



The  
Aotearoa  
Circle

Mā te Kaitiakitanga  
ko te Tōnuitanga  
Prosperity Through  
Guardianship



NATURAL INFRASTRUCTURE PLAN

# Part 2: Investment Decision Toolkit

Providing the business case tools for nature-based solutions in infrastructure

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# Introduction

# Why investment in natural infrastructure matters

**By recognising natural infrastructure as the productive infrastructure that it actually is, we can strengthen our economy, reduce risk, create jobs, and build a future we can proudly say we helped shape.**

Aotearoa New Zealand's economy is intrinsically linked to the environment. With 70% of our exports reliant on natural resources, investing in resilience and natural capital is not a trade-off - it is a win-win.

That's why we believe our Natural Infrastructure Plan presents a 1 + 1 = 3 investment: it addresses today's challenges while building capacity for tomorrow.

It also points to the need for a shift in conversation beyond hard engineering solutions that may appear cheaper upfront, but often cost more over time in maintenance, repairs and lost co-benefits.

We understand why infrastructure matters. Roads move goods and services. Pipes deliver water and power. Bridges connect communities and enable commerce.

Natural infrastructure is less visible and therefore less valued. It exists in wetlands, native forests, dunes, rivers and floodplains. It quietly provides flood mitigation, water filtration, erosion control, carbon sequestration and temperature regulation without invoices, contracts or maintenance schedules.

Nature may be the most undervalued infrastructure asset we have. And because we undervalue it, we underinvest in it.

For too long, we have framed economic growth and environmental health as competing interests. This Plan demonstrates that we can - and must - achieve both. By doing so we can capitalise on the multiple benefits that investment in natural infrastructure offers - often with lower, long-term operating costs.

And as the New Zealand Infrastructure Commission Te Waihanga has identified, long-term strategy and planning are essential to guiding infrastructure investment and enhancing national resilience. This Plan adds a powerful tool to our infrastructure toolkit to support this.

## Practical Actions

The Natural Infrastructure Plan has been developed through a coalition of 200+ contributors with over 10,000 combined hours of research, debate and

collaboration. It reflects deep expertise and shared ambition.

What it is not is a list of aspirations. Instead, it provides practical actions from clear policy levers for government to significant opportunities for business, leadership and investment.

The plan also includes six case studies demonstrating the measurable benefits of incorporating nature-based solutions into infrastructure planning.

It encourages decision-makers to widen the lens through which infrastructure investments are assessed.

The Investment Decision Toolkit, for example, provides a structured way to evaluate natural infrastructure alongside traditional engineered solutions.

Public agencies, private companies and iwi can use these tools to compare options, assess long-term value and capture multiple co-benefits.

**When making decisions that will shape infrastructure for decades, the greatest risk is not choosing the wrong option. The greatest risk is failing to consider all available options.**

Natural infrastructure is not an environmental add-on. It is a credible, investable infrastructure asset.

By investing in natural infrastructure, we can reduce the risk in insurance, improve returns on investment, and know we will have enduring growth.

The question is no longer whether we can afford to invest in natural infrastructure.

It is whether we can afford not to.



*Vicki Watson*

Chief Executive  
The Aotearoa Circle

# About The Aotearoa Circle

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**The Aotearoa Circle, a unique leadership organisation, convenes public and private sector partners to tackle complex climate and nature challenges that threaten economic growth and future prosperity.**

We know that our economy is intrinsically linked to our natural capital, yet it has been declining for decades.

That's why we have a mission and a deadline. If nature loss is not halted and reversed by 2035, Aotearoa New Zealand will reach a tipping point with lasting consequences for our economy, communities and global standing.

Our work considers pressing climate change and nature challenges facing our key sectors - from agriculture, energy and seafood to transport, finance, and tourism. We do this by delivering practical, cross-sector solutions that reduce risk, strengthen resilience, and ultimately aim to restore natural capital.

The Circle is guided by Guardians (our Board) and strengthened by future voices through our Rangatahi Advisory Panel (RAP) who actively participate in major workstreams, including the development of this plan.

Formed in 2019, our co-founder Sir Rob Fenwick stated at the time that, "Time is running out for the treasures of nature that we love, and it is worth using every last breath, all of our collective energy, to save our land and secure our future."

