114069 FY11): Improve the energy efficiency and environmental performance of the industrial sector and finance renewable energy production from biomass (corn and wheat stalk).	M	15	3,247,500	165,000	30	~	● 318,000 TCE energy savings.	144.7	47%	116.6	
11		China - Urumqi District Heating Project (P120664 FY11): promote energy efficiency in district heating by replacing dispersed boilers in urban areas with an integrated district heating network.	M	20	1,229,400	na	na	415,500	● 1,626 MW of inefficient coal-fired boilers replaced by combined heat and power district heating network. Updated for actual results at project completion.	99.1	29%	99.1	
12		India - Grid-Connected Rooftop Solar Program (P155007 FY15): increase solar rooftop capacity to the power grid and incentivize the market for rooftop solar power by way of low cost financing.	M	25		647,200	250	1,200,000	● The 250 MW of capacity of rooftop solar photovoltaics expected to be grid-connected by 5 yearsn with at least another 150 MW to be connected in subsequent years. ● 13 million tons CO ₂ eq. in cumulative savings over the project's 25 year life. ● Market development for rooftop photovoltaic systems in different business models.	500.0	55%	43.0	







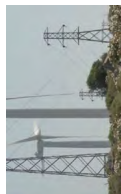

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13		India - Power System Development ProjectIV (P101653 FY09): expand transmission infrastructure resulting in decreased CO ₂ emissions through efficiency gains and transferring surplus hydro energy to power deficit regions.	M	20	8,699,000	na	na	~	● Reduced transmission losses equivalent to between 526-993MW. ● 107,000 circuit km of increased capacity. ● 68,000 GWh power exchange growth between regions. Updated for actual results at project completion.	400.0	16%	400.0	
14		India - Rampur Hydropower Project (P095114 FY08): scale-up access to renewable energy through construction of a run-of-the-river hydroelectric scheme.	M	30	na	1,770,000	412	1,407,700	Updated for actual results at project completion.	400.0	60%	400.0	
15		Indonesia - Indonesia Geothermal Energy (P113078 FY12): increase power generation from renewable geothermal resources.	M	30	na	1,210,000	150	1,100,000	● 33,000,000 tons of CO ₂ eq. cumulative emission reductions of over 30 years.	175.0	30%	129.0	
16		Jamaica - Energy Security and Efficiency Enhancement Project (P112780 FY11): increase energy efficiency and security by promoting greater participation of renewable energy and gas-based generation in the energy mix.	M	N/A	na	~	~	~	● 623 MW of new electricity generating capacity including three wind farms, two solar farms, and one hydro plant. ● 600 GWh from renewable resources annually. Updated for actual results at project completion.	14.5	100%	14.5	
17		Mexico - Efficient Lighting and Appliances Project (P106424 FY11): promote the efficient use of energy and to mitigate climate change by increasing the use of energy efficient technologies in the residential sector.	M	5	2,000,000	na	na	664,000	Cumulative over 5 years: ● Exchange 45.8 million light bulbs and 1.9 million refrigerators and air conditioners. ● 3.32 million tons of CO ₂ eq. emissions reduced. ● 50-60% electricity saved in residential households. ● 10,000,000 MWh in cumulative energy savings. Updated for actual results at project completion.	250.6	35%	250.6	



RENEWABLE ENERGY AND ENERGY EFFICIENCY




#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M	Project Life	Target Results					Committed US\$ mil	IBRD share	Allocated US\$ mil
					Annual Energy Savings MWh	Annual Energy Produced MWh	Renewable Capacity Added MW	Annual GHG Emissions Avoided Tons of CO ₂ Eq.	Other Results			
18		Mexico - Integrated Energy Services (P088996 FY08): increase energy access for poor communities using renewable energy (mainly solar and some wind generators) and to develop a sustainable market for providing energy services in remote rural areas.	M	20	na	5,800	6	241,000	<ul style="list-style-type: none"> 4,400 rural households receive electricity from renewable sources. Larger long-term national impact with replication throughout rural areas. Update for actual results at project completion. 	12.0	18%	12.0
19		Mexico – Municipal Energy Efficiency Project (P149872 FY16): promote energy efficiency in street lighting, water use and buildings in 23 municipalities.	M	8	127,590	5,800	6	57,926	<ul style="list-style-type: none"> 463,405 tons CO₂ emissions reductions annually. 1,020,714 MWh projected lifetime savings. 28 sub-projects designed. 	100.0	64%	0.3
20		Mexico - Sustainable Rural Development (and Add Financing) (P106261 FY09, FY13): increase the use of energy efficient, waste management and renewable energy technologies in agribusiness.	M	10	20,493	32,130	~	283,900	<ul style="list-style-type: none"> Cumulative over 7 years: 143,450 MWh saved from energy efficiency investments. 224,908 MWh produced by renewable (biomass) energy. 1,987,500 tons of CO₂ eq. emission avoided. 	96.8	48%	77.9
21		Moldova - District Heating Efficiency Improvement (P132443 FY15): improve quality and reliability of heating services by improving the operational efficiency and viability of a new district heating company.	M	30	96,700	na	na	22,800	<ul style="list-style-type: none"> 34% reduction in heating system breakdowns by year 5. 109,000 people with access to more energy efficient cooking and heating. 	40.5	66%	22.1
22		Montenegro - Energy Efficiency (and Additional Financing) (P107992 FY09, FY14): improve energy efficiency and environmental quality in 27 buildings used for health and education services.	M	25	30,000	na	na	12,200	<ul style="list-style-type: none"> Cumulative over 5 years and targeting 27 buildings: 150,000 MWh in lifetime energy savings. 60,750 metric tons of CO₂ eq. lifetime emissions reduced. Updated for actual results at project completion. 	13.7	100%	13.1
23		Morocco - Clean and Efficient Energy Project (P143689 FY15): develop the first utility sized photovoltaic plant to more reliably supply solar power to remote regions.	M	25	na	~	75	78,000	<ul style="list-style-type: none"> 412,000 people benefit from electricity and associated economic opportunities of which 50% are expected to be female. 	125.0	79%	34.2








