

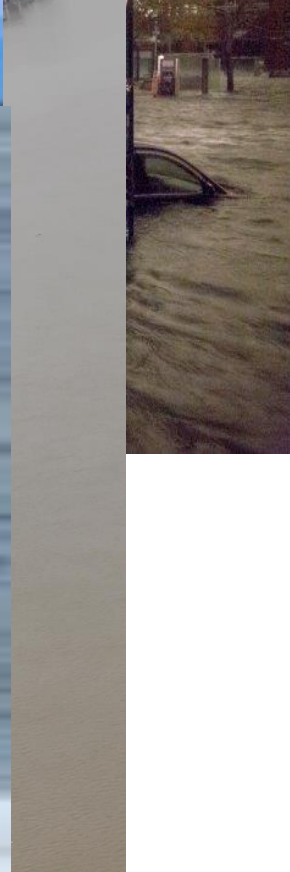
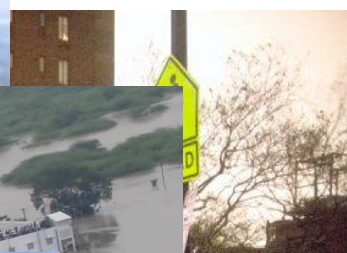
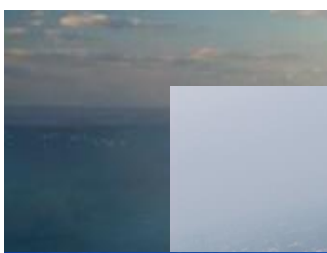


Green
City
Bonds



Green Bonds: financing the development of low carbon & climate resilient cities





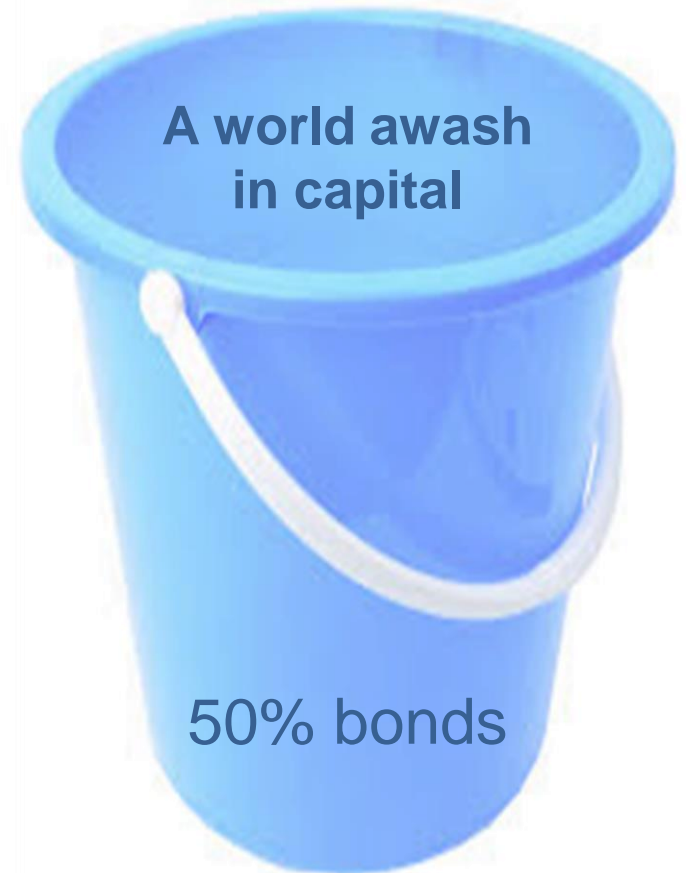
Bringing solutions to capital



Discovery

Risk-Bridging

Deal flow
generation



Investor concern about climate risk

\$90th institutionals: insurance, pension, SWF, etc

SRI = \$21^{tn} global

\$43^{tn} represented at UN Climate Summit



\$59 trillion

Targets and mandates

- Zurich, Blackrock, ACTIAM, Aviva, Allianz
- Deutsche Bank treasury, Barclays treasury
- KfW, Norges Bank, IFC
- Central banks