Sir Rob's vision continues to inspire and guide us each day.








[www.theaotearoacircle.nz](http://www.theaotearoacircle.nz)



# What is natural infrastructure?



Artwork by Anna Tang

NATURAL INFRASTRUCTURE	SERVICES IT PROVIDES
<p><b>NATIVE FORESTS</b></p> 	<ul style="list-style-type: none"> <li>• Stabilises slopes and reduces erosion and landslides</li> <li>• Regulates water (slows runoff, sustains baseflows, improves quality)</li> <li>• Habitat for native species; supports cultural values and recreation</li> <li>• Stores carbon over long timeframes; provides local cooling and shade</li> </ul>
<p><b>RIVER &amp; RIPARIAN VEGETATION</b></p> 	<ul style="list-style-type: none"> <li>• Filters sediment, nutrients and some pathogens before they reach waterways</li> <li>• Shades streams, lowering temperatures for aquatic life</li> <li>• Stabilises banks and reduces erosion</li> <li>• Provides habitat corridors for native species and inanga spawning areas</li> </ul>
<p><b>WETLANDS</b></p> 	<ul style="list-style-type: none"> <li>• Temporarily store floodwaters and buffers stormwater</li> <li>• Retain water and supports drought resilience</li> <li>• Filter nutrients and contaminants, improving water quality</li> <li>• Sequester and stores carbon (notably peat systems)</li> <li>• Provide habitat and mahinga kai values</li> </ul>
<p><b>URBAN TREES &amp; GREENSPACES</b></p> 	<ul style="list-style-type: none"> <li>• Reduce urban heat and provide shade for people and places</li> <li>• Intercept rainfall and reduce stormwater runoff</li> <li>• Improve air quality and support urban biodiversity and wellbeing</li> </ul>
<p><b>SAND DUNES &amp; COASTAL VEGETATION</b></p> 	<ul style="list-style-type: none"> <li>• Trap and stabilise sand, reducing coastal erosion</li> <li>• Buffer storm surge and waves; enable natural shoreline adjustment</li> <li>• Provide habitat for coastal species and protect communities and assets inland</li> </ul>
<p><b>ESTUARY &amp; LIVING COASTAL HABITATS</b></p> 	<ul style="list-style-type: none"> <li>• Attenuate waves and help stabilise shorelines</li> <li>• Filter water, cycle nutrients and improve clarity</li> <li>• Store "blue carbon" in sediments and vegetation</li> <li>• Provide nursery habitat that supports fisheries and biodiversity</li> </ul>
<p><b>HEALTHY SOILS</b></p> 	<ul style="list-style-type: none"> <li>• Provide the foundation for food production by cycling nutrients, retaining moisture and supporting fertile land</li> <li>• Reduce erosion and sediment loss when healthy, protecting waterways and downstream ecosystems</li> <li>• Help buffer flooding by absorbing, storing and slowly releasing water across the landscape</li> <li>• Filter contaminants and improve water quality before water reaches rivers, estuaries and aquifers</li> <li>• Store carbon and support soil biodiversity that underpins ecosystem resilience</li> </ul>

# 1. About this document

## Purpose

This document supports the wider Natural Infrastructure Plan developed by The Aotearoa Circle in March 2026.

