ENVIRONMENTAL IMPACT BONDS. WHAT ARE THEY, AND HOW CAN THEY FUND STORMWATER PROJECTS TO ACHIEVE REAL IMPACT AT SCALE?

"Public funding alone will not finance the scale of investment that's needed, with the urgency required, to address the climate crisis."
James Shaw, Climate Change Minister, NZ Govt, May 2023.

Brad Tiller

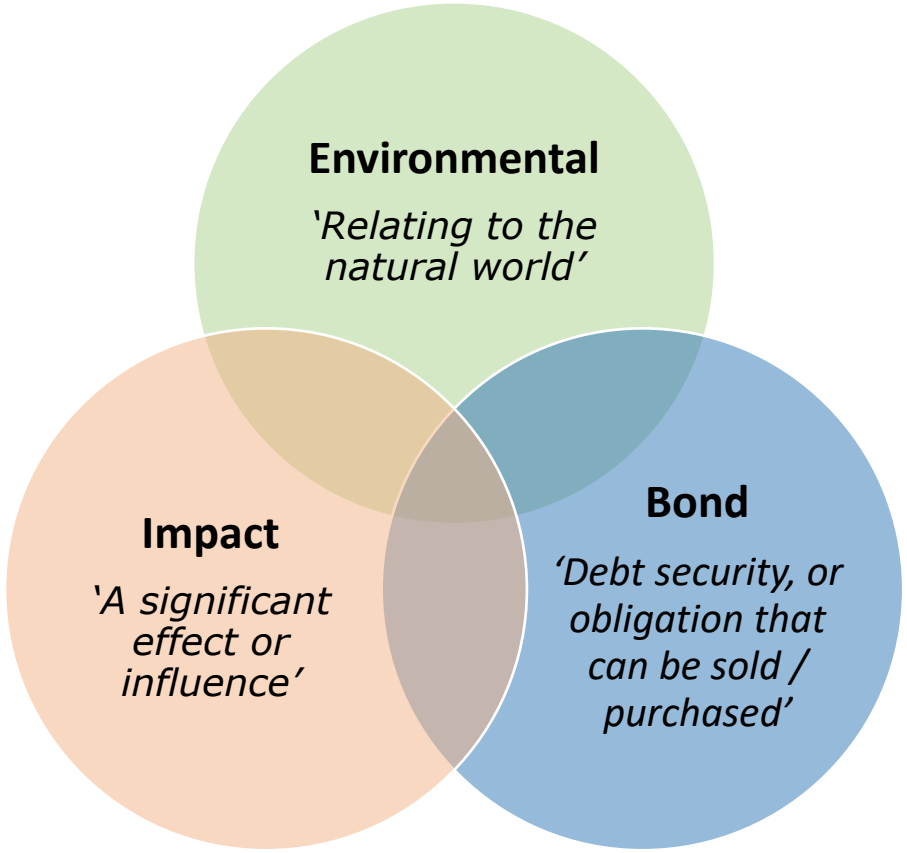
Tonkin + Taylor

Introduction

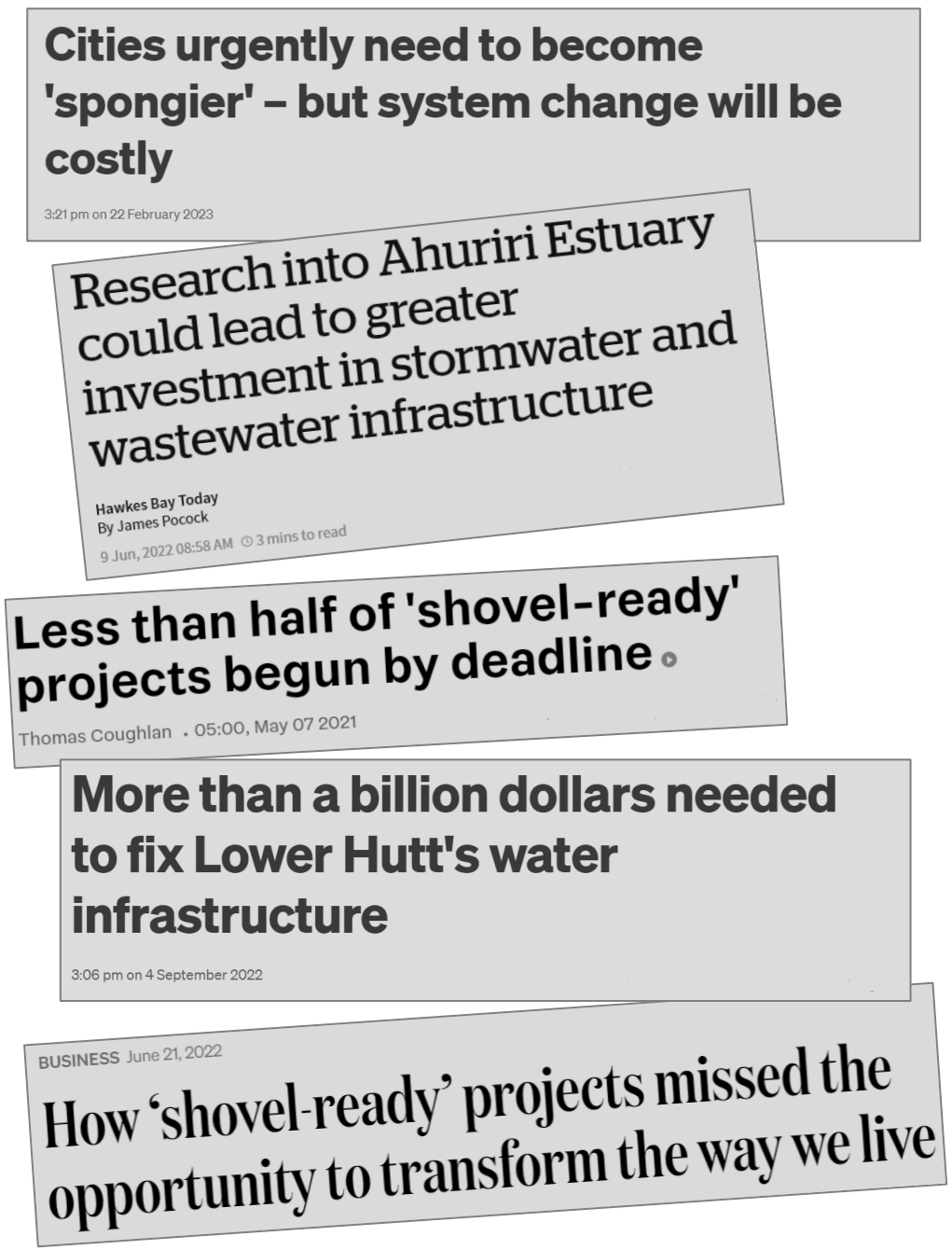
- What is an Environmental Impact Bond?
- Timing is everything…
- Why stormwater?
- A case study – DC Water
- A hypothetical NZ project
- Innovation vs the status quo…
- Risk & reward
- Closing thoughts

Buffalo, NY where a $54m USD bond was issued to finance catchment scale green infrastructure assets in June 2021. (Image credit: Buffalo Sewer Authority)

What is an Environmental Impact Bond (EIB)?



- A **pay-for-performance** financial instrument that is designed to deliver tangible outcomes with **reduced risk** of project failure.
- It is an outcomes-based contract between a **public entity** and the **private sector** where payment is based on measured **impact.**
- Can also be used for public / private consortiums
- In a nutshell, bonds enable short-term investment of **private sector** funds into historically **public** owned and managed infrastructure.
- Been around since 2012, none issued in NZ.
- Originate from more widely adopted 'Social Impact Bonds'