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					Annual Energy Savings MWh	Annual Energy Produced MWh	Renewable Capacity Added MW	Annual GHG Emissions Avoided Tons of CO ₂ Eq.	Other Results				
24		Morocco – Noor Ouarzazate Concentrated Solar Power (P131256 FY12, FY15): replace fossil fuel- based electricity with renewable energy using concentrated solar power technology.	M	30	na	1,638,000	410	522,000			369.5	15%	57.2
25		Peru - Second Rural Electrification (P117864 FY11): provide electricity to remote communities by extending the conventional electricity grid and financing solar photovoltaic systems.	M	20	na	~	~	~	• 42,500 rural households electrified, of which 20,000 are served by solar photovoltaic systems from regulated electricity distribution companies. • 174,000 people benefited. Updated for actual results at project completion.	43.8	60%	43.8	
26		Tunisia - Energy Efficiency (P104266 FY09): support industrial energy efficiency and co-generation investments by providing financing through intermediaries.	M	20	580,000	na	na	126,000	Updated for actual results at project completion.	34.5	91%	34.5	
27		Turkey - Private Sector Renewable Energy and Energy Efficiency Project (P112578 FY09, FY12): enhance renewable energy access (small hydroelectric and geothermal) and energy efficiency in industries (iron and steel, cement, ceramics, chemicals and textiles).	M	20	3,023,800	3,728,000	933	3,214,000	• Reach 31% of country's total generation to be from renewable energy. Project completed and actual results met expected targets.	934.5	61%	934.5	
28		Turkey - Renewable Energy Integration (P144534 FY14): assist in meeting increased power demand by strengthening the transmission system and facilitating large-scale renewable energy generation.	M	20	na	na	na	690,000	• 1,734,000 MWh per year of wind energy handled by the substations funded under project.	268.2	63%	55.5	
29		Turkey - SME Energy Efficiency (P122178 FY13): improve energy efficiency in small and medium enterprises in energy-intensive industries by scaling-up commercial bank lending for energy efficiency investments.	M	20	1,500,000	na	na	44,000	Cumulative over 5 years: • 154,500 tons of CO ₂ eq. emissions reduced for all SME loans. • 300,000 MWh in electricity savings by the end of project implementation.	67.0	22%	67.0	







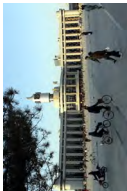

RENEWABLE ENERGY AND ENERGY EFFICIENCY

#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M	Project Life	Target Results					Committed US\$ mil	IBRD share	Allocated US\$ mil
					Annual Energy Savings MWh	Annual Energy Produced MWh	Renewable Capacity Added MW	Annual GHG Emissions Avoided Tons of CO ₂ Eq.	Other Results			
30		Ukraine - District Heating Energy Efficiency (P132741 FY14): improve energy efficiency and quality of service of District Heating companies.	M	20	524,000	na	na	261,800	● 721,400 consumers served by the participating companies.	222.1	84%	11.5
31		Ukraine - Energy Efficiency (P096586 FY11): improve energy efficiency in order to meet energy intensity reduction targets, decrease dependence on imported gas, and decrease the cost of energy supply.	M	15	7,721,157	na	na	1,000,000	● Create jobs directly and indirectly through increased cost competitiveness as a result of lower energy intensity. Project completed and actual results met expected targets.	200.0	100%	200.0
32		Uzbekistan - Advanced Electricity Metering Project (P122773 FY12): improve energy efficiency by measuring energy consumption and waste through advanced metering and billing systems.	M	na	na	na	na	~	● 1.2 million advanced meters installed. ● Improve billing and collection rates by 8% and 10%, respectively.	1.2	73%	1.2
					Subtotal for Renewable Energy and Energy Efficiency					6,105.0		4,002.1
					Cumulative Loan Repayments							(283.3)
					Total Allocated and Outstanding for Renewable Energy and Energy Efficiency							3,718.8








#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M ^{/a}	Project Life	Target Results					Committed US\$ mil	IBRD share	Allocated US\$ mil
					Pass/km and/or passengers	Ton/Km and/or tons	GHG emissions reduced/avoided	Other results				
33		Brazil - Greening Rio de Janeiro Urban Rail Transit – Additional Financing (P111996 FY12): provide a more efficient and cleaner suburban rail system.	M	30	● 700,000 passengers per day (40% increase since 2009)		● 34,000 tons of CO ₂ eq. reduced annually	● 100 new trains delivered and in operation ● Upgraded infrastructure ● Shorter travel and waiting times. ● Bicycle parking facilities in select stations.	600.0	73%	392.1	
34		Brazil - Sao Paulo State Sustainable Transport (P127723 FY13): improve transport efficiency and safety, increase share of waterway transport, and improve resilience to climate change and natural disasters.	Both	30	● 50% reduction of road fatalities in the 100 most critical spots.	● 30% increase of exported biofuel transported by waterway ● 6 million tons/year freight in the Tiete-Parana waterway (400% increase)		● 750 km of roads rehabilitated. ● 40 new automatic stations to monitor climate risk. ● 39 additional municipalities with disaster risk mapping.	300.0	70%	200.5	
35		China - Changzhi Urban Transport (P124978 FY12): improve transport mobility and accessibility while reducing emissions.	M	25				● 10% reduction in fuel consumption per passenger-km on project corridors. ● 56% reduction in traffic fatalities. ● Reduced travel times during peakhours. ● 50 new electric buses in use.	100.0	50%	66.0	
36		China - Hadia Railway (P117341 FY14): provide additional railway capacity and reduce transport time for passengers and freight.	M	30	● 3 million additional passengers per year.	● 7 million additional freight volume per year.		● Reduced passenger and freight travel time. ● 15 million people benefit including rural poor. ● Reduced pollution from shift to electric railways from road and air transport.	300.0	5%	54.3	
37		China - Heilongjiang Cold Weather Smart Public Transportation System (P133114 FY14): upgrade the quality, safety and efficiency of public transport service.	M	25	● 38.8 million more bus rides annually due to increased efficiency of bus service.			● 20-30% reduction in fuel use. ● 22-25 km of improved transport corridors developed. ● 320 new cleaner-fuel vehicles procured.	200.0	46%	23.5	









