

# Green Bond

EIGHTH ANNUAL INVESTOR UPDATE 2016

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**“Following the Paris Climate Agreement, we must now take bold action to protect our planet for future generations. We are moving urgently to help countries make major transitions to increase sources of renewable energy, decrease high-carbon energy sources, develop green transport systems, and build sustainable, livable cities for growing urban populations.”**

**Jim Yong Kim**  
President  
The World Bank Group

**“The World Bank Group is a strong advocate of low-carbon approaches to promote climate-smart infrastructure development. This is where adaptation to and mitigation of climate change come together through infrastructure investment and low-carbon growth and emission reduction.”**

**Arunma Oteh**  
Vice President and Treasurer  
The World Bank

## Helping Countries Reach their Goals

# World Bank Green Bonds and the Climate Action Plan

Last year, 188 countries committed to reduce their greenhouse gas emissions to respond to the threat of climate change. The aim of the Paris Climate Agreement that entered into force on November 4, 2016, is to keep the global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit it to 1.5 degrees Celsius. At the global climate meeting in Morocco in November 2016, countries laid out specific actions they will take to reduce emissions and increase resilience to climate change impacts. Of these countries, 140 are working with the World Bank.

The financing required for the transition to a low-carbon, climate-resilient global economy is counted in the trillions, not billions. Public concessional finance will play a critical catalytic role, but the private sector will ultimately finance the transition. The World Bank has demonstrated innovative ways to mobilize private sector resources by working with a variety of partners in the green bond market through its own green bond issuance that has now reached **over USD 9.7 billion** through **128 transactions** in **18 currencies**.

### Noteworthy Green Bonds & Climate Finance Initiatives

November 30, 2016: The first World Bank **Pilot Auction Facility Emission Reduction Notes (PAFERNS)** matured. The notes were issued in October 2015 to the winning bidders of the Pilot Auction Facility (PAF). They brought over \$3 million to projects that capture methane emissions at landfills in Malaysia, Thailand and Brazil. <http://treasury.worldbank.org/cmd/htm/Innovative-Pilot-Auction-Facility-Provides-Over-USD3million-Methane-Capture-Projects.html> and <http://treasury.worldbank.org/cmd/htm/World-Bank-Issues-First-Pilot-Auction-Facility-Emission-Reductions-Notes.html>

November 7, 2016: The **Central Bank of Morocco** invested USD 100 million in World Bank Green Bonds for its reserves management. <http://treasury.worldbank.org/cmd/htm/Morocco-Invests-USD-100-million-in-World-Bank-Green-Bonds.html>

November 3, 2016: The **Maryland State Treasurer's Office** placed a lead order for a USD 500 million callable Green Bond, with a final maturity of 5 years. The remainder of the bonds were placed with US institutional investors, including **Blackrock** and **PIMCO**. <http://treasury.worldbank.org/cmd/htm/World-Bank-USD-500-Million-Green-Bonds-Support-Global-Climate-Action.html>

April 21, 2016: The **California State Treasurer's Office** placed a lead order for a USD 280 million 2-year Green Bond. <http://treasury.worldbank.org/cmd/htm/World-Bank-Announces-New-USD-280-Million-Green-Bond-California-State-Treasurers-Lead-Order.htm>

January 2016: World Bank issued two more Green Growth Bonds bringing the total of green bonds issued in this format for individual and institutional investors to over USD 555 million through 16 transactions. Other green growth bonds were for retail investors in **Europe** and in the **United States**. <http://treasury.worldbank.org/cmd/htm/WorldBankIssuedTwoMoreGreenGrowthBonds.html>

## World Bank Publications

**Green Bond Impact Report 2016** – World Bank's second impact report provides the latest details about the use of proceeds raised from World Bank Green Bonds. <http://treasury.worldbank.org/cmd/pdf/WorldBankGreenBondImpactReport.pdf>

**High and Dry: Climate Change, Water, and the Economy** – This World Bank reports finds that most countries can neutralize the adverse impacts of water scarcity by taking action to allocate and use water resources more efficiently. <https://openknowledge.worldbank.org/handle/10986/23665>

## Interview

Arunma Oteh

World Bank Vice President and Treasurer



**How do you see the World Bank helping countries meet their climate pledges made in Paris through the capital markets?**

The World Bank's strategy for helping countries meet their climate action targets includes generating more financing from the private sector so the climate action targets set by our member countries can be realized. Our role in the global capital markets successfully supports this strategy. For example, we have led the green bond market since its inception, pioneering a model for

climate finance and setting a high standard through reporting the impacts of projects supported by green bond investor funds. Our green bonds help finance projects that address climate mitigation and adaptation activities in our borrowing member countries.

**What should investments focus on in the developing world as countries face climate change threats?**

Investments in climate smart infrastructure are key to economic growth and poverty reduction that is sustainable. Lack of infrastructure for emerging markets has an enormous economic and social cost. More than 1.3 billion people – almost 20% of the world's population – still have no access to electricity. Around 768 million people worldwide lack access to clean water. These numbers are just a few of many shocking statistics. Climate change adds additional challenges to infrastructure development. In addition to seeking low-carbon solutions, infrastructure investments should be resilient to direct climate change-related impacts such as intensified flooding, droughts, and increased severity and frequency of extreme weather events.

