Introduction

Critical infrastructure is highly interdependent, which means the ability to contain climate related disruptions to services and assure resilience is quite limited without a system-wide view. Often an infrastructure owner’s biggest climate change risks lay in its supply chain services, rather than in its own systems and services. For example, a water utility that relies on a functioning power network. Until recently there has been a lack of a suitable mechanism to identify cross dependent impacts and develop the business cases for co-investment in infrastructure resilience.

At the same time, there is currently a perfect storm for financing for climate change adaptation projects. Interest rates are at relative historical lows and there is a diversity of investment funds available for worthy projects. Evidence still supports that there is more money waiting for investment than there are projects to invest in (Climate Bonds Initiative, 2017).

There is, however, a great deal of investable projects that will generate reasonable returns but have proved difficult to unlock. This is creating an adaptation deficit where more action on the ground could be undertaken if the institutional and cultural barriers can be overcome. The projects are typically for assets held by municipal governments such as sea walls, transport and water networks.

Objectives

This session will outline a series of projects and initiatives that are delivering solutions to issue of unlocking finance for climate change adaptation projects.

Identify where there are investible projects in North America and how these can unlocked for adaptation financing.

Session 1: XDI Nanaimo – Cross Dependency In British Columbia

The presentation outlines an on the ground project that identified and quantified the extent to which interdependency analysis improves real world decision making for essential infrastructure in British Columbia, especially through identified collaborative adaptation options.

It demonstrated the business cases for co-investment in infrastructure resulting from the cascading failure where the failure of one infrastructure node (say a power transformer) causes failures in dependent nodes (e.g. telecommunications towers and water pumps). The system used in the project identified the probability and cost of failure each year for 100 years and establishes the business cases for investment to build resilience now and in to the future.
The focus of the project is the town of Nanaimo in British Columbia. It was sponsored by the government of British Columbia and included regional infrastructure providers, government departments and municipal governments. The project took a system wide view of infrastructure. Cross dependent analysis helped to build resilience in the face of growing risks from extreme weather and climate change. Using detailed data, analytics and mapping, the system provided computationally detailed insights into hazards, exposure and vulnerability. Hazards included heat, cold, fire, precipitation, coastal inundation and riverine flooding. The system was set up so that it can be continuously updated as assets are added or removed, and climate data changes.

The project approach is readily replicable and highly scalable. The same approach can be applied to a small number of assets in a local area, through to millions of assets across a region or country.

Session 2: Setting the adaptation standard in the global bond market

Bond market investors lack the analysis needed to understand if infrastructure is being built to cope with future extreme weather and physical risks from climate change. This presentation will outline the process for the development and deployment of the Risk Assurance Platform for proponents or verifiers of projects seeking to meet the resilience eligibility criteria for a Certified Climate Bond (Climate Bonds Initiative, CBI). The Platform provides capability for users to test one or many assets with respect to vulnerability and risk to extreme weather and climate change impacts over the projected life of the portfolio.

CBI has many standards, developed by panels of international experts, which provide certification that a financial bond is consistent with building a low carbon economy. Hitherto, the standards have been focussed on assuring the low emission credentials of the projects against which bonds are issued, which are verified by recognised assurance companies. However, CBI and its expert panels have identified the need to include adaptation into the CBI standard – not as a separate theme within the taxonomy – but integrated into the CBI Standard for each sector, thus ensuring that that Bond carrying the CBI Mark are both consistent with delivering a low carbon world, but also designed to cope with unavoidable (and worst cast) climate change: ‘Delivering sub 1.5 degree world, coping with 4 degrees world.’

The ability to require climate resilience testing of bond proposed projects requires (a) The definition of a suitable resilience performance /eligibility standard, (b) The ability for project proponents to test, refine and re-test their projects against an comprehensive range of local extreme weather and climate change hazards to compute risk metrics that respond to the CBI standard, and (c) provide project verifiers with the ability to independently test proposed projects for climate change resilience within the costs constraints of a verification.

Some of the major risks associated directly or indirectly with climate change include flooding, drought, heatwaves, permafrost melting, wildfires, coastal inundation with sea level rise, extreme wind storms (including hurricanes, cyclones).

As well as testing exposure to these hazards, the system tests vulnerability through proper inclusion of engineering and design information that enables a proponent to prove that their project has been designed to cope with the hazards to which it will be exposed –to a risk tolerance/ probability deemed acceptable by CBI experts.
Session 3: Changing face of the green bonds market

Green bonds are a fast-growing financial instrument, with annual issuances of less than a billion dollars a decade ago having grown to more than $170 billion last year. They’re increasingly popular as a way to fund environmentally friendly infrastructure, energy efficiency and clean energy. The objective of the Climate Bonds Initiative (CBI) is to promote investment in projects and assets necessary for a rapid transition to a low-carbon and climate resilient economy.

This presentation will outline the current state of the market, the opportunities for future investment and how institutions can unlock climate finance for their resilience projects.

Session 4: Additional Presentations and Workshop Elements

The session will welcome additional presentations that relate to this theme. Furthermore, the session can include a working group component where attendees discuss where investable projects are, and how these can be unlocked.