

Outcomes Report

Environment Analyst Leadership Network Roundtable: Building Resilient Infrastructure from the Outset

7 May 2026

Executive summary

Effective resilience requires moving beyond high-level planning to ensure outcomes are embedded from the very beginning of the project lifecycle.

While the infrastructure sector has become adept at identifying vulnerabilities and screening for risks, significant hurdles remain in translating these insights into design and implementation.

The roundtable brought together global leaders representing the water, transport, energy, government, insurance, consulting sectors and more.

The consensus was that resilience must be treated as an essential component of business continuity rather than an optional add-on.

Achieving this requires:

- clear accountability at the executive level;
- the use of adaptive pathways to manage long-term climate uncertainty; and
- a shift in procurement language to ensure resilience is not 'value-engineered' out of final project delivery.

Full report

Integration from the planning stage

There is a growing body of evidence showing that considering resilience in the design and procurement stages of infrastructure projects saves money; the World Bank estimates that every \$1 invested upfront saves \$4 in lifetime costs. Therefore, the question was posed: How do we build it in from the beginning?

The first part of the session focused on the timing of resilience interventions. Participants agreed that while the industry has improved at screening for risks, true integration remains a challenge.

Solutions: A representative noted that they use specialised training to ensure engineers and non-engineers share a common understanding of resiliency. This common platform approach helps in the long-term. As an example, after training was given, there was an increase in employees asking how to better embed resiliency in their areas

Investors consider resilience at different stages depending on the deal. They are increasingly leaning on consultants to assess this aspect, particularly for greenfield developments.

For sites like ports and other facilities, more thinking is needed.

An attendee said in their sector it has been an under-invested issue that is now back on the table, largely driven by rising insurance costs.

A participant shared that predicting pathways for the next 60 years is becoming harder due to the frequency of extreme weather.

Solutions: To tackle this, clients are moving towards "adaptive pathways", which allow decisions to be made incrementally based on the best available data, managing the biggest risks today while maintaining future flexibility

Participants argued that the most successful organisations treat resilience not as a "sustainability overlay", but as a core aspect of business continuity. This requires assigning executive-level accountability to ensure it is embedded across the entire C-suite and fortified within investment strategies.

A portfolio of case studies to show the cost of safety and resilience projects is something some attendees believed is lacking.

Clients are now also looking at a wider portfolio of risk. For example, many organisations that would previously only look at flood risk are now also assessing heat risk.

A common hurdle identified was moving from "prioritised vulnerable asset lists" in the planning stage, to actual implementation.

One participant cited a light rail project where the proposed solution, painting rails white to reflect heat, was challenged by operations and maintenance (O&M) inspectors who noted the paint could hide structural cracks.

Solutions: It is important to have all teams, especially O&M teams, at the table during design and talks on resilience

Internal and supply chain buy-in

Securing buy-in across the supply chain is essential to ensure resilience goals survive the transition from concept to construction.

Participants highlighted that while high-level strategy is often well-defined, the practical 'levers' of enforcement, contracts and technical requirements, are frequently the weakest links.

An attendee noted that contracts are the most critical tool for ensuring resilience, yet a lack of sophisticated understanding among leadership of technical 'jargon' can lead to poor enforcement.

A significant risk emerges towards the end of the construction phase, where high-value resilience elements may be value-engineered out under change order scenarios if they are not explicitly protected.

One participant highlighted that 'old school' procurement often relies on current or historical standards, which inevitably leads to under-designed infrastructure.

For smaller organisations without dedicated finance or resilience teams, there is a preference for multidisciplinary consultants that can bridge the gap between engineering requirements and financial risk.

A global firm observed a shift towards "performance-based outcomes" where accountability for resilience and sustainability is no longer carried solely by the owner.

Instead, these expectations trickle down to contractors, making them responsible for delivery outcomes.

Managing resilience across large-scale programmes, such as those involving over a dozen separate projects, requires defining programmatic benefits rather than just project-specific ones.

Solutions: A participant noted that in fast-paced environments, it is necessary to "accept some imperfect projects" while working to drive alignment and pulling out perfect examples as evidence for future work

A global consultancy emphasised that resilience should be viewed as keeping a design working in a volatile world, considering not just climate change, but also energy security, supply chain disruptions, and geopolitical instability.

Leaders from several organisations noted that pricing for a job is often not rooted in that language.

There is a pressing need to educate both the supplier base and less mature clients, whose procurement language does not yet match their stated environmental ambitions.