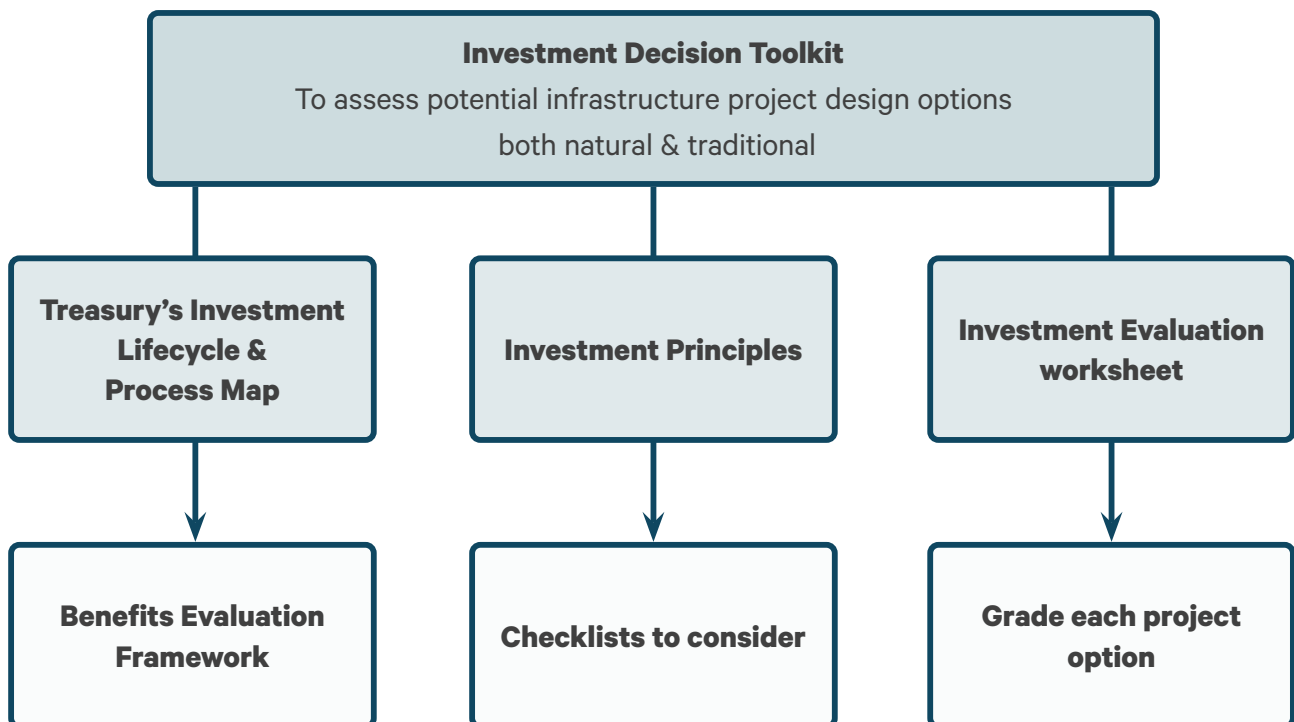
For full background, the ambition, key definitions, and the business case for natural infrastructure, we refer readers to the [Natural Infrastructure Plan](#).

There are three key aspects to the tools provided in this document:

- The Investment Decision Toolkit illustrates how to integrate nature-based solutions into investment management frameworks.
- The underlying Investment Principles provide a set of guiding principles that, when applied, provide credibility when designing nature-based solutions.

- These are supported by a practical Investment Evaluation Model for public and private sector actors to use to objectively assess the multiple benefits of an infrastructure investment over multiple time horizons.