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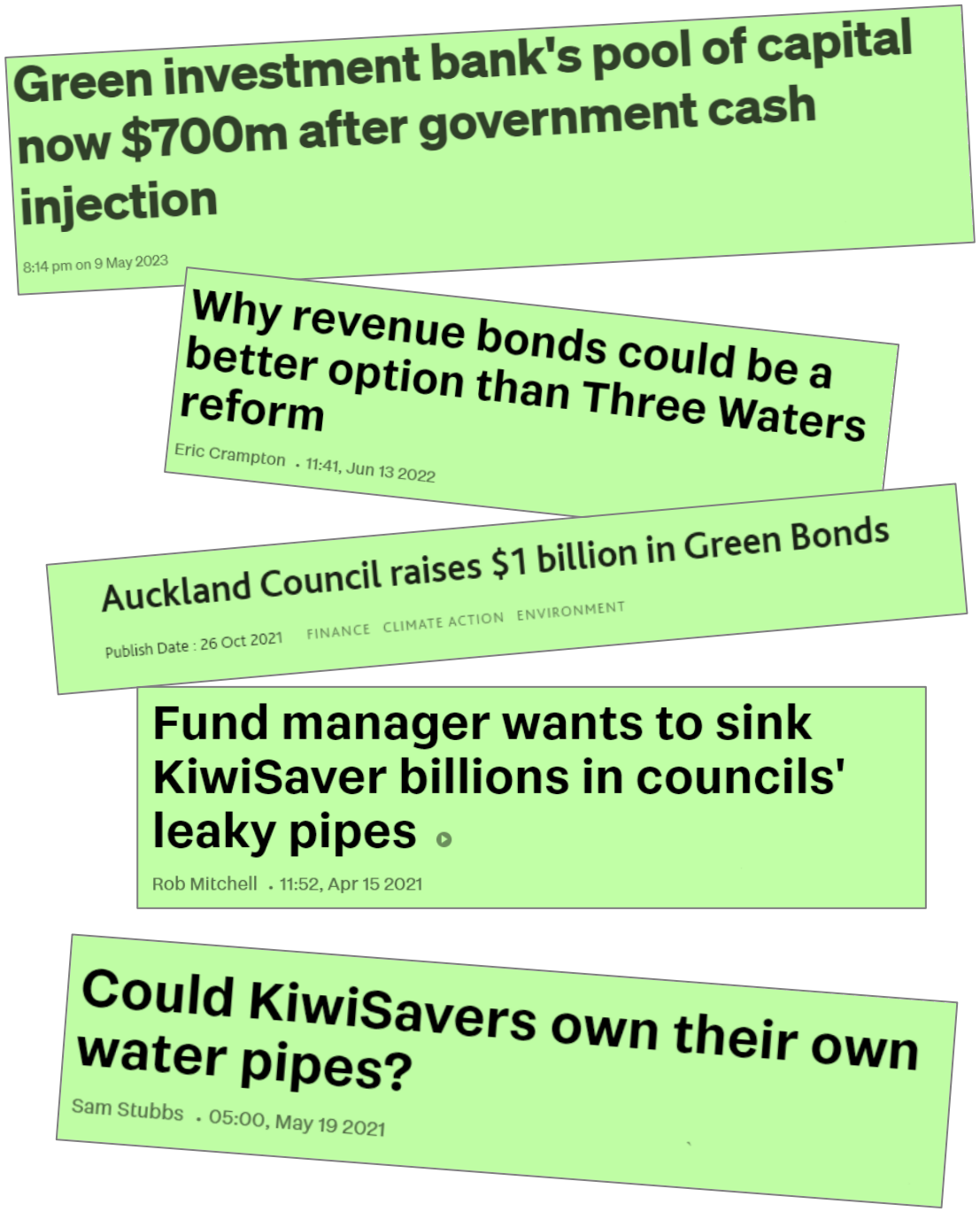
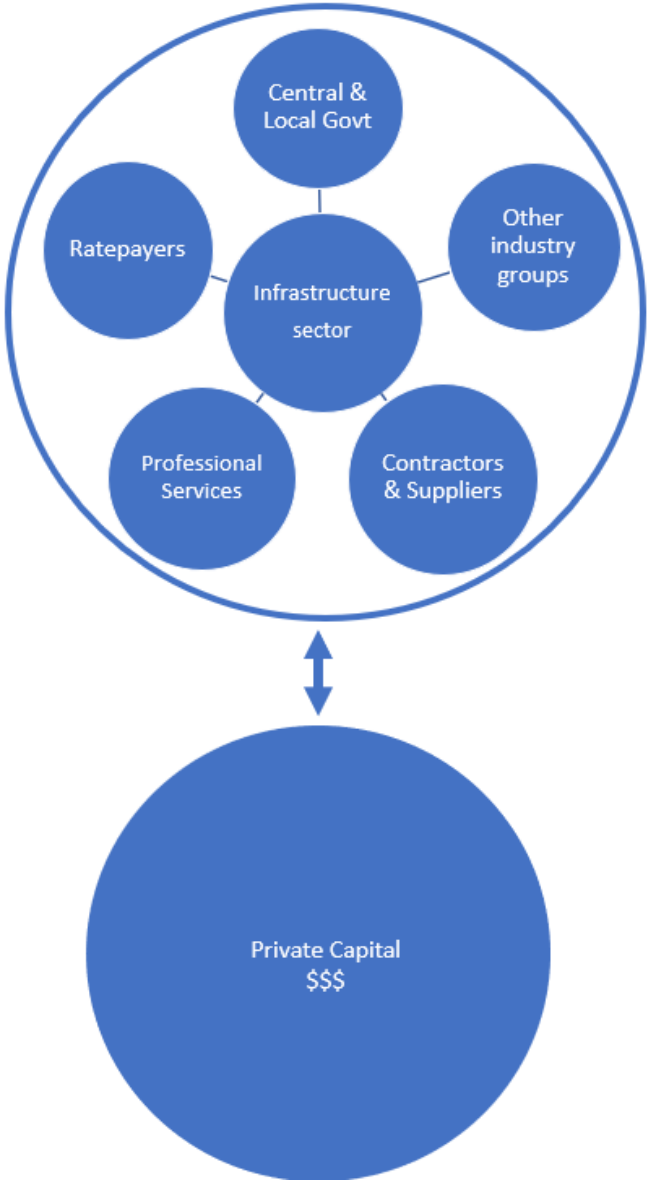