#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M ^{1a}	Project Life	Target Results					Committed US\$ mil	IBRD share	Allocated US\$ mil
					Pass/km and/or passengers	Ton/Km and/or tons	GHG emissions reduced/ avoided	Other results				
38		China - Hubei Xiangyang Urban Transport (P119071 FY12): improve mobility, safety, and efficiency in urban transportation.	M	25	● 460,000 beneficiaries of reduced travel times and greater access to the city center.			● 40 new and higher quality buses in operation ● 30% reduction in fatalities and severe accidents.	100.0	47%	65.9	
39		China - Jiaozuo Green Transport and Safety Improvement (P132277 FY14): improve transport safety and efficiency along the selected transport corridors and promote non-motorized trips within the pilot green corridor.	M	30	● 241,500 non-motorized trips per year in the green corridor. ● 32,400 additional bus passengers per year.			● 490,000 beneficiaries. ● Reduced traffic fatalities. ● 17 km in green corridors exclusively dedicated to pedestrians and cyclists.	100.0	50%	20.2	
40		China - Nanchang Urban Rail (P132154 FY13): provide an effective urban mass rapid transit system for a rapidly expanding city to reduce pollution, traffic congestion, and commuting times.	M	30	● 200,000 passenger-trips per day.			● Reduced travel time on public transport by 25 minutes or more. ● 100% of stations to become wheel-chair and sight impaired accessible. ● 90% integration of facilities for bus/rail/bike transfer	250.0	10%	117.0	
41		China - Qinghai Xining Urban Transport Project (P127867 FY14): provide more efficient, safer and cleaner transportation.	M	30	● 264,000 additional passengers per day.			● 20% decrease in travel time. ● Improved accessibility to 189,400 jobs. ● Reduced vehicle pollution.	120.0	48%	5.1	
42		China - Tianjin Urban Transport Improvement Project (P148129 FY16): leverage the existing metro system and promote walking and biking in the urban core to make transport greener and safer.	M	20	● 85,000 new metro users per day. ● 135,000 new non-motorized trips per day."		● 6,500 tons of CO ₂ emissions reduced annually.	● 2.8 million trips benefit from improvements each day. ● 50 km of roads rehabilitated, 111 metro stations improved and 5 new bus terminals completed.	100.0	45%	11.1	
43		China - Urumqi Urban Transport Project II (P148527 FY16): improve mobility in selected transport corridors and reduce pollution from cars with a bus rapid transit (BRT) system.	M	30	● 645,000 people benefit from direct access to BRT corridors and greener/more efficient transport.			● 51.7 km of BRT routes operated. ● 45% of commuters using smart cards. ● 450% increase in average passenger boardings per bus/km during peak hours	140.0	26%	25.5	




#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M ^{/a}	Project Life	Target Results					Committed US\$ mil	IBRD share	Allocated US\$ mil
					Pass/km and/or passengers	Ton/Km and/or tons	GHG emissions reduced/ avoided	Other results				
44		China - Wuhan Second Urban Transport (P112838 FY10): improve efficiency, coverage and safety of public transport systems in an environmentally sustainable, integrated and safe way.	M	20			● 459,000 tons of CO ₂ eq. emissions reduced annually.	● Establish facilities for pedestrians and cyclists. ● 35% modal share of public transportation on target corridors.	100.0	16%	99.0	
45		China - Xi'an Sustainable Urban Transport (P092631 FY08): improve transport accessibility and mobility and enhance air-quality monitoring of the urban transport system	M	25	● 52,000 public bicycles with 70 million users.			● Doubled area of bus terminals. ● 275% increase in average speed of public transportation from 12 to 45 km/ hr. ● Air quality monitoring system/facility implemented. ● 31,000 vehicles with emissions tested. Updated for actual results at project completion.	150.0	36%	150.0	
46		China - Xinjiang Yining Urban Transport Improvement Project (P126454 FY12): provide improved access, safety, and efficiency in public transportation in an environmentally sustainable manner.	M	30	● 105.5 million passenger-trip per year (40% increase). ● 60,000 additional people with access to quality urban transport services.			● Reduced peak-hour travel times in two integrated corridors. ● Reduced traffic accident fatalities. Updated for actual results at project completion.	100.0	48%	94.0	
47		China - Yunnan Honghe Prefecture Diannan Center Urban Transport (P101525 FY14): improve the safety, accessibility, and efficiency of transportation in core urban areas by building new infrastructure, staff training and education campaigns.	M	25	● 742,000 people gaining access to urban transport service. ● 38 million additional passenger trips annually.			● Reduced average travel time for public transport users. ● Reduced the number of transport related fatalities.	150.0	43%	9.0	
48		Colombia - National Urban Transit Program (P117947 FY10, FY12): reduce carbon emissions and improve public transportation efficiency and safety.	M	15			● 10% reduction of PM10 concentration level.	● Reduced average travel time for low income riders. ● Reduced accidents and pollution (including greenhouse gases) associated with bus transport services. ● 50 km of rehabilitated pedestrian public space.	493.9	25%	383.8	







					Target Results							
#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M ^{1a}	Project Life	Pass/km and/or passengers	Ton/Km and/or tons	GHG emissions reduced/ avoided	Other results	Committed US\$ mil	IBRD share	Allocated US\$ mil	
49		Ecuador - Manta Public Services Improvement Project (P143996 FY14): improve transport services and the quality and sustainability of water and sanitation.	M	30	● 505 average daily cyclist traffic (20% increase). ● 3,150 average daily pedestrian traffic (25% increase).			● 71,000 residents benefit from water connection investments. ● Improved mobility and accessibility of street network including pedestrian facilities and cycling paths.	100.0	87%	32.2	
50		Ecuador - Quito Metro Line One (P144489 FY15): improve urban mobility and serve the growing demand for public transport.	M	30	● 296,000 passengers per day.		● 58,170 tons of CO ₂ emissions reduced per year.	● US\$14 million in annual fuel savings. ● 40% reduction in average travel time. ● 1,800 jobs created.	205.0	12%	146.9	
51		India - Eastern Dedicated Freight Corridor - II (P131765 FY14): increase the capacity and quality of freight rail service.	M	22		● 22 tons of freight traffic annually.	● 400,000 tons of CO ₂ eq. reduced annually.	● 1,133 kms of new freight-only rail. ● Axle-load limit raised from 23 to 25 tons increasing speeds.	910.0	67%	123.0	
52		India - Sustainable Urban Transport (P110371 FY10): improve government capacity to manage climate friendly urban transport solutions focusing on public and non-motorized transport.	M	30			● 128,000 tons of CO ₂ eq. emissions reduced annually over 10 years.	● 68 new safe sidewalks and cycle tracks. ● 40% public transport trip mode share.	105.2	32%	81.8	
53		Mexico - Urban Transport Transformation (P107159 FY10): reduce carbon emissions and transform public transportation efficiency.	M	13			● 340,000 tons of CO ₂ eq. emissions reduced annually when city subprojects are fully operational.	● 9.3 integrated mass transit corridors of 15km each. ● 12 new light trains.	150.0	6%	52.0	
54		Peru – Lima Metro Line 2 Project (P145610 FY15): Construction of a 35 km subway line and related infrastructure improving transportation in the east-west axis of the Lima-Callao Metropolitan area.	M	17	● 360,000 passengers per day. ● 100,000 additional jobs reachable by public transportation within 60 minutes.			● 34% reduction in travel time per trip. ● Benefits 1.6 million people for improved access to jobs.	300.0	5%	40.0	