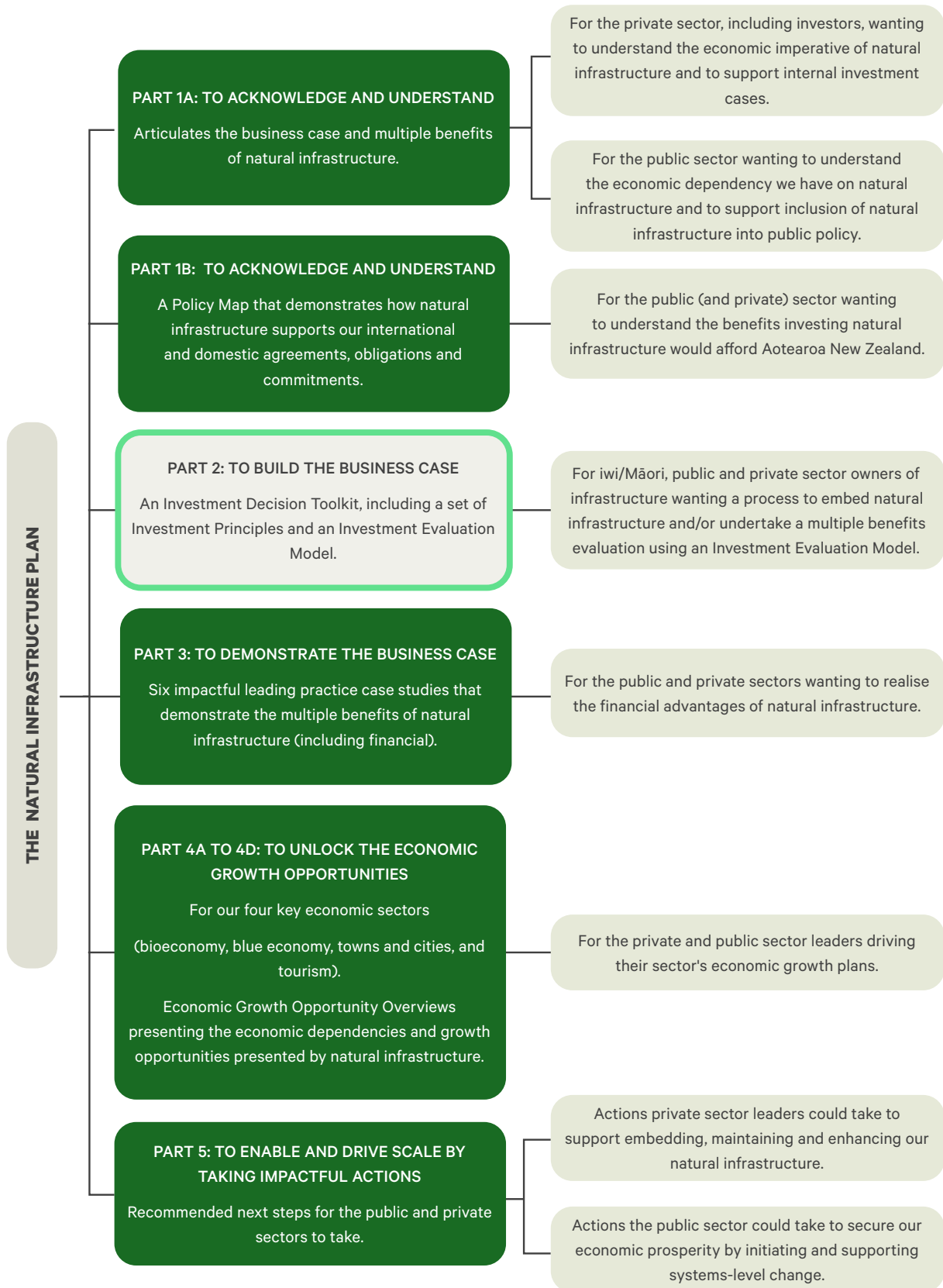
These tools do not provide technical guidance on how to design, implement or operate a nature-based solution to an infrastructure challenge. Nor do these tools provide commentary as to the effectiveness, efficiency and reliability of current government investment management frameworks upon which these tools have been developed.



# Structure of the Natural Infrastructure Plan

The Natural Infrastructure Plan comprises several sections framed against the five objectives. Each has a specific purpose and intended audience.

**Note: Parts 1B, 2, 3 and 4A-4D are available as [separate PDFs to download](#).**



# Next steps

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To embed, maintain and enhance our natural infrastructure and achieve the ambition of the Natural Infrastructure Plan, a greater use of nature-based solutions presents an opportunity for infrastructure investors. These tools support integrated decision-making.

Private companies and Iwi/Māori are encouraged to utilise the Investment Evaluation Model.

For readers wishing to see the business case for nature-based solutions demonstrated, we encourage readers to read the [six case studies](#) developed as part of the Natural Infrastructure Plan.





## Part 2:

Introducing the natural infrastructure  
Investment Decision Toolkit

## 2. Introducing the natural infrastructure Investment Decision Toolkit

This **Investment Decision Toolkit** provides an opportunity for public sector agencies and local councils (Users) to utilise a consistent framework that objectively considers nature-based solutions when making infrastructure investment decisions.

This Investment Decision Toolkit is supported by the following tools:

- A set of **Investment Principles** to support credible, fair, consistent, and effective multiple evaluation. This includes:
  - A checklist against each **Investment Principle**
- **Investment Evaluation Model.** The comprehensive criteria include:
  - A set of **suggested performance indicators** to aid in the multiple benefit evaluation of natural infrastructure
  - A **multiple benefits evaluation framework** (including financial, environmental, social, and cultural).
  - The Investment Evaluation Model includes the ability to assess benefits over the **immediate, short, medium, and long-term time horizons.**

Collectively, these tools give nature-based solutions a 'level playing field' when evaluating investment options. It allows Users to evaluate relevant key multiple benefits associated with the solutions, and conversely, the key negative externalities, so these can be factored into the decision-making process. This is important because longer term horizons are considered – and with this - the life of the asset, inclusive of design, construction, operation, maintenance and decommissioning costs – can be evaluated.