**How can the public and private sectors work in tandem to see that more solutions for climate-action targets are realized?**

Institutional investors such as insurance companies and pension funds can play a role by increasing their allocation to long-term low-carbon infrastructure assets as they seek predictable yield to duration to match their future liabilities and payments. Certainty about the conditions that sustain returns over time are key for these investors. Public entities can take a number of actions to increase certainty and provide a stable environment for investment. For example, governments should never change the terms of a project subsequent to its funding (for example, changes in the tariff regime or removal of subsidy support to renewable energy). It is only when this type of assurance is in place that we have created an environment of certainty for investors.

**Tell us about your impressions of a project you had a chance to see during your recent trip to China.**

The Beijing Rooftop Solar Photovoltaic Scale-Up Project, also known as the "Sunshine Schools" project, is a great example of a green bond project with clear measurable impacts. The Sunshine Schools project involved the installation of solar PV electricity systems with the total capacity of 100 MW on the rooftops of schools with the goal of saving almost 90 thousand tons of CO<sub>2</sub>eq. emissions a year. We can already see positive impacts even though the project is now only in its early stages. Children in Beijing are sharing with their families what they are learning from schools about how renewable energy solutions like solar panels are helping the environment and climate and what technologies like these could mean for the future of China. This type of knowledge sharing and enthusiasm is key to making changes for long-term sustainability.

**World Bank Group Climate Action Plan** – World Bank's new climate strategy focuses on helping shape national investment plans and leveraging the private sector for each member's individual climate action targets. <https://openknowledge.worldbank.org/bitstream/handle/10986/24451/K8860.pdf?sequence=2&isAllowed=y>

Highlighted In This Issue

# Renewable Energy & Resilient Infrastructure

World Bank Green Bonds support the financing of projects that address climate change and its challenges to economic progress in the developing world. In this edition, we highlight social and environmental impacts of projects with **Renewable Energy** and **Resilient** components. **For details on each project, see <http://www.worldbank.org/projects> and search by each ID number.**



**Renewable energy** The energy sector contributes about 40% of global CO<sub>2</sub> emissions. Despite improvements in some countries, the global CO<sub>2</sub> emission factor for energy generation has hardly changed over the last 20 years, making the transition to a more sustainable energy mix critical for climate change mitigation. It is part of World Bank’s strategy to increase the share of **renewable energy** in the global energy mix by 2030. Examples include:

**MEXICO**

**Integrated Energy Services**

Increasing electricity access through photovoltaic systems and wind generators along with regulatory and technical support in the poorest southern states of Mexico. **P088996**

**Expected Impacts:**

-  4,400 rural households benefit from electricity generated from renewable sources.
-  241,000 tons of CO<sub>2</sub>eq. emissions reduced annually, equivalent to taking nearly 19,000 cars off the road each year<sup>1</sup>.



<sup>1/</sup> Calculated using the Environmental Protection Agency (EPA) Greenhouse Gas Equivalency Calculator at [www.epa.gov/energy/greenhouse-gas-equivalencies-calculator](http://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator)

**CHINA**

**Sunshine Schools**

Increasing the share of clean energy in electricity consumption and demonstrating the viability of the renewable energy through rooftop solar photovoltaic Systems in Beijing’s schools. **P125022**

**Expected Impacts:**

-  100MW of renewable capacity installed in 1000 schools.
-  89,590 tons of CO<sub>2</sub>eq. emissions reduced annually equivalent to taking nearly 19,000 cars off the road each year.<sup>1</sup>



"Supporting the Sunshine Schools Program is in line with the World Bank’s corporate commitment to increase renewable energy investments. It is also great to make such investment in schools, as young generations can learn and contribute through their participation, which may help them think more about the environment and bring long-term impact to themselves and their families."

**Chongwu Sun, Senior Environmental Specialist  
World Bank**

## Resilient Infrastructure

Building more resilient infrastructure is essential to adapting to climate change. Planning land use, connecting people to jobs and services, and finding ways to finance necessary climate-smart **infrastructure** improvements are increasingly critical. The World Bank is financing these types of projects in its borrowing member countries. Examples include:

**TIMOR-LESTE**

**Road Climate Resilience**

Repairing pavements and improving the drainage of the Dili-Ainaro road corridor which connects the north and south of the country. Also detailing designs for possible future road improvements linked to this important road corridor. **P125032**

**Expected Impacts (annual):**




-  Reduce major road damage events by 30%.
-  Improve drainage conditions along 110 km road corridor.

**RUSSIA**

**Hydrometeorological Services Modernization**

Enhancing the national capacity to deliver reliable and timely weather, hydrological and climate information to the public. Also integrating Russia’s meteorological and hydrological networks in the global meteorological community. **P127676**

**Expected Impacts:**

-  The forecasts will exceed 70% accuracy for the main administrative centers of Russia.
-  Increased number of sectoral users of meteorological and hydrological data.
-  Improved accuracy of seasonal river flow forecasts in the reservoirs in the Volga river basin exceeding 85-90%.