CLEAN TRANSPORTATION

#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M ^{1a}	Project Life	Target Results					IBRD share	Allocated US\$ mil
					Pass/km and/or passengers	Ton/Km and/or tons	GHG emissions reduced/avoided	Other results	Committed US\$ mil		
55		Philippines - Cebu Bus Rapid Transit (BRT) Project (P119343 FY15): improve the quality, safety, and environmental performance of urban public transportation.	M	25	<ul style="list-style-type: none"> 275,000 additional passengers using public transportation. 		<ul style="list-style-type: none"> 50% reduction in CO₂ emissions per person-km in project corridor. 	<ul style="list-style-type: none"> 25% reduction of annual accidents in city. 	116.0	51%	12.3
					Subtotal for Transport						2,205.1
					Cumulative Loan Repayments						(53.2)
					Total Allocated and Outstanding for Transport						2,151.9

Amounts may not add up due to rounding.

#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M ^{1a}	Project Life	Target Results						Committed US\$ mil	IBRD share	Allocated US\$ mil
					Annual water savings	Annual amount of wastewater treated/ reused/ avoided	Annual amount of raw/untreated sewage sludge treated & disposed of	Annual amount of sludge that is reused	Other results				
56		Brazil - Federal Integrated Water Sector (P112073 FY12): improve water resource management including assessing how climate change impacts water availability, and improve coordination and capacity of key federal institutions in the water sector.	A	30	~	~	~	~	~	• 14 water resources management institutions supported by the project. • Increased water use efficiency and proper management of solid waste. • Improved quality of water service in both urban and rural areas.	63.8	75%	16.3
57		Brazil - Espirito Santo Integrated Sustainable Water Management Project (P130682 FY14): improve sustainable water resources management and increase access to sanitation.	Both	25	~	~	• 1,590 tons of BOD (Biochemical Oxygen Demand) removed a year.	~	~	• 2.6 million people benefit. • 70% of State with disaster warning system. • 32,897 new household sewer connections. • 164,000 people with improved sanitation. • 2,000 hectares reforested.	81.1	70%	2.4
58		China - Bengbu Integrated Environment Improvement (P096925 FY08): improve effectiveness and resilience of urban water supply, treatment services and flood prevention and control systems through improved infrastructure and watershed management.	A	25	~	• 60 km of wastewater networks completed.	~	~	~	• 85.5% flood protection of Bengbu's city land area (131.84 km of storm drainage networks). • Pollution reduction reached 13% • 3 months of water supply reserves. Updated for actual results at project completion.	99.9	45%	99.9
59		China - Water Conservation II (P114138 FY12): improve agriculture water management and increase agriculture water productivity.	A	30	• 22.67 million cubic meters reduction in water withdrawal. • 16.52 million cubic meters reduction in groundwater overdraft. • 5.80 million cubic meters reduction in groundwater withdrawal.	na	na	na	na	• 15% increase in main crop yields. • RMB 200 increase in per capita annual agricultural income. • Reverse the trend of declining water table in groundwater irrigated areas. Updated for actual results at project completion.	76.7	50%	76.7



#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M ^{1a}	Project Life	Target Results						Committed US\$ mil	IBRD share	Allocated US\$ mil
					Annual water savings	Annual amount of wastewater treated/ reused/ avoided	Annual amount of raw/untreated sewage sludge treated & disposed of	Annual amount of sludge that is reused	Other results				
60		China - Xining Flood and Watershed Mgmt (P101829 FY09): improve sustainable utilization of land and water resources by improved flood control management, wastewater collection and treatment, and watershed management.	A	30	~	● 4,800,000 tons of untreated wastewater flowing into rivers avoided annually.	na	na	na	● 1,100,000 tons of soil loss avoided annually. ● 434,440 people benefit from reduced vulnerability to flood events. Updated for actual results at project completion.	100.0	53%	100.0
61		Dominican Republic - Emergency Recovery and Disaster Risk Management (P109932 FY08, FY12): provide infrastructure recovery and strengthen risk management capacity in tropical storm affected areas.	A	30	~	~	na	na	na	● 37,218 hectares of damaged irrigation rebuilt. ● 152 km transmission lines restored to "disaster-resistant" standards. ● Santiago waste water operation restored. ● 252 MW of damaged hydropower facilities restored and dam safety standards improved. Updated for actual results at project completion.	99.9	100%	99.9
62		India - Andhra Pradesh Water Sector Improvement (P100954 FY10): improve irrigation services on a sustainable basis and strengthen the State's institutional capacity for multisectoral development and of its water resources.	A	30	~	~	~	~	~	● Improved irrigation service delivery on a sustainable basis. ● Increased cropping intensity, crop diversity, and productivity of crops, livestock, and fish. ● 895,455 hectares provided with new irrigation or drainage services.	450.6	46%	353.2
63		Indonesia - Water Resources and Irrigation Management Program 2 (P114348 FY11): improve infrastructure and government capacity for river basin water resource and irrigation management.	A	25	na	na	na	na	na	● Increased crop productivity by providing more efficient and reliable irrigation water. ● 500,000 farmer households from provinces involving 12 river basins benefited. ● 381,000 hectares provided with new irrigation or drainage services. Project completed.	150.0	74%	124.7