Investor Network on CLIMATE RISK



Investor Group on Climate Change



FROM INVESTORS REPRESENTING US\$11.2 TRILLION

The Paris Green Bonds Statement

9 DECEMBER 2015

We encourage, in order to scale up investment in green bonds, climate bonds and other bonds financing mitigation of and adaptation to climate change that meet our risk and return requirements as institutional investors:

- Governments to act** through policy, regulation, risk mitigation, guarantees, tax credits and other mechanisms to support the issuance of bonds that both address climate change and allow us to meet our obligations to our beneficiaries.
- Experts in low carbon and climate resilient investments to develop **clear and independent industry standards** for the climate change impacts and benefits of bond financed projects, noting that they need to be sufficiently ambitious to meet emissions reduction and challenges, while being economically

We understand:

- That **climate change poses a significant risk** to societies, economies, and to the investments we make on behalf of our beneficiaries around the world.

SIGNATORIES

ACTIAM — Jacob de Wit, CEO
Addenda Capital — Brian Minns, Sustainable Investing Specialist
Affirmative Investment Management — Stuart Kinnersley, CEO & Co-Founder
AllianceBernstein — Peter S. Kraus, Chairman and CEO
Allianz Global Investors — Franck Dixmier, Global CIO Fixed Income
Amundi Asset Management — Bernard Carayon, Deputy CEO
APG Asset Management — Herman Slooijer, Managing Director Global Credits
AP4/Fjärde AP-Fonden — Mikael Angberg, CIO
API/Första AP-Fonden — Ulrika Danielson, Head of Communications
AP2/Andra AP-fonden — Peter Lundkvist, AP3 Head of Corporate Governance
AP3/Tredje AP-fonden — Arne Lööv, Head of Corporate Governance and Dr Ulf Erlandsson, Senior Portfolio Manager Credit
Aviva Investors — Dr Steve Waygood, Chief Responsible Investment Officer
AXA Investment Managers — Andrea Rossi, CEO
BlackRock — Kevin Holt, Co-head of Americas Fixed Income
BNP Paribas Investment Partners — Helena Head of Sustainability Research
to Retirement Systems

Bonds 101

- Debt: repay loan + interest
- Usually large, mature assets
- Issued by companies, governments, municipalities...
- Government-backed may be paired with incentives
- Usually rated (independent credit rating organizations)
- May be traded (depending on capital market rules)
- Local or foreign currency (USD)
- May be secured against an asset
- Important part of portfolio for investors such as pension funds, insurance companies



The green bond basics

Proceeds to green

- Vanilla
- Comparable pricing
- Refi as well as project
- 90% investment grade

Any entity

- Governments & DFIs
- Corporates
- Asset owners: PPPs, banks, utilities, etc
- Municipalities

Reporting

- Transparency to green asset or project
- Independent review
- Reporting on use of proceeds