Solutions: Integrating resilience elements directly into owner requirements and technical expectations is a strong way to tie outcomes to formal approvals throughout the investment framework

Measuring and testing resilience

Finally, the roundtable examined the technical and financial frameworks required to quantify the value of resilience.

Participants highlighted that traditional costing models often fail to capture the long-term benefits of resilient design, leading to critical features being 'value-engineered' out of final projects.

An attendee pointed out that the length of a project's evaluation period remains a major barrier. Many projects are assessed over a 60-year horizon, yet the infrastructure often lasts much longer.

Because resilience involves a higher upfront cost for a long-term benefit, these restricted assessment boundaries make it difficult to justify the spend to top-level management.

Solutions: Experts emphasised the importance of integrating 'adaptation pathways' into the business case. This allows teams to identify what is necessary immediately while factoring in future changes. A phased approach helps with initial affordability by spreading costs over time, while maintaining a clear plan for long-term climate adjustments

For utility providers, resilience is increasingly measured by the removal of single points of failure.

The goal is to move from reactive repairs to proactive emergency preparedness, ensuring system-wide continuity even during extreme events.

An attendee noted that investors are now looking far beyond flood risk to a wider range of physical climate risks. Building a successful business case often relies on highlighting multiple benefits created by resilience.

Some firms are using insurance-developed tools to retrospectively evaluate projects and incorporate those findings into the design of future pipelines.

Demonstrating that a resilience project also provides social, environmental or operational efficiencies can often tip the balance in favour of investment.

Solutions: In Northern England, authorities are collaborating to share case studies of what does and doesn't work

An attendee highlighted that the technical infrastructure teams can sometimes be less integrated into the conversation than design teams.

To overcome high costs, firms are establishing specific criteria and technical benchmarks that must be met during design to ensure resilience is embedded.

Attendee List

First name	Last name	Job title	Company	Country
Sally	Vivian	Sustainability Advisory Growth Lead	AECOM	UK
Paul	Dowson	Practice Director Environmental Planning	Antea Group UK	UK
Emma	Maltby	Technical Director	Arcadis	UK
Roger	Sherrard	Account Director Water & Energy Sectors	Arcadis	UK
Shivani	Hill	Head of ESG	Arriva Rail London	UK
Sayeh	Amirshaghaghi	Chief Water Engineer	Chicago Department of Water Management	US
Robin	Onkka	Southern California Water Business Development Leader	GHD	US
Daniel	Vickers	Senior Project Manager	Heathrow	UK
Charles	Haine	Head of ESG & Safety	iCON Infrastructure	UK
Bruna	Paranhos	Global Solutions Director for Sustainability & Resilience	Jacobs	US
Cris	Liban	Sustainability Officer	LA Metro	US
Ruth	Voigt	Head of Environment & Sustainability	National Grid	UK
Matthew	Pearce	Head of Land	National Grid	UK
Isabel	Kaubisch	Manager, Siting and Permitting	National Grid	US
Steph	Hepworth	Project Manager	Nature North	UK
Hariom	Newport	Head of Environment & Sustainability	NISTA	UK
Jonathon	Booth	Head of Sustainability & Performance	Port of Middlesbrough	UK
Burke J	Brooks	Principal	Ramboll	US
Rachel	Jones	Head of Sustainability for Environment and Health	Ramboll	UK
Adam	Tindall-Schmidt	Sector Lead for Ports, Transportation, and Infrastructure	Ramboll	US
Jennifer	Boca	Chief Sustainability Officer	Rezolv Energy	UK
Hanne	Larsson	Technical Director in Sweco UKs Environment Department	Sweco	UK

Christine	Wissink	Technical Director, Climate Risk and Adaptation	WSP	UK
Lusine	Manucharyan	Senior Adviser Climate Change and Sustainability	ZCMC	Armenia

With support from:

- Jon Gibbard, Network Facilitator
- Amanda Rafferty, Community & Events Director
- Emily Ridge, Community & Events Manager
- Ross Griffiths, Managing Director

Useful resources

[Climate Change Adaptation Planning for Ports and Inland Waterways - PIANC](#)

Toolkit for building resilience into port planning and knowledge sharing with colleagues. The Annex also has 20 case studies.

Examples of adaptation pathways:

- [LA Metro - Flexible Adaptation Pathways](#) (see Target 2 on the use of flexible adaptation pathways)
- [British Standards Institution - Adaptation pathways for infrastructure](#)
- [Environment Agency - Adaptation Pathways Programme](#)
- [Adaptation Pathways National Climate Adaptation Strategy \(NAS'26\) - Het KIN](#)
- [A framework for climate change adaptation – 'pathways thinking' | Earth Sciences New Zealand | NIWA](#)