#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M ^{/a}	Project Life	Target Results						Committed US\$ mil	IBRD share	Allocated US\$ mil
					Annual water savings	Annual amount of wastewater treated/ reused/ avoided	Annual amount of raw/untreated sewage sludge treated & disposed of	Annual amount of sludge that is reused	Other results				
64		Lebanon - Lake Qaraoun Pollution Prevention (P147854 FY16): reduce the quantity of untreated municipal sewage discharged into the Litani River and address pollution around Qaraoun Lake.	A	14	~	● 30,000 cubic meters of municipal wastewater collected and treated daily.	● 1,250 cubic meters of trash removed from river banks.	~	● 50% reduction in pollutant load (nitrogen) to waterways. ● 344,000 of direct beneficiaries. ● 7,300 new household sewer connections.	55.0	92%	2.2	
65		Tunisia - Second Water Sector Investment (P095847 FY09): promote better water management through efficiency improvements in irrigation and increased capacity for watershed management.	A	30	~	~	na	na	● 24,436 hectares rehabilitated with irrigation and drainage systems. ● 21,128 households supplied with new drinking water. Updated for actual results at project completion.	17.0	30%	17.0	
66		Vietnam – Can Tho Urban Development and Resilience (P152851 FY16): reduce flood risk in the urban core area, improve its connectivity to new urban growth areas, and improve the city's capacity to manage disaster risk.	A	29	na	na	na	na	● 2,675 hectares in urban core land area protected from floods. ● 25-30% reduction in travel time between urban core and Cai Rang center. ● 420,000 people as direct beneficiaries.	125.0	39%	5.3	
					Subtotal for Water, Wastewater, and Waste Management					1,319.1		897.6	
					Cumulative Loan Repayments							(64.8)	
					Total Allocated and Outstanding for Water, Wastewater, and Waste Management							832.8	

Amounts may not add up due to rounding.











SOLID WASTE MANAGEMENT

Target Results										
#	Link for More Information	Project Name (Number Year/s Loans Approved) and Description	A/M	Project Life	Waste prevented, minimized, reused or recycled	Annual GHG emissions reduced	Other results	Committed US\$ mil	IBRD share	Allocated US\$ mil
67		Brazil - Integrated Solid Waste & Carbon Finance (P106702 FY11): improve treatment and final disposal of municipal solid waste and reduce methane emissions.	M	19	● 9,000 tons per day of waste disposed in environmentally sustainable sanitary landfills.	● 50 million tons of methane regenerated annually.	● 3 dumps closed. ● 7 municipalities made investments to improve recycling and composting activities. Updated for actual results at project completion.	16.7	14%	16.7
68		Morocco - Solid Waste Sector DPL (P104937 FY09): enhance the governance of the solid waste sector.	M	26	na	na	● 24,436 hectares rehabilitated with irrigation and drainage systems. ● 21,128 households supplied with new drinking water. Updated for actual results at project completion.	117.1	100%	117.1
					Subtotal for Solid Waste Management			5,190.1		2,205.1
					Cumulative Loan Repayments					(53.2)
					Total Allocated and Outstanding for Solid Waste Management					2,151.9

Amounts may not add up due to rounding.









AGRICULTURE, LAND USE, FORESTS, AND ECOLOGICAL RESOURCES

#	Link for More Information	Project Name (Number Year/s Loans Approved) and Description	A/M	Project Life	Target Results		IBRD share	Allocated US\$ mil
					Results	Committed US\$ mil		
69		Armenia - Second Community Agriculture Resource Management and Competitiveness Project (P133705 FY14): improve pasture-based livestock management in targeted alpine grasslands areas.	A	25	<ul style="list-style-type: none"> At least 10,000 pasture users benefit through their membership in Pasture Users' Cooperatives. 110,000 hectares of land managed with sustainable practices. 	23.0	54%	5.0
70		China - Guangdong Agricultural Pollution Control (P127775 FY14): promote waste management in livestock and crop production (including methane capture and use) and improve soil nutrient, fertilizer, and pesticide use.	M	25	<ul style="list-style-type: none"> 45,000 tons of annual pollution load to waterways reduced. 5,000 tons of annual nutrient load to waterways reduced. 28,000 hectares with improved soil nutrient, fertilizer and pesticide use. 	100.0	48%	44.5
71		China - Hebei Rural Renewable Energy Development Project (P132873 FY15): demonstrate sustainable biogas production and utilization to reduce environmental pollution and supply clean energy.	M	25	<p>By 2020:</p> <ul style="list-style-type: none"> 42,000,000 m3 of biogas used annually. 58,780 tons of CO₂ emissions reduced annually. 96,100 rural resident households with access to biogas supply. Additional biogas used as fuel for public transportation. 	71.5	47%	7.6
72		China - Hunan Forest Restoration and Development (P125021 FY13): increase resilience of forests.	Both	26	<ul style="list-style-type: none"> 58,900 hectares of ecological forest plantation areas reforested and rehabilitated. 26,130 households benefited. 	80.0	69%	80.0
73		China - Integrated Forestry Development (P105872 FY11): increase forest cover to create wind breaks, farmland shelter belts, and conservation schemes, and to train farmers in forest and environmental management.	Both	25	<ul style="list-style-type: none"> 132,600 hectares of forests restored or re/afforested. 20% increase in vegetative cover plus improved species diversity in degraded forests rehabilitated. 324,000 farmers trained in forest management. <p>Updated for actual results at project completion.</p>	99.1	50%	99.1
74		China - Integrated Modern Agriculture Development (P125496 FY14): develop sustainable and climate resilient agricultural production systems by investing in improved irrigation and drainage systems and practices that address climate risk.	A	25	<ul style="list-style-type: none"> Reduced water use per ton of rice, wheat and maize produced in target regions. 94,000 hectares of farmland served with improved irrigation and drainage services. 38,500 hectares of leveled land and improved soil conditions. 	200.0	64%	129.4
75		China - Ningxia Desertification Control and Ecological Protection (P121289 FY12): control desertification and land degradation by stabilizing moving sands, re-vegetating degraded steppe lands and planting shelter belts.	Both	30	<ul style="list-style-type: none"> 30,000 hectares restored or re/afforested. 	80.0	70%	35.3
76		Indonesia - Coral Reef Rehabilitation and Management Program- Coral Triangle Initiative (P127813 FY14): protect and sustainably manage unique coral ecosystems in selected districts and provinces.	A	20	<ul style="list-style-type: none"> Reduce destructive fishing in selected areas. 1,140 direct beneficiaries in fishing communities. 1.4 million hectares of marine areas brought under biodiversity protection. 	3.8	89%	1.3