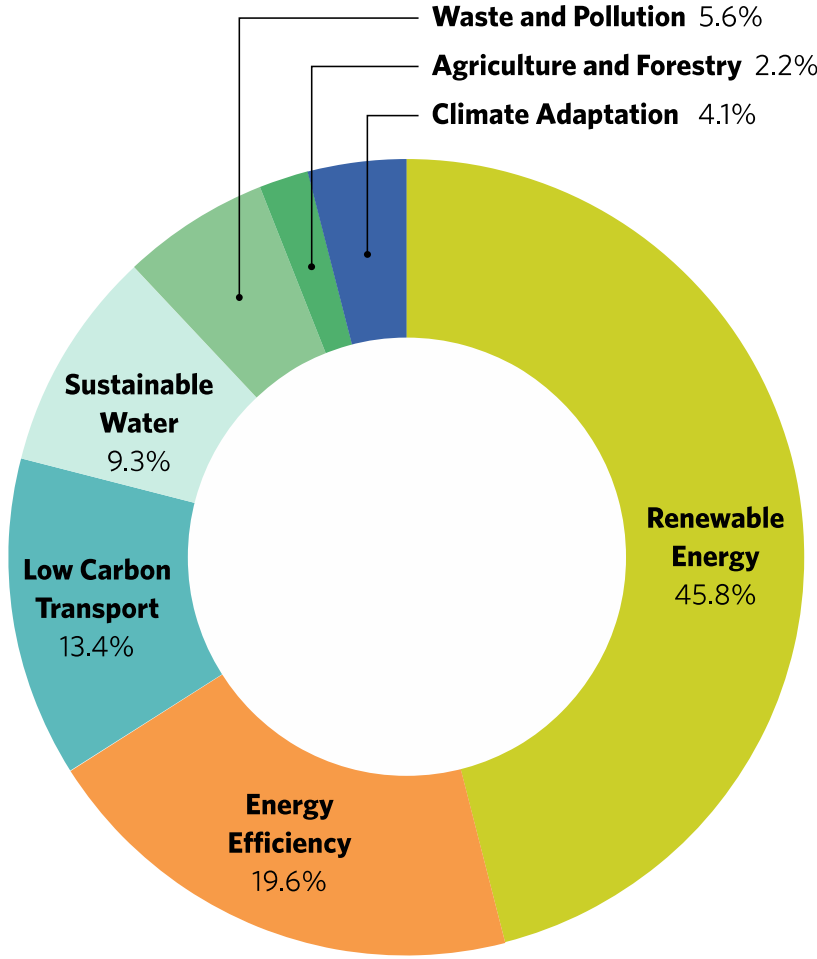
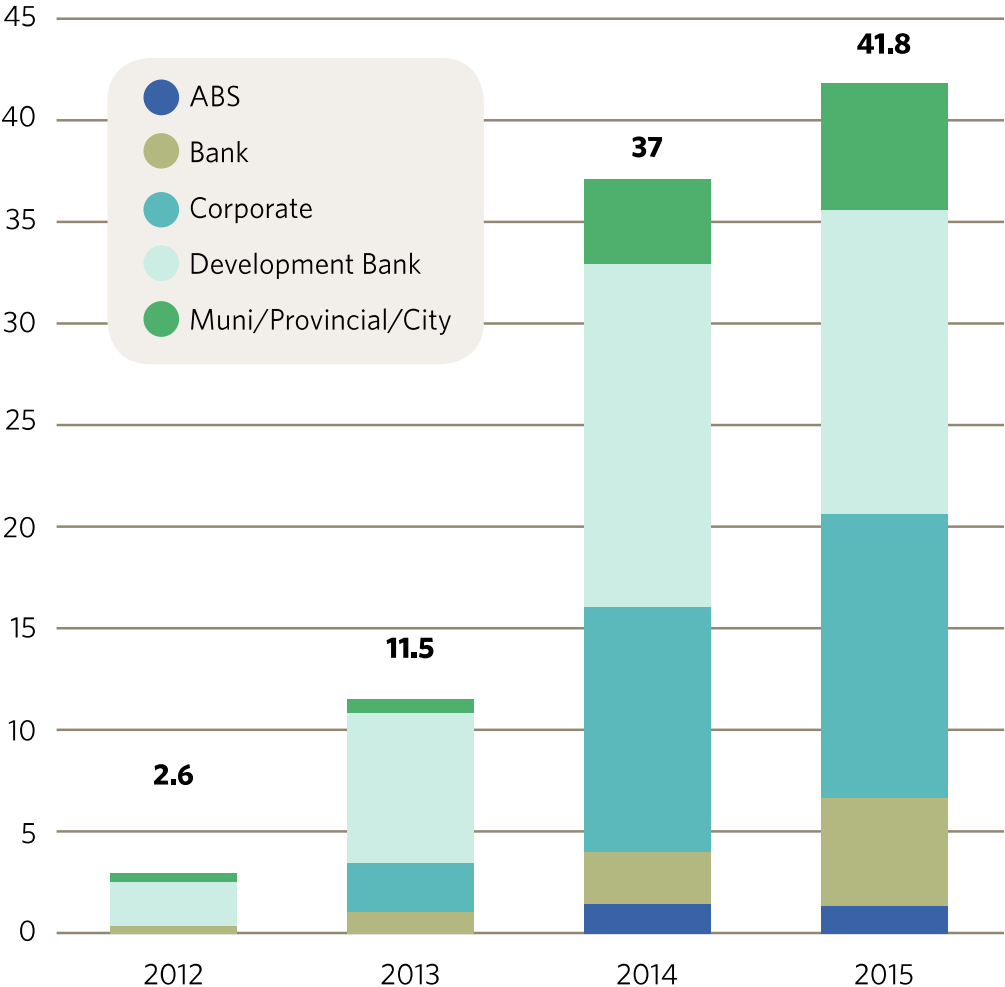
Benefits

- Investor diversification
- Stickiness
- Longer tenors
- Multi-asset for scale

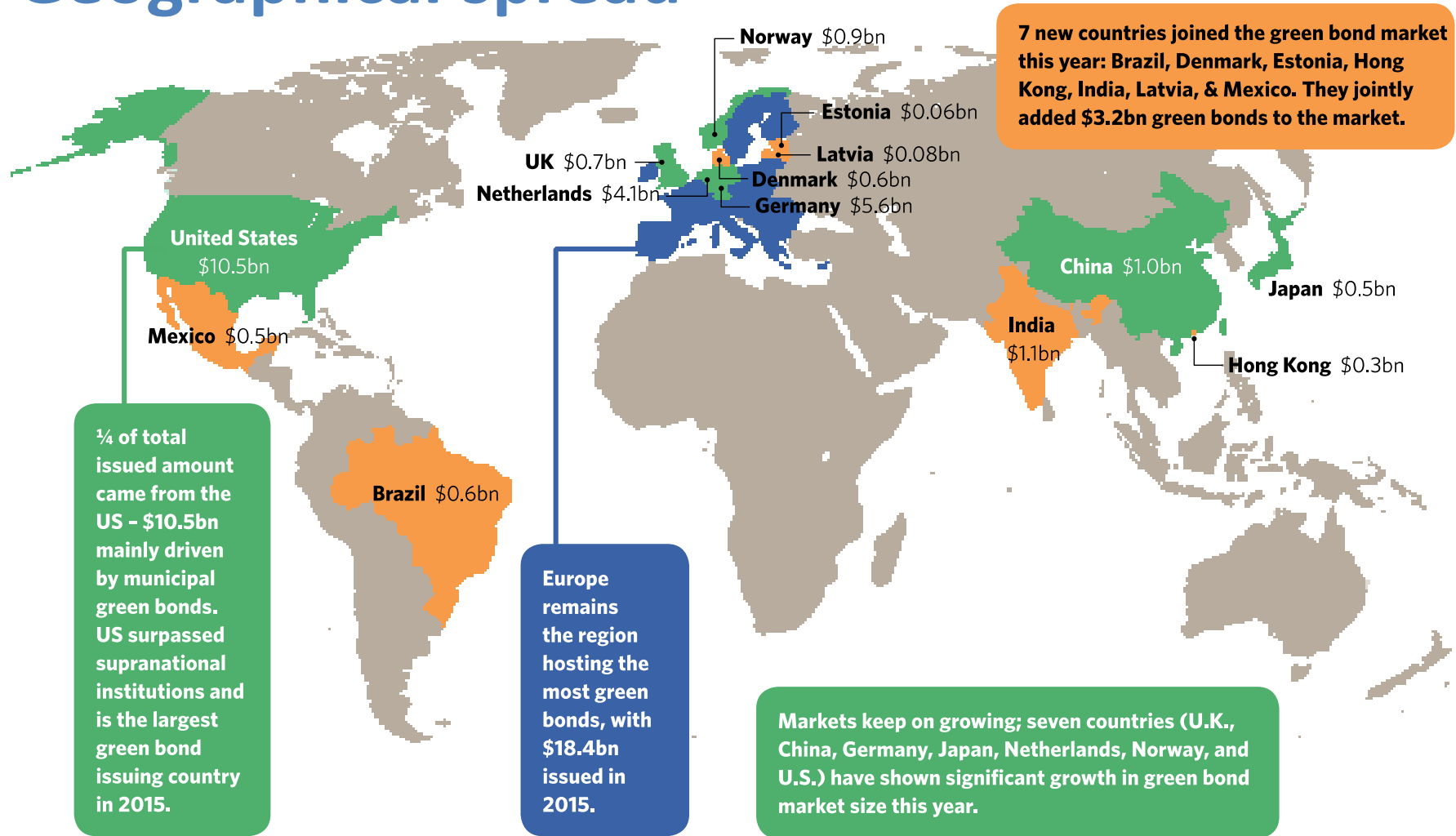


2015 green bond proceeds

The Green Bond Market Grows



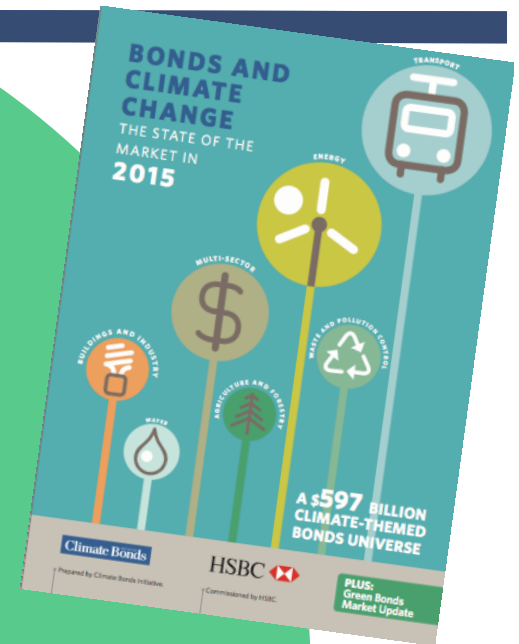
Geographical spread



Labelled vs unlabelled

Climate-themed bonds
\$600 bn

Green Bonds
\$100 bn



Mitigation *and* adaptation/resilience



Renewable energy
Nuclear, bioenergy
Geothermal



Low-carbon buildings
Greening industry



DFIs, munis,
banks, financing mixed
projects



Low emission vehicles
Electric Vehicles
Rail, BRTs



Sustainable water mngmt
Water infrastructure
Storm adaptation



Waste & pollution mngmt
Methane reduction
Recycling



Agriculture
Food supply chain
Forestry, wood, paper

Science-based definitions:

www.ClimateBonds.net/Taxonomy



How to issue a Green City Bond?

PROJECT IDENTIFICATION AND PREPARATION

Public sector decision-makers identify potential capital projects.

STATES

UTILITIES

CITY DEPARTMENTS

TRANSIT AGENCIES

CAPITAL PROGRAM

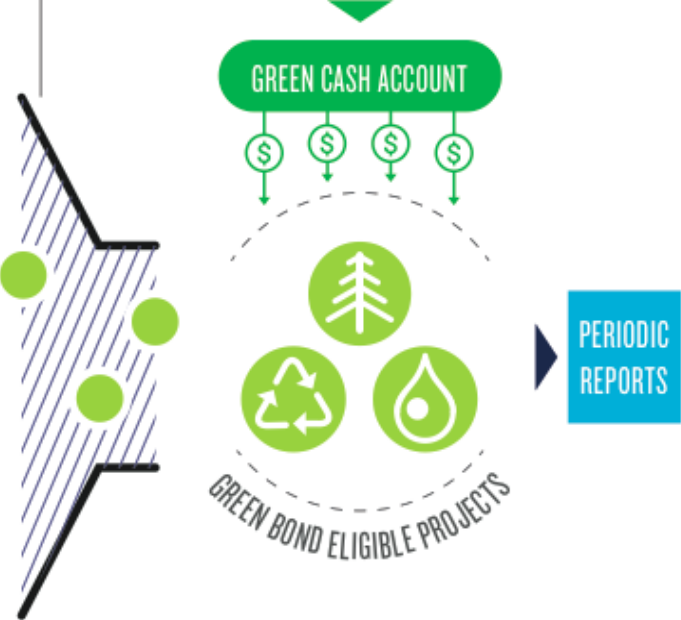
Identify and prioritize projects using green criteria.



In this phase, the green projects (i.e., those eligible for green bonds) are isolated for additional analysis.

GREEN BOND-FUNDED PROJECTS

PROCEEDS FROM GREEN BOND ISSUANCE



Approved projects screened using asset class green standards.

Green City Bonds

Aim:

demonstrate to city leaderships that there is capital available in the low carbon market if they develop a pipeline of projects.

USA

The home of the muni market, full of models to adapt for other cities.

The project will promote guidelines for local issuance and educate prospective issuers. It will also encourage twinning relationships with emerging market cities needing support.

EU : Sweden, France, Germany

This project will promote EU take-up of the Green City Bond model, as demonstrated by three French provinces and Gothenburg in Sweden.

China

The China project is most advanced, flowing on from work over the past year with the People's Bank of China and other government institutions.

Other emerging Market

The first emerging markets Green City Bond was issued by in May 2014 by Johannesburg.

This project will work with interested cities to generate Green Bond issuance



Potential Green City Bond issuers

Bond types

General Obligation
Bonds

Municipal Bonds

Revenue Bonds

Corporate Bonds

Project Bonds

Asset-Backed

Securities

Islamic Bonds (Sukuk)

City or other sub-national Governments

- “General Obligation” bonds where proceeds are earmarked for green investments
- Modelled on Gothenburg, World Bank, Ile de France and Massachusetts green bonds

Governments or development banks earmark funds for a City

- Where cities do not have bond-issuing powers, another institution, such as a national development bank or a government, issues Green City Bonds with proceeds earmarked for green projects in a particular City

City entities, e.g. infra, water or transport bodies

- Can be corporate bonds or revenue bonds (backed by cash flows from an asset).
- Issuers would need to be authorised by relevant City

Corporations authorised by a City

- Public-private partnerships
- Companies developing green infrastructure to City requirements
- Issuers would need to be authorised by relevant City



Challenges for Green Bonds

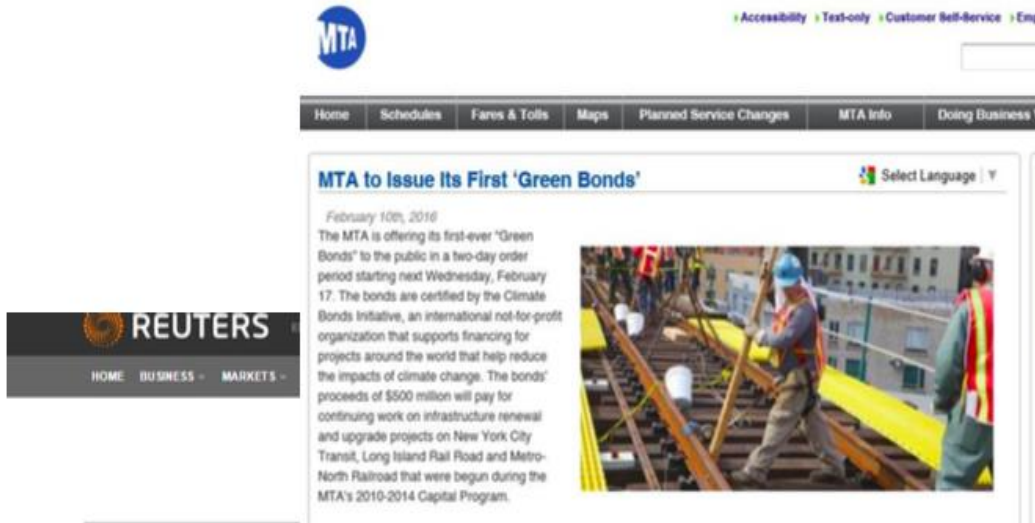
- Lack of bankable projects and robust project pipelines
- Lack of well functioning bond markets
- Lack of preparedness for bond financing
- Lack of commonly acceptable green standards
- Risk adverse investors with limited capacity to analyse green investments
- Small investments that would not be attractive to large institutional investors
- Involvement of many stakeholders that lack coordination



Green Bonds: the role for the public sector



Metropolitan Transport Authority of New York



The screenshot shows the MTA website's navigation bar with links for Accessibility, Text-only, Customer Self-Service, and Employment. Below the navigation is a menu with Home, Schedules, Fares & Tolls, Maps, Planned Service Changes, MTA Info, and Doing Business With Us. The main content area features a news article titled "MTA to Issue Its First 'Green Bonds'" dated February 10th, 2016. The article text states: "The MTA is offering its first-ever 'Green Bonds' to the public in a two-day order period starting next Wednesday, February 17. The bonds are certified by the Climate Bonds Initiative, an international not-for-profit organization that supports financing for projects around the world that help reduce the impacts of climate change. The bonds' proceeds of \$500 million will pay for continuing work on infrastructure renewal and upgrade projects on New York City Transit, Long Island Rail Road and Metro-North Railroad that were begun during the MTA's 2010-2014 Capital Program." An image of construction workers on a subway track is also visible.

New York's Subways Court Millennials With First Green Bonds

by Martin Z Braun
[MartinZBraun](#)

February 10, 2016 – 4:01 PM EST Updated on February 11, 2016 – 11:24 AM EST



- ▶ U.S. transit agency to sell environmentally branded securities
- ▶ Municipalities have issued about \$7.5 billion of such debt

Fri Feb 12, 2016 4:27pm EST

New York's MTA eyes nascent 'green bond' market with \$500 million bond

NEW YORK | BY EDWARD KRUDY

New York's Metropolitan Transportation Authority (MTA) will issue its first ever "green bond" next week as it looks to tap a market beyond its traditional investor base.

Green bonds, which are earmarked for environmentally friendly projects that meet certain

EDITOR'S CHOICE



"All infrastructure has to now be green.
And rivers of capital need to flow
to assets and projects that are
the *right* ones for the 2050 world
we have to build."

Christiana Figueres, UNFCCC



Merging 'green' & 'infra' agenda

INDCs > 3-5 yr
green investment
plans
Investor-country
dialogue

GREEN BONDS & CAPITAL MARKETS

Green Infrastructure Investment Coalition

Investors + Public Sector + Development Banks

Multi-trillion dollar investor coalition backs green investment platform

At the UN Climate Conference last year, investors representing some \$43 trillion of assets under management signed statements about the importance of acting quickly on climate change. They also said they stand ready to invest in climate solutions, with insurers specifically aiming to multiply by 10 their climate related investments by 2020¹.

Investors representing \$2.6 trillion AUM specifically undertook to work with the Climate Bonds Initiative to grow a vibrant green bonds market².

Clearly, capital is available to invest.

From the institutional investor perspective, what's missing are available investible propositions suitable to their needs.

Many governments are well advanced in developing domestic green investment plans. Now they need investment.

Objectives

The aim of the Coalition is to bring together investors, governments and development banks to help increase the flow of institutional investor capital to green infrastructure investments around the world.

Participants want to:

- Better understand the forward pipeline of green infrastructure investments.
- Examine barriers to capital flows and propose solutions
- Share

Coalition Organisers

Climate Bonds INITIATIVE

→ The **Climate Bonds Initiative** is an investor focused NGO working to mobilize debt capital markets for green investments.

PRI Principles for Responsible Investment

→ The **Principles for Responsible Investment** represent investors with assets under management of US\$60 trillion.

icmif
International Cooperative and

→ The **International Cooperative Mutual Insurers Federation** represents insurers around the world with assets under management of US\$9 trillion.

Inquiry: Design of a Sustainable Financial System

→ The **UNEP Inquiry** brings together regulators, central banks, governments and institutional investors to examine how to align the financial system with sustainable development.

Coalition Members

The following organizations have confirmed participation:

The **Institutional Investor Group on Climate Change** is a network of +110 pension funds & asset managers in Europe, representing EUR11 trillion.

IIGCC
International Investors Group on Climate Change

The **European Investment Bank** is the European Union's nonprofit long-term lending institution and the world's largest international financing institution.

European Investment Bank

Legal & General Investment Management is one of Europe's largest asset managers, with total assets of USD 1.1 trillion.

Legal & General
INVESTMENT MANAGEMENT

IDBI, a government-owned bank with a balance sheet of USD53bn.

IDBI BANK

AB is a global investment-manager with USD46.4 billion under management.

[A B]

India's Export Import Bank supports green projects across

एक्जिम बैंक

www.climatebonds.net