"The project will contribute to sustainable development and effective protection of the national economy and human lives from extreme weather and climate related disasters. It will also help to strengthen Russia’s contribution to global public goods and further its role in the World Meteorological Organization and as a regional leader."

**Michal Rutkowski  
World Bank Country Director for Russia**

# What makes a World Bank Green Bond "Green"?

The World Bank's Green Bonds are a subset of our sustainable investment opportunities in that they support economic and social objectives specifically through the financing of climate change mitigation and adaptation activities. For more information about other sustainable investment opportunities offered by the World Bank see: [http://treasury.worldbank.org/cmd/htm/about\\_sustainable.html](http://treasury.worldbank.org/cmd/htm/about_sustainable.html)

## Green Bond Process

All World Bank projects undergo a rigorous six-step review and approval process and address the development priorities agreed with borrowing member countries in the Country Partnership Framework. Green bond projects follow the same process, including environmental and social due diligence. In addition, they are screened and selected based on specific eligibility criteria (see box on the right). They follow an additional four steps addressing:

### 1. Use of Proceeds:

Support transition to low-carbon and climate resilient development. Independent review of selection criteria.

### 2. Project Evaluation and Selection:

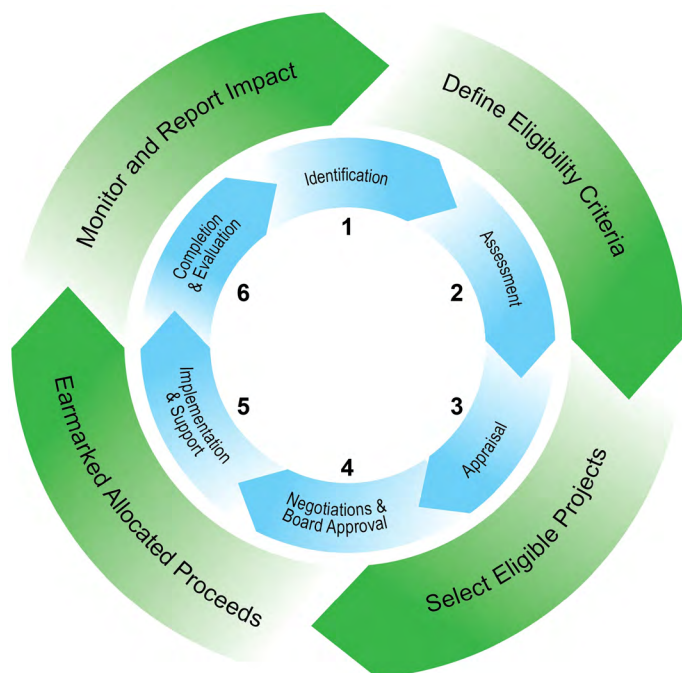
Environment specialists identify approved projects that meet the green bond eligibility criteria.

### 3. Management of Proceeds:

Funds credited to special account until allocated to support financing of eligible project disbursements.

### 4. Reporting:

Detailed project reporting, summarized project information, and green bond impact reporting available.



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## Project Selection Criteria

### Examples of Eligible Projects

#### Mitigation

- Solar and wind installations;
- Funding for new technologies that permit significant reductions in greenhouse gas (GHG) emissions;
- Rehabilitation of power plants and transmission facilities to reduce GHG emissions;
- Greater efficiency in transportation, including fuel switching and mass transport;
- Waste management (methane emissions) 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 stress-resilient agricultural systems (which slow down deforestation);
- Sustainable forest management and avoided deforestation.

## What Green Bond Investors Said

“This is a win-win for Californians who are not only interested in safe, solid-performing investments, but want to move the needle on combatting climate change. My office is excited about participating in the burgeoning green bond market, but we want to do it right. We want to raise money to combat climate change at the same time we get the best possible deal for our taxpayers.”

**John Chiang**  
California State Treasurer

“By buying World Bank green bonds, the State is investing in a high-quality product that meets the objectives of maximum security and highest investment returns, while at the same time supporting global climate action. It is also a message to our citizens, that the State of Maryland supports climate policies in all areas of government.”

**Nancy Kopp**  
Maryland State Treasurer

**About the World Bank:** The World Bank (International Bank for Reconstruction and Development, IBRD), rated Aaa/AAA (Moody's/S&P) operates as a global development cooperative owned by 189 member countries. The World Bank has two main goals: to end extreme poverty and promote shared prosperity. It provides its members with financing, expertise and coordination services so they can achieve equitable and sustainable economic growth in their national economies and find effective solutions to pressing regional and global economic and environmental problems.

**About the World Bank Group:** The World Bank Group consists of five separate legal organizations working towards a common mission to eradicate extreme poverty and promote shared prosperity. It includes International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), the International Finance Corporation (IFC), the Multilateral Investment Guarantee Agency (MIGA), and the International Centre for Settlement of Investment Disputes (ICSID). Both IBRD and IFC are issuers of green bonds.



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