AGRICULTURE, LAND USE, FORESTS, AND ECOLOGICAL RESOURCES

#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M	Project Life	Target Results			Allocated US\$ mil
					Results	Committed US\$ mil	IBRD share	
77		Mexico - Forests and Climate Change (P123760 FY12): support rural communities' sustainable management of forests, and generate additional income from forest products and services and to reduce emissions from deforestation and forest degradation.	Both	13	<ul style="list-style-type: none"> • 10% increase in areas under improved forest management (equivalent to 1,630,000 additional hectares). • Support 2 pilot areas to reduce carbon emissions from deforestation and forest degradation. • 4,000 forest communities benefited. (3,202 by end of 2016 – value is yearly results) 	350.0	45%	286.4
78		Morocco - Large Scale Irrigation Modernization (P150930 FY16): expand agriculture through the adoption of irrigation techniques that make more efficient use of water resources, while building better ties between farmers and markets.	A	25	<ul style="list-style-type: none"> • 9,274 farmers benefit. • 100% of area with access to water on demand in peak period. • 20,700 hectares with improved irrigation technologies. 	150.0	80%	5.9
79		Peru - Peru National Agriculture Innovation Program (P131013 FY14): strengthen the national agricultural innovation system and integrate climate change criteria into project such as adaptive research, seed improvements and skills development, among others.	A	10	<ul style="list-style-type: none"> • 20,000 small and medium farmers adopting new technologies. • 61 new technologies demonstrated on farms. 	13.0	31%	2.6
80		Philippines - Rural Development (P132317 FY15): improve the resilience of small-scale farmers and fishermen to climate change by helping them recover and increase income-generating activities and strengthening the conservation of coastal and marine resources.	A	30	<ul style="list-style-type: none"> • Increase incomes of about 1.9 million farmers and fishermen and the value of their products. 	501.3	75%	148.2
81		Russian Federation - Forest Fire Response (P123923 FY13): improve forest fire prevention and management and to enhance sustainable forest management.	Both	18	<ul style="list-style-type: none"> • Improve forest fire detection and suppression systems. • Improve capabilities of fire brigades. • Avoid 75,500,000 tons of CO₂ eq. emissions over 25 years. • Raise public awareness and education standards in forestry issues in general. 	40.0	33%	16.2
82		Tunisia - Fourth Northwest Mountainous and Forested Areas Development (P119140 FY11): better protect and manage natural resources through conservation of soil and water resulting from improved agriculture and pasture practices and to improve access to potable water for rural communities.	A	21	<ul style="list-style-type: none"> • Reduce erosion and forest degradation. • Build climate change awareness and disseminate climate-appropriate practices to reinforce livelihood and agro-system resilience. • 318,000 people benefit 	33.5	73%	32.4











AGRICULTURE, LAND USE, FORESTS, AND ECOLOGICAL RESOURCES

#	Link to More Information	Project Name (Number Year/s Loans Approved) and Description	A/M	Project Life	Target Results		IBRD share	Allocated US\$ mil
					Results	Committed US\$ mil		
83		Uruguay - Sustainable Management of Natural Resources and Climate Change (P124181 FY12): improve farm environmental management and reduce greenhouse gas emissions by promoting improved agriculture and livestock management.	Both	21	<ul style="list-style-type: none"> • 2,700 (actual has been higher at 3,029) hectares of agricultural land with reduced methane emissions. • Improve water use in irrigation and livestock production systems. • Improve pasture management and other productivity measures. 	49.0	89%	42.6
Subtotal for Agriculture, Land Use, Forests, and Ecological Resources						1,794.1		936.5
Cumulative Loan Repayments								(4.1)
Total Allocated and Outstanding for Agriculture, Land Use, Forests, and Ecological Resources								932.4

Amounts may not add up due to rounding.



RESILIENT INFRASTRUCTURE, BUILT ENVIRONMENT, AND OTHER

#		Project Name (Number Year/s Loans Approved) and Description	A/M	Project Life	Target Results		IBRD share	Allocated US\$ mil
					Results	Committed US\$ mil		
84		Belize - Climate Resilient Infrastructure (P127338 FY15): enhance the resilience of road infrastructure against flood risks and the impacts of climate change.	A	25	<ul style="list-style-type: none"> • 30 km of roads rehabilitated and 12 bridges and culverts improved. • 50% reduction in road interruption due to flooding. • 170,000 people living near the road networks directly benefit. 	30.0	100%	1.6
85		China - Fujian Fishing Ports Project (P129791 FY14): reduce the vulnerability of fishing communities to extreme weather events.	A	27	<ul style="list-style-type: none"> • 11,000 fishermen and their families (total 64,000 people) benefit. • 3,000 fishing vessels protected in ports. • Improved effectiveness of early warning and emergency systems. 	60.0	58%	4.2
86		China - Huai River Basin Flood Management and Drainage Improvement (P098078 FY11): increase resilience of communities to the impacts of climate change, particularly flooding.	A	25	<ul style="list-style-type: none"> • 9,500 km2 of flood protection (in rural and urban areas). • 6,600,000 people benefited. <p>Updated for actual results at project completion.</p>	200.0	33%	200.0
87		Jamaica - Disaster Vulnerability Reduction (P146965 FY16): enhance the country's resilience to disaster and climate risk.	A	29	<ul style="list-style-type: none"> • Protection of infrastructure (e.g., bridges, storm drains, roads) from floods directly benefitting about 247,000 people. • Increase the government's capacity to better prepare for and respond to natural disasters. 	30.0	100%	1.2
88		Macedonia & Serbia - South East Europe and Caucasus Catastrophe Risk Insurance Facility (P110910 FY11): increase access to catastrophe risk insurance through facilitating the growth of insurance markets.	A	22	<ul style="list-style-type: none"> • Increased catastrophe insurance coverage from 2% to 15% for homeowners, farmers, enterprises, and government entities holding catastrophe insurance policies. <p>Updated for actual results at project completion.</p>	10.0	100%	10.0
89		Mexico - Climate Change Development Policy Loan (P110849 FY08): mainstream climate change considerations into public policy.	Both	10	<p>Climate-informed public policies, including:</p> <ul style="list-style-type: none"> • 642,000 hectares reforested. • 6,000,000 tons of CO₂ eq. emissions reduced annually due to reforestation. • Domestic carbon pricing strategy developed. • City and state climate action plans developed. <p>Updated for actual results at project completion.</p>	501.3	100%	501.3
90		Russian Federation - Hydrometeorological Services Modernization (P127676 FY14): enhance capacity to deliver reliable and timely weather, hydrological and climate information.	A	18	<ul style="list-style-type: none"> • >70% accuracy of forecasts for the main administrative centers of Russia. • > 85-90% accuracy of seasonal river flow forecasts in Volga river basin reservoirs. • Increased number of sectoral data users data. 	60.0	43%	16.1
91		Timor-Leste - Road Climate Resilience Project (P125032 FY14): rehabilitate and improve the climate resilience of a road corridor.	A	28	<ul style="list-style-type: none"> • Improved drainage conditions along 110 km road corridor. • 30% reduction in major road damage events. 	15.0	16%	0.0
Subtotal for Resilient Infrastructure, Built Environment, and Other						906.3		734.3
Cumulative Loan Repayments								(0.3)
Total Allocated and Outstanding for Resilient Infrastructure, Built Environment, and Other								734.0

Amounts may not add up due to rounding.



