WORLD ECONOMIC FORUM

CASE STUDY

DC Water's Environmental Impact Bond

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City	Washington DC
Size	7.512 million (2020)
Country	United States of America
Region	North America

The District of Columbia, like many US cities, has a combined stormwater and sanitary sewage system, which often experiences frequent sewage overflows. Washington's combined sewer overflows were dumping an average of 2.5 billion gallons of combined sewer water annually into three rivers, including the Rock Creek tributary that ultimately flows into the Chesapeake Bay. These polluted water overflows brought bacteria, trash and heavy metals along with them, negatively impacting DC's water quality, air quality and natural habitats. The combined overflows reached volumes and frequency that violated the US Clean Water Act.

Overview

I'm a big fan of environmental impact bonds. They give government leaders a much-needed way to pay for innovations that don't leave the government holding all the risk. They also open up a better set of conversations with ratepayers, taxpayers and customers. Everybody wins.

George Hawkins, former general manager, DC Water

To address the combined sewer overflow (CSO) problem, DC Water developed in 2016 a multi-billion-dollar grey infrastructure plan. It also investigated the potential benefits of using green infrastructure to achieve the same goals at a significantly reduced cost, but with a greater level of uncertainty. Together with Quantified Ventures, which served as the outcomes-based finance transaction intermediary to design and guide the green infrastructure financial model, they created the first environmental impact bond (EIB) to pay to for green infrastructure in order to shift the risk from the public to the private sector. Investors, including Goldman Sachs and the Calvert Foundation, benefited beyond their investment as the green infrastructure performed better than expected. If it had underperformed, investors would have had to pay back DC Water. But, as the green infrastructure performed as expected, the bond was paid back at a fixed rate.

Demonstrating to investors that the green infrastructure would work was the first critical step. Performance monitoring as the pilot project was implemented was another critical step and enabled the team to adjust where necessary. The green infrastructure achieved the goals set in 2016, reducing runoff into Rock Creek by nearly 20 percent over five years, outperforming expectations.

The pilot project also included access to new green spaces at many locations around DC. There was also a workforce development component – the EIB enabled the creation of the National Green Infrastructure Certification Program (NGICP), collaborating locally with the University of the District of Columbia to support the DC Water workforce development initiative. The NGICP certification recognizes newly trained candidates who have developed expertise in green infrastructure construction, inspection and maintenance.

In September 2021, the DC Water utility repaid an EIB in full with no penalty.

Key decisions and tactics

The first environmental impact bond in the US presents some integral lessons that can be applied in other cities and contexts to employ innovation for urban transformation.

1 Business as usual vs innovation

When a government agency has a choice between a familiar solution to a public policy problem and a risky one, the political will of the public sector and the value of projected impact for the private sector can drive innovation. In this case, an EIB helped create this choice of realistically adopting green infrastructure for urban transformation.

2 Close collaboration drives successful partnerships

When performance risk is shared and there are environmental and social consequences, it is important to develop empathetic relationships between stakeholders. This quality in a partnership helps retain the trust and prioritize the overarching goals of the project.

3 Reporting on the measurement of bonds that have an environmental and social value

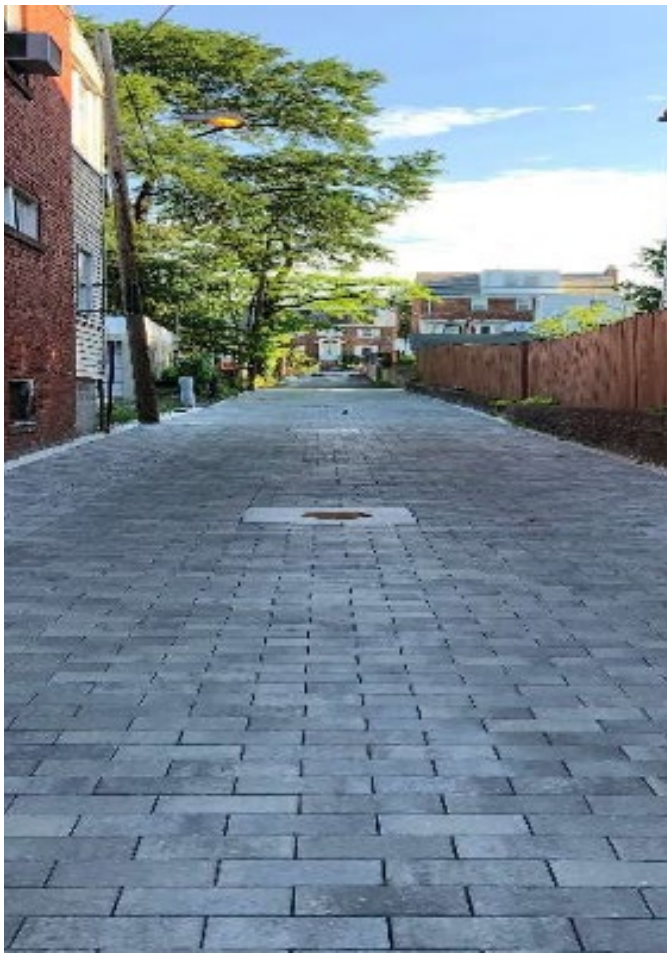
The DC Water Project was centred around a novel financial tool. The success of such a tool was not limited to yielding profit, but also cultivating social and environmental value. Therefore, the decisions around how one measures the impacts and how to communicate the benefits are critical.

4 Metrics as proof of concept

Measuring nature-based solutions is the key to attracting private investors. With rigorous measurement and evaluation of the green infrastructure project, investors can understand the risk. Evaluating it throughout implementation will provide additional information to investors if the project is meeting expectations.

5 Managing expectations

Having a transactional mindset is important for swift decision-making and adhering to a timeline. Being realistic about logistics even when implementing an innovative solution. Maintain open communication with all partners and other stakeholders to make the process collaborative.



Parking lane in Washington DC with permeable pavement

A bio-retention planter and semi permeable pavement design (Credit: DC Water)

Best practices

Understand the government's aversion to risk and failure by taking as much risk off their shoulders as possible

Develop understandable metrics (and check them regularly) to enable investor confidence in the project

Communicate novel concepts to the public effectively through easy-to-understand language

Impact

Reduced runoff into Rock Creek by nearly 20%

Created a model funding mechanism that other municipalities can leverage to advance the use of green infrastructure to address stormwater management in their communities

Enhanced future decision-making about how much and which types of green infrastructure to build

Improved transparency to local ratepayers by formally predicting, measuring and publicly reporting the environmental impact of the green infrastructure

As of May 2019, it is the largest social impact bond investment in the US ($25 million)

100+ candidates were trained for green infrastructure jobs

What did the public sector offer?

- Political will and initiative
- Implementation
- Policy support

What did the private sector offer?

- Funding capital
- Risk sharing
- Technological support

Replicability

Utilize a pilot project to demonstrate the potential impact to reduce risk to government

Use real-time sensors and/or proxy measurements to assess impact throughout the project, and make adjustments as needed

Engage the public continuously with clear and visible demonstrations

For more information

Official website: Quantified Ventures DC Water

DC Water on the project: Link

Calvert Capital: Link

Conservation Finance Network coverage: Link