### Objectives

The primary objective of this Investment Decision Toolkit is to create more optionality for New Zealand and New Zealanders. These investment decision tools enable us to consider more options to be more effective, efficient, and resilient.

We are ideally not just looking at solutions for infrastructure that can do one thing. Infrastructure can provide multiple benefits, and therefore, when

we assess investment, let's also ask, 'what else can it achieve?'

The toolkit is specifically designed to include the multiple benefits evaluation of natural infrastructure investments over different time horizons.

The objectives of the toolkit are to:

- **Provide a defined structure:** it provides Users with a consistent and defined process, based on current Government infrastructure investment management systems, to evaluate the use of nature-based solutions in infrastructure projects
- **Improve decision-making:** the framework is supported by practical tools to qualitatively evaluate the multiple benefits of nature-based solutions
- **Enhance efficiency and value-for-money:** it enables Users to make comparative evaluations of investment options over immediate, short, medium and long-term time horizons.

### Users

This toolkit is designed for Aotearoa New Zealand public sector agencies and local councils responsible for infrastructure projects. It's designed to show how nature-based solutions easily integrate into Government infrastructure investment management frameworks.

Private companies and Iwi/Māori are also encouraged to utilise the Investment Evaluation Model to compare different infrastructure solutions.



## Part 3:

Integrating natural infrastructure into  
the investment life cycle

# 3. Integrating natural infrastructure into the investment life cycle

Treasury’s investment life cycle was used as the basis for the Investment Decision Toolkit.

This life cycle outlines four distinct phases to achieve broad outcomes: intentions, planning, delivery and benefits realisation. This is illustrated aptly below.

For more information refer to Treasury’s investment lifecycle and process map<sup>1</sup> and DPMC’s 2023 Investment Management and Asset Performance Circular<sup>2</sup>.

**Figure 1** outlines how natural infrastructure investment can integrate into the existing government investment life cycle.



**Figure 1: Integrating natural infrastructure investment into the infrastructure investment life cycle**

<p><b>1. Investment intentions</b> Strategic alignment and asset management planning</p>	<p><b>1a)</b> The <b>objective</b> is to confirm the problem and <b>1b)</b> find potential solutions that are relevant to the existing challenge(s) and opportunities. <b>1c)</b> The <b>output</b> is a well-defined problem with a long-list of potential solutions</p>
<p><b>2. Investment planning</b> Outline rationale for investment, consider options, determine the preferred option, secure funding, and finalise the delivery plan</p>	<p><b>2a)</b> The <b>objective</b> to is collect information, and evaluate, the overall benefits and trade-offs from the long list of potential solutions. <b>2b)</b> The <b>output</b> is to arrive at a feasible, investable, and deliverable preferred solution.</p>
<p><b>3. Investment delivery</b> Deliver and manage the investment</p>	<p><b>3a)</b> The <b>objective</b> is to deliver and manage the investment. <b>3b)</b> The <b>output</b> is a costed and funded design solution for natural infrastructure, which includes estimates of the value benefits and outcomes.</p>
<p><b>4. Investment realisation</b> Monitor and report on the performance, benefits and outcomes</p>	<p><b>4a)</b> The <b>objective</b> is to measure, monitor, report, and verify (MRV) the benefits and outcomes from implementing the preferred solution. <b>4b)</b> The <b>output</b> is measurable positive financial, environmental, social and/or cultural benefits and outcomes owing to implementation of natural infrastructure.</p>

1 <https://www.treasury.govt.nz/information-and-services/public-sector-leadership/investment-management-system>

2 <https://www.dPMC.govt.nz/sites/default/files/2023-09/co-23-09-investment-management-asset-performance.pdf>

# Step 1: Investment intentions

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**Step 1: The objective is to confirm the problem and find potential nature-based solutions relevant to the existing challenge(s) and opportunities.**

The purpose of step one is to fully understand and define the causes and effects of problems or opportunities that could be addressed with investment, the outcomes and benefits that would accrue if these were addressed, and to identify a broad range of potential responses.