ANNEX 1: IMPACT REPORTING APPROACH

When the World Bank issued its first Green Bond Impact Report in 2015, the initial reporting template and set of indicators presented were the product of engagement with investors, which benefitted from the efforts of multilateral development banks to harmonize metrics for GHG accounting and reporting on climate finance activities. The World Bank led a collaborative initiative with other issuers to create the first harmonized template with core indicators for the Renewable Energy and Energy Efficiency sectors that was published in March 2015. It has since evolved and been adopted by many other issuers. This consultative process of developing harmonized impact reporting templates has advanced under the auspices of the Green Bond Principles and its working groups and continues to evolve to cover other indicators and relevant sectors.

The indicators for this report have been selected among other expected development results and are intended to illustrate the type and scale of expected results in a variety of sectors and country contexts. To better reflect individual country challenges, demands, and resources, the report focuses on presenting a diverse set of countries, projects and sectors rather than cumulative impacts. Because of the limited comparability between projects, sectors and countries (see "Interpreting Reported Results" in "World Bank Green Bond Process" section and "No aggregation of GHG estimates" on the adjacent page), impact results are not aggregated, with the exception of "renewable energy capacity added", which is deemed to be broadly comparable.

World Bank Green Bond Eligible Projects: Six Sectors

This impact report is organized according to the six sectors represented in the World Bank's Green Bond eligible projects portfolio. Where projects cover multiple sectors, the project is included in the main sector only, but target results will include all components of the project.



The reporting frameworks adopted identify core indicators for the following sectors: (1) Renewable Energy and Energy Efficiency; (2) Clean Transportation; (3) Water and Wastewater; and (4) Solid Waste Management. Where information covering the proposed core indicators is publicly available, it is included.^{a/} However, for some projects quantitative estimates for these indicators are either not available or not applicable. A few other indicators that are considered relevant for Green Bond investors are also provided.

Projects categorized in the remaining sectors are more heterogeneous. The report provides project specific indicators based on available information on the scale of results.

Notes:

a/ This impact report has been prepared following an approach developed in collaboration with 11 other International Finance Institutions (IFIs) to encourage greater harmonization in impact reporting. Core indicators for other sectors were not recommended as part of initial efforts to work towards a harmonized approach for impact reporting. See the 2017 Joint Report on Multilateral Development Banks' Climate Finance at <http://pubdocs.worldbank.org/en/540921538149778203/2017-joint-report-on-mdbs-climate-finance.pdf>.

Key Assumptions and Approach

The following key assumptions and approach were used in preparing this report.

- **Ex-ante projections:** Quantitative estimates for target results represent ex-ante projections developed during project design mostly for direct project impacts once projects are at normal operating capacity. The target results include expected results for projects still in the preparation, construction and/or implementation phase. The impact report thus serves as an illustration of expected results made possible through Green Bond eligible projects, but it is not intended to and does not provide actual results achieved in a specific year or reporting period. Target results have been updated with actual results at project completion when the final project commitment is materially different to the original authorized amount. Where the amounts are based on actual results this is noted in the preceding tables.
- **Length of time projects are on report:** Impact reporting will be provided for projects for so long as they are part of the World Bank Green Bond program. This means that projects are added to the impact report once Green Bond proceeds have been allocated to support the financing of disbursements to the project, and removed once the client has repaid the respective loan. Projects may also be removed from future reports if the World Bank decides to remove a project from its Green Bond program.¹ If a project is removed from the Green Bond program, any Green Bond proceeds previously allocated to support the financing of disbursements to that project will be credited back to the Special Account for Green Bond proceeds and allocated to support the financing of disbursements to other Green Bond eligible projects as part of the routine allocation process.
- **Reporting for co-financed projects:** The World Bank often co-finance projects with the client country and/or other lenders. The results for the individual project are based on the total project including all financiers. The World Bank's share of the total financing is included for each project.
- **Partial project eligibility:** In cases where a project is only partially Green Bond eligible, the committed amount reported reflects only that portion that is Green Bond eligible. Allocations to support disbursements to such projects are made on a pro rata basis.
- **No aggregation of GHG estimates:** When reported in the "Project Appraisal", "Implementation Status and Results", and/or "Implementation Completion and Results" reports, the GHG emission reductions for projects are reported in tons of CO₂ equivalent. The World Bank is undertaking an effort in conjunction with other International Finance Institutions to harmonize the approaches for GHG accounting.² At the same time, the World Bank is working to develop internally consistent GHG accounting methodologies for investment projects across relevant sectors. Given these on-going developments in GHG accounting, the basis for estimating CO₂ equivalent emission reductions may vary between World Bank projects. Therefore, the World Bank does not recommend aggregating the results of different projects in its Green Bond portfolio.
- **All reported results are from publicly available sources:** Reporting is based on publicly available impacts for the projects disclosed in "Project Appraisal", "Implementation Status and Results", and "Implementation Completion and Results" reports. To facilitate comparability of the reported results, the reporting units have been converted where such conversion is based on a standard conversion factor.

¹ As part of the World Bank's due diligence in monitoring projects included in its Green Bond program, it may elect to remove a project. Possible reasons for removing a project from a Green Bond program include, but are not limited to, cancellation of the project or significant implementation delays.

² For more information on the harmonization framework, see <http://pubdocs.worldbank.org/en/540921538149778203/2017-joint-report-on-mdbs-climate-finance.pdf>.

ANNEX 2:

WORLD BANK PROJECT CYCLE

The World Bank project cycle (see diagram 1) consists of six stages: Identification, Preparation, Appraisal, Negotiation/Approval, Implementation/Support, and Completion/Evaluation (see below for the detailed descriptions).

Projects that are reviewed for eligibility under the World Bank Green Bond program are selected from among all projects approved by the World Bank Board of Directors (see diagram 2). They therefore represent a subset of the World Bank's lending portfolio. As of June 30, 2018, there were 91 projects in the Green Bond program.