Private capital? Public infrastructure?

- There is tremendous international demand from the **private sector** to invest in **climate resilience, ecological restoration** and **infrastructure adaptation** projects to address the global environmental crisis.
- Simplicity is a Kiwisaver fund that manages almost 5 billion now ($400 billion by 2050).
- *"What I really like about the EIB model is that it takes the funding into the 'equity' side of the equation for an investor, which also allows Councils and Government to get it off their balance sheet and out of any debt covenant restraints."* ***Sam Stubbs – Simplicity Co-Founder/Managing Director, April 2023.***
- If impact is provided, and the environment benefits, does the public really care where the money comes from in the short term? And further, if an acceptable profit is made?



Why stormwater?

- Stormwater is the ideal candidate for EIB's because the **impacts transcends both water quality and quantity,** both of which can be modelled and measured.
- A reduction in flow, achieved by increased absorption or infiltration; or a reduction in contaminants, achieved by source control and/or treatment are both considered a beneficial outcome, or environmental impact.
- **Catchment-scale integration of WSUD is an obvious candidate for an EIB.**
- Easily replicable to other sectors where environmental impact can be measured.
- Can be coupled with other incentives, pervious rates credits, impervious tax etc.

What initiatives could EIB's finance?

- Riparian planting on highly erodible soils
- Day lighting streams
- Combined sewer overflow diversions
- Retrofit treatment devices at catchment scale
- Remove impervious surfaces
- Green roofs
- Increased street sweeping costs
- Dredging of receiving water bodies
- Naturalising rivers
- Above and below ground attenuation
- Groundwater recharge
- Wetland restoration and carbon sequestration
- **And all the associated social benefits toward improved standard of living!**

A disused railway viaduct in New York's High Line Park retrofitted into a biophilic city asset

A swale collects stormwater in Pittsburgh's Hill District COURTESY OF PITTSBURGH WATER AND SEWER AUTHORITY.

A case study - DC Water

- The first ever EIB for **$25m USD** was issued in 2016 by DC Water in Washington, US
- The bond was purchased by Goldman Sachs and the Calvert Foundation (George Hawkins).
- The purpose was to **reduce runoff and improve WQ** of Rock Creek due to combined sewer overflows.
- The proceeds were used to retrofit bioretention gardens, urban swales, kerb extensions, permeable pavements, and infiltration basins in parks across **200ha** of impervious urban land…
- Following 12months of baseline measuring, a **30% reduction on runoff** was modelled post installation.
- The performance risks and benefits of managing stormwater runoff were shared among DC Water and the investors.