Key elements focus on defining the problem and deciding on potential suitable solution(s):

## **Step 1a: Define the need**

- Identify the business or societal need (e.g. national risk<sup>3</sup>) natural infrastructure can address (refer to Figure 2)
- Confirm how the project aligns with a relevant strategic plan / objective
- Seek advice and guidance from the local community and iwi/Māori.

For more information on national risks and Aotearoa New Zealand's risk and resilience framework refer to DPMC<sup>4</sup>.

## **Examples of needs include:**

- **Manage and reduce CAPEX and/or OPEX**, improving business performance by limiting expenditure on maintenance, raw materials, regulatory compliance, etc. For example, using engineered wetlands to decrease cost of water treatment and maintaining infrastructure
- **Improve resilience and reduce business risk**, protecting companies from negative impacts such as stopped operations, damaged assets and disrupted supply chains. For example, changing agricultural practices to use less water, increasing resilience of supply in water- stressed areas
- **Reduce a company's vulnerability** to the impacts of climate change. For example, through the protection of coastal ecosystems, to mitigate the risk of flooding in regions susceptible to rising sea levels.

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3 <https://www.dPMC.govt.nz/our-programmes/risk-and-resilience/national-risk-and-resilience-framework/new-zealands-national-risks>

4 <https://www.dPMC.govt.nz/our-programmes/risk-and-resilience/national-risk-and-resilience-framework/new-zealands-national-risks>

**Figure 2: Opportunities Table – The multiple benefits that natural infrastructure solutions could provide**

Benefit Domain	FINANCIAL	RISK & RESILIENCE		ENVIRONMENTAL			SOCIAL	CULTURAL
Benefit Typology	Financial opportunities through reduced costs and improved asset values	Disruptions to a systemically important supply chain (major trade, food security or mahinga kai)	Disruptions to, or failure of, critical infrastructure	Biodiversity loss and ecosystem collapse (incl pest or disease incursion)	“Severe weather events (e.g. flooding & wildfire) “	“Natural resource shortages (e.g. caused by drought)”	Changes in social and recreational amenity	Changes in cultural amenity
<b>Natural Infrastructure Benefits - Nature's Contributions to People (NCP)</b>	Avoided/reduced CAPEX	Improved/reduced service disruption (“loss of function”)	Improved/ maintained availability of insurance	Increased/ maintained abundance and diversity of native species	Reduced emissions/ Improved emissions mitigation; increased nature-based carbon storage permanence & sequestration	Improved/ maintained groundwater and/ or surface water quality and/ or quantity and/ or recharge and storage	Improved access and recreational use of the natural environment	Expanded/ maintained cultural/ spiritual settings & learning/inspiration opportunities. Supporting identities.
	Avoided/reduced OPEX	Improved/ maintained primary sector productivity/ outputs	Improved/ maintained insurance premiums	Improved/ maintained presence of endangered/ threatened species	Reduced/avoided surface runoff and associated erosion/ slips (incl climate adaptation)	Improved/ maintained marine water quality or marine flow regime	Improved/ maintained livelihood opportunities	Increased/ maintained cultural property/land value
	Avoided/reduced consenting and/ or compliance costs	Increased/ maintained food security	Improved/ maintained asset protection and resilience (incl climate change resilience)	Improved/ maintained habitat (incl aquatic) protection/ restoration	Improved/ maintained surface water flows and/ or flood protection and/ or stability - inland or coastal (incl climate adaptation)	Improved/ maintained Material NCP (e.g. Energy, food, materials, medicinal, biochemical & genetic resources)	Improved/ maintained tourism opportunities	Expanded/ maintained mahinga kai
	Increased/ maintained property/land value	Improved resilience of operations and supply chains		Improved/ maintained Regulating NCP (e.g. pollination, seed dispersal, air-soil-water quality, water flows, natural pest control etc)		Improved/ maintained biomass	Improved/ maintained community engagement and wellbeing (including physical and psychological experiences)	
	Improved/ maintained asset design life	Reduced loss of useable land due to improved resilience or integrity		Improved/reduced use of High-Impact Commodities				
	Improved/new revenue streams/ investment due to the provision of Ecosystem Services to benefiting parties			Improved/ maintained terrestrial habitat extent				
	New and improved products, services and/ or brand value			Improved/ maintained aquatic habitat condition				
	Improved/ maintained Return on Investment							

## Step 1b: Identify the nature-based solution(s) that would be most suitable

This could include:

- Freshwater or wetland solutions
- Urban solutions
- Terrestrial solutions
- Coastal and marine solutions.