1 Project Identification

The World Bank works with a borrowing country's government on a **Country Partnership Framework** that identifies the country's priorities for reducing poverty and improving living standards. Within those priorities, the World Bank and the government agree on a project concept, which is outlined in a **Project Concept Note**. The **Project Information Document** outlines the project's scope, and the **Integrated Safeguards Data Sheet** identifies potential environmental and social issues.

2 Project Preparation

The borrower leads project preparation, with the World Bank generally taking an advisory role. If necessary, the borrower prepares an **Environmental Assessment Report** that describes the project's likely environmental impact and steps to mitigate possible harm. If there are major issues, the borrower prepares an **Environmental Action Plan**. An analysis of a project's potentially adverse effects on indigenous peoples may also be undertaken, and any issues are addressed in the **Indigenous Peoples Plan**.

3 Project Appraisal

The government and the World Bank review the identification and preparation documents and confirm the expected project outcomes, intended beneficiaries and evaluation tools, as well as the project's readiness for implementation. The **Project Information Document** is updated and released when the project is approved for funding.

4 Project Approval

The project team prepares the **Project Appraisal Document** (for investment project financing) or the Program Document (for development policy financing), along with other financial and legal documents, for submission to the World Bank's Board of Executive Directors for approval. When approval is obtained and the legal documents are signed, the implementation phase begins.

5 Project Implementation

The borrower implements the project with technical assistance and support from the World Bank as needed. Twice a year, the government and the World Bank prepare a review of project progress, the **Implementation Status** and **Results Report**.

6 Project Completion and Evaluation

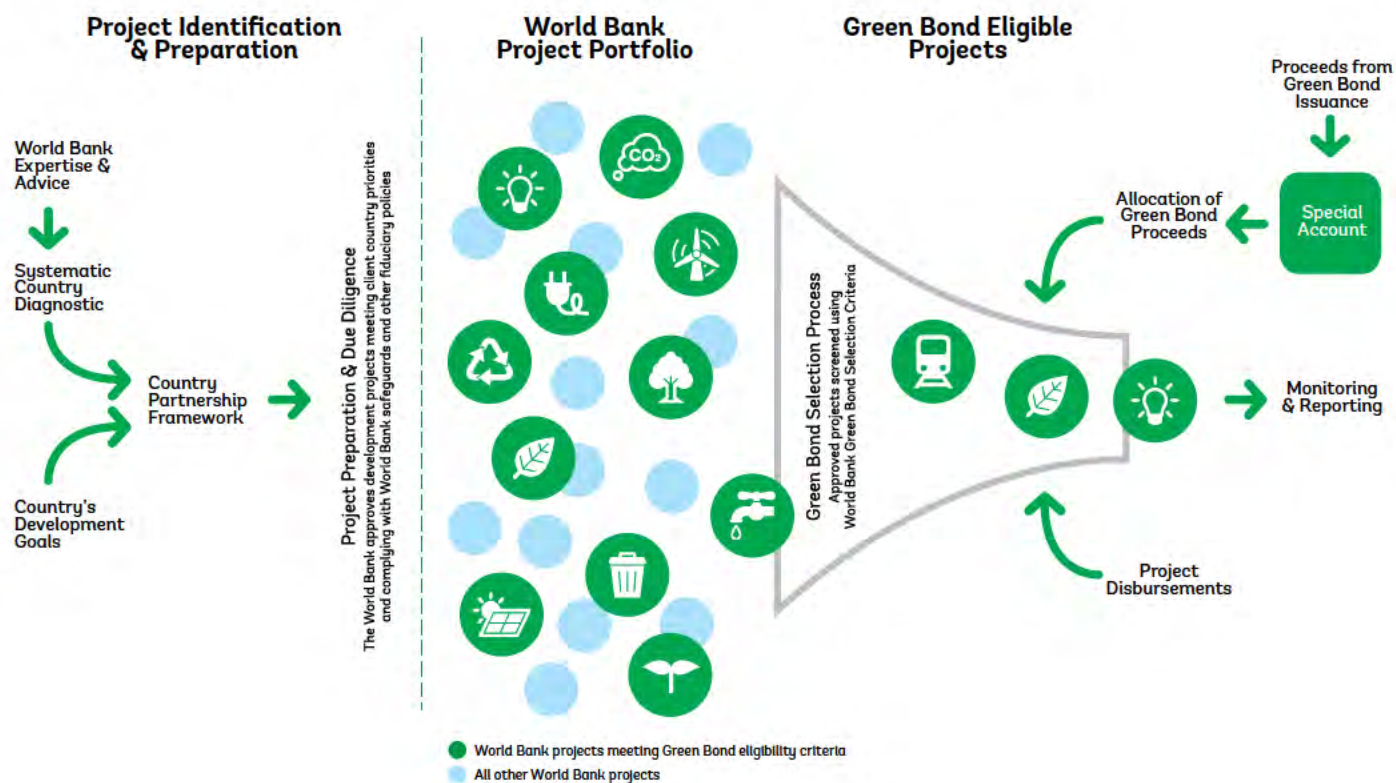
When a project is completed and closed, a World Bank operations team prepares an **Implementation Completion** and **Results Report**. The final outcomes are compared to expected results. The team also assesses how well the project complied with the Bank's operations policies, and accounts for the use of Bank resources.

The World Bank's Independent Evaluation Group (IEG) assesses the performance of roughly one project out of four projects a year, measuring outcomes against the original objectives, sustainability of results and institutional development impact. IEG may produce **Impact Evaluation Reports** to assess the economic worth of projects and the long-term effects on people and the environment.

DIAGRAM 1: WORLD BANK PROJECT CYCLE



DIAGRAM 2: WORLD BANK GREEN BOND SELECTION PROCESS



ANNEX 3:

LIST OF ABBREVIATIONS

CO ₂	Carbon dioxide
eq.	Equivalent
GHG	Greenhouse gas
GWh	Gigawatt hours (equal to 1,000 MWh or 1,000,000 KWh)
IBRD	World Bank (International Bank for Reconstruction and Development)
Km	Kilometers
Km ²	Square kilometers
KWh	Kilowatt hours
m ³	Cubic meters
MW	Megawatts
MWh	Megawatt hours
RMB	Chinese renminbi
SME	Small and medium sized enterprises
TCE	Tons of coal equivalent

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