'Green Infrastructure' for Clean Water Shows Its Worth in Washington, D.C.

OSCAR PERRY ABELLO SEPTEMBER 2, 2021

Rain gardens and other green infrastructure in D.C. have helped keep the city's rivers clean. (Photo by USEPA Environmental-Protection-Agency / US government work)

How did the project perform?

EIB Outcomes Range

Tier	Runoff Reduction	Payments
1	Greater than 41.3%	DC Water pays Outcome Payment of $3,300,319.00 to Purchasers
2	18.6% to 41.3%	No Outcome Payment or Risk Share Payment
3	Less than 18.6%	Purchasers pay Risk Share Payment of $3,300,319.00 to DC Water

- **Post-construction monitoring found that the green infrastructure reduced stormwater runoff by nearly 20% from previous levels.**
- Following the success of this project other cities are replicating the model elsewhere, including Louisiana to restore wetlands, Atlanta to enhance flood resilience, Baltimore to address water pollution, and Hampton VA to fund nature-based flood mitigation.
- Massive lessons learnt about the balance between grey and green infrastructure.
- **Is NZ innovative and courageous to do the same?**

Curb extension bioretention funded by the DC Water 2016 Environmental Impact Bond. (image credit: DC Water)

Park at Kansas Avenue & 2nd Street, NW funded by the DC Water 2016 Environmental Impact Bond. (image credit: DC Water)

A hypothetical NZ example

Step 1:
Define the issue and project scope.

Step 2:
Assess realistic performance targets.

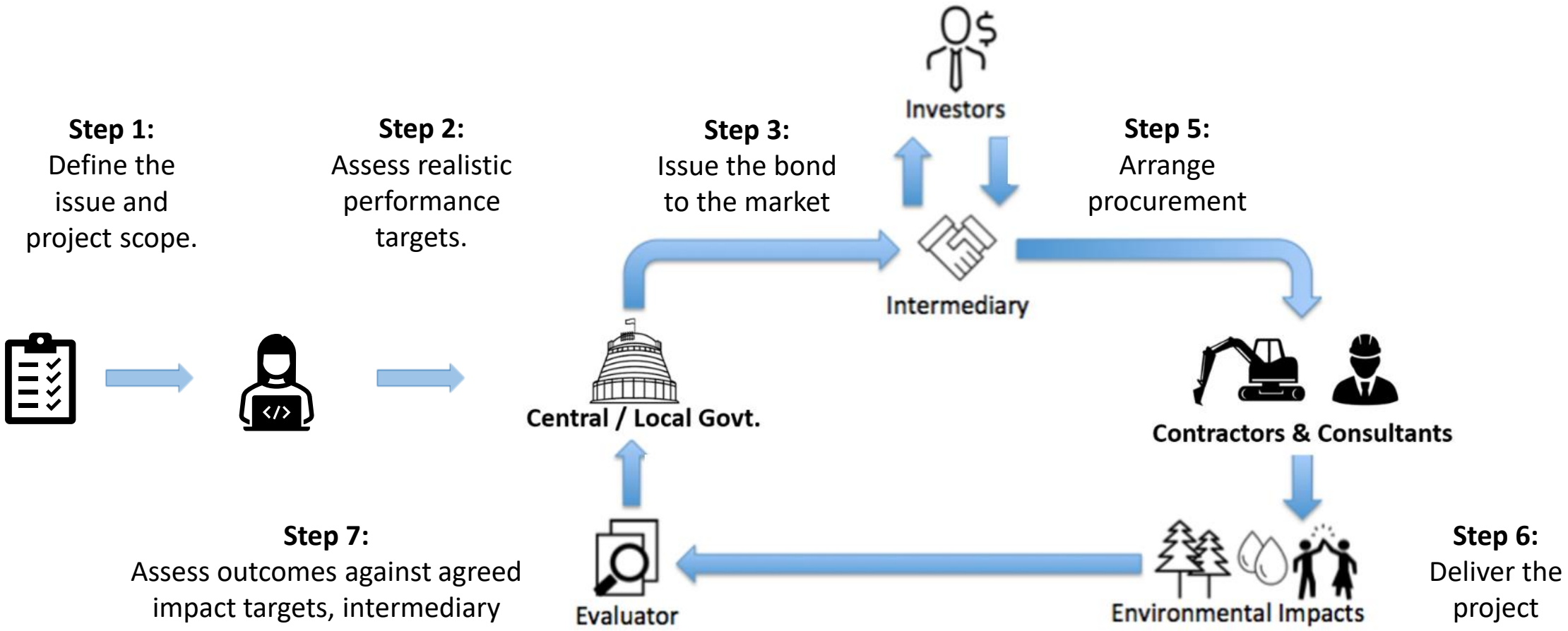
Step 3:
Issue the bond to the market

Step 4:
Invest capital

Step 5:
Arrange procurement

Step 6:
Deliver the project

Step 7:
Assess outcomes against agreed impact targets, intermediary pays back investors.



What about project risk?

Risk type	Owner	Description
Performance	Investor	The Risk Share Payment provides the bond issuer with funds to address performance deficiencies should project performance fall short.
Counterparty	Investor	Offsets against principal assure payment of the potential Risk Share Payment and eliminates risk that the bond issuer would otherwise have with respect to the Investors.
Construction	Investor	Cost overruns, ground conditions, delays, force majeure, environmental
Regulatory	Bond issuer	Any changes in laws, rules, regulations, policy or guidance
O&M, Lifecycle	Shared	If repayment depends on a continued performance of stormwater infrastructure, then the investor will insist on monitoring that promised maintenance is undertaken.

What's wrong with the status quo?

- We are **lacking the pace and scale** required to keep ahead of infrastructure depreciation, urban growth, legacy water quality decline, climate change…
- As an industry there is **too much reliance on Councils** to finance stormwater projects… They often delivered late, and over budget.
- Many NZ councils **cannot finance the short-term stormwater infrastructure** necessary to improve flooding resilience and urban water quality. They have also mostly **borrowed to their maximum prudent limits**.
- **Evidence**, not advocacy generates success.

What does the investor get in return?

- Establish/reinforce **green credentials** through “green projects’’
- Showcase expertise, **rigour** and high-quality management.
- More involvement in earlier **project selection**, using the skills of the private sector to assist in arranging finance.
- Earlier negotiation of project outcomes, (potentially of a greater magnitude than what was originally proposed).
- Of course, earn an acceptable **profit** if the project delivers.
- Promotes **innovation** by contracting for outcomes rather than outputs.

What does the bond issuer get in return?

- Achieve a **step-change** in SW improvements, wish lists ticked off.
- In general, the public sector does not pay for the infrastructure upfront. This enables Councils to **plan for repayment longer into the future**.
- **Balance sheet separation.**
- An **efficiently delivered project**.
- **Evaluation** is vigorously promoted throughout the design, delivery, commissioning, and **maintenance of the asset** with EIB's.
- Able to focus on **other things.**
- **Rate payers** won't contribute if project doesn't perform.
- Results **defined** in advance.
- **Reduces political risk** for public funders of outcomes.
- No change of ownership needs to take place.

Closing thoughts…

- *"Environmental Impact bonds have the potential to be catalytic in crowding in private investment to deliver essential infrastructure, with the pay for performance structure increasing the likelihood of desired environmental co-benefits. Outcomes based contracting require delivery of verified impact reporting data, that improves transparency on the projects broader impacts."*

Dean Spicer – ANZ Head of Sustainable Finance NZ

- The whole point of the environmental impact bond model is to prove this is the most **accountable way** to spend government resources, and once that's been proven it could be adopted as the new status quo.
- Can stormwater **pioneer** this concept and lead other sectors?
- Perhaps initiate a **pilot project** to demonstrate outcomes (we have the short term finance, we just need an innovative and courageous Council…)

References

The views shared in this presentation are my own, and made possible by the talent and dedicated research into green finance / impact investing by good friends Sam and David… Thank you for providing me with the inspiration and motivation to share your work.

- David Hall and Sam Lindsay (2017), Climate Finance Landscape for Aotearoa New Zealand: A Preliminary Survey, Report Prepared for the Ministry for the Environment, Auckland: Mōhio
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