### Natural infrastructure vs traditional infrastructure

One purpose of traditional infrastructure investments has been to mitigate the adverse impacts from nature on the built infrastructure (e.g. concrete seawalls).

**Investing in natural infrastructure (using a nature-based solution) does not compete with traditional infrastructure.** Instead, it enhances, complements, and in some cases substitutes for traditional infrastructure by delivering long lived, resilient, and environmentally positive outcomes. Specifically, natural infrastructure investments include solutions that either integrate nature-positive practices into infrastructure or deliver substantive and positive outcomes.

**Natural infrastructure captures a broad range of transformative solutions that contribute to the achievement of natural positive goals.** Natural infrastructure delivers benefits to nature and the economy by managing the risks to nature commonly associated with infrastructure development<sup>5</sup>. These include:

- Significant adverse environmental risks and impacts that would exacerbate the drivers of nature loss
- Risks of conversion of natural habitats or critical habitat is not accounted for
- Adverse impacts on critically endangered or threatened species are not considered.

Infrastructure providers in Aotearoa New Zealand are increasingly using natural infrastructure approaches for managing natural hazards, safeguarding communities, and growing economic prosperity.

**Table 1** provides examples of natural infrastructure approaches used in Aotearoa New Zealand to address natural hazards.

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<sup>5</sup> World Bank Nature Finance Common Principles. November 2025. <https://thedocs.worldbank.org/en/doc/4628591725d5cb7d5bc-5c50104efd5bb-0320012025/original/MDB-Common-Principles-FINAL.pdf>

**Table 1 provides examples of natural infrastructure approaches used in Aotearoa New Zealand to address natural hazards.**

HAZARD	SOLUTIONS WHICH MITIGATE IMPACT TO OUR NATURAL INFRASTRUCTURE	SOLUTIONS WHICH EMBED NATURAL INFRASTRUCTURE	SOLUTIONS WHICH EMBED, MAINTAIN AND ENHANCE NATURAL INFRASTRUCTURE
Coastal Flooding	Seawalls and coastal defenses	Beach nourishment	Dune protection and restoration
Fluvial Flooding	Dams and levees	Bioswales and constructed wetlands	Wetland restoration and protection
Pluvial flooding	Storm drains and concrete channels	Riparian buffer planting	River and floodplain rehabilitation
Land instability	Retaining walls and terracing	Landcover management	Afforestation and reforestation
Coastal erosion	Groynes and breakwaters	Mangrove buffer planting	Living shorelines

To find potential nature-based solutions, a helpful resource is the **World Business Council for Sustainable Development Nature-Based Solutions Map**<sup>6</sup>.

**Step 1c: The output is a well-defined problem with a long list of potential solutions.**

**As with traditional infrastructure investment, key success factors include a:**

- Clearly defined problem or opportunity
- Good understanding of the magnitude of the problem or opportunity
- Meaningful alignment to key strategic priorities<sup>7</sup>.

<sup>6</sup> <https://www.wbcsd.org/resources/nature-based-solutions-map/>

<sup>7</sup> <https://media.umbraco.io/te-waihanga-30-year-strategy/r3deapot/ipp-application-readiness-tool.pdf>

## Step 2: Investment planning

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**Step 2a: The objective is to collect information, and evaluate, the overall benefits and trade-offs from the long list of potential solutions.**

The purpose of this phase is to make investment choices that create the best value<sup>8</sup> from the investment.

This phase involves further developing the business case so the investment proposals, including assessing and prioritising investments according to the overall value of the proposal and alignment with strategic objectives can be undertaken.

To develop and select a technically and financially feasible design solution, key tasks include:

- **Evidenced-based decision making** - use science and Mātauranga Māori knowledge to confirm a preferred solution
- **Planning and governance considerations** – confirm planning considerations (such as consents, fast track approvals). Establish other enabling conditions, including governance arrangements. Other considerations include legislative requirements, technology, and in-house capacity and capability
- **Financial sustainability** - ensure projects deliver measurable financial, social, environmental and cultural value. Identify, collect and assess the multiple benefits using a range of qualitative and quantitative indicators
- **Evaluation options** - Users should evaluate potential solutions (benefits and trade-offs) using the Investment Evaluation Model. Evaluate potential solutions over the immediate, short, medium, and long-term time horizons.

Users should screen potential solutions using the **Investment Principles** (refer to **Section 4**) and the **Investment Evaluation Model**.

**Step 2b: The output is to arrive at a feasible, investable, and deliverable preferred solution.**

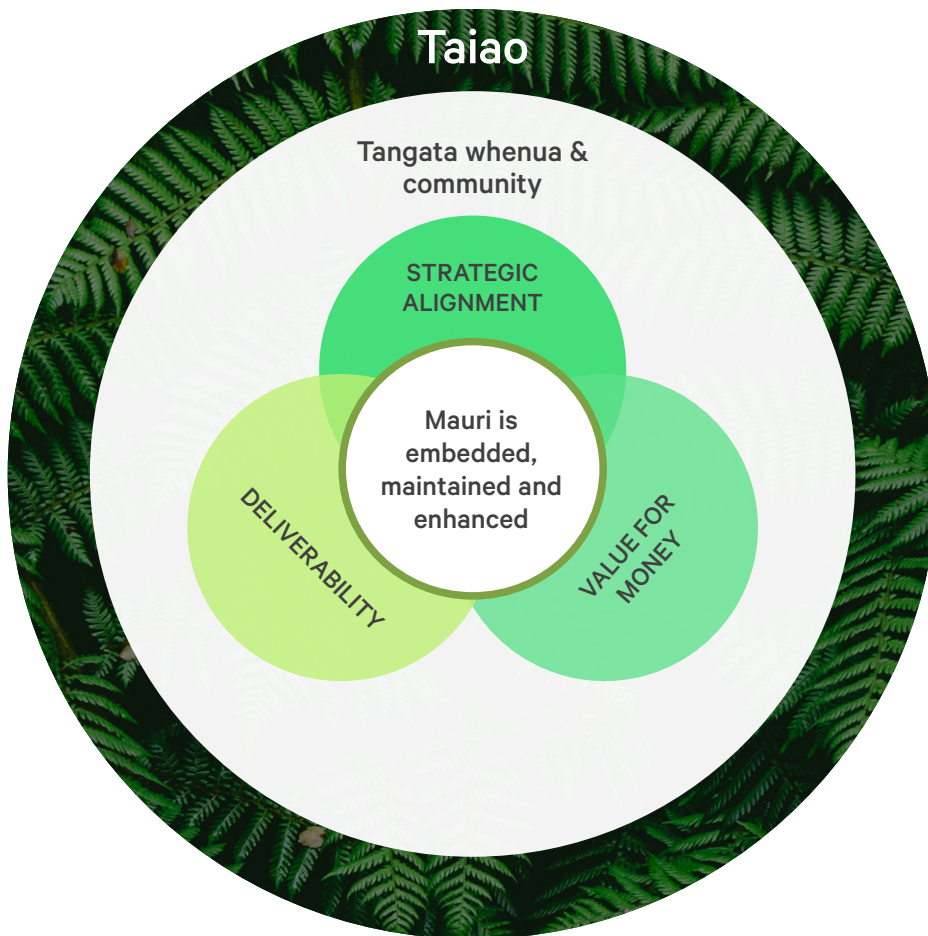
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<sup>8</sup> Value means the net fiscal, economic and wellbeing benefits of an asset or investment proposal over its life cycle.

**Figure 3: Investment Principles to support credible natural infrastructure investment**

- **Principle 1:** Taiao - credible ambition and outcomes through valuing the natural world
- **Principle 2:** People - there are opportunities for tangata whenua and community co-creation
- **Principle 3:** Strategic alignment - there is alignment with the infrastructure priorities New Zealanders need
- **Principle 4:** Value for money - there are direct and indirect benefits and outcomes from the investment
- **Principle 5:** Deliverability - the solution achieves positive intergenerational multiple outcomes.

Section 4 provides more detail on these principles as well as key points to consider when applying these principles. To see evidence of these investment principles in action, refer [to the six case studies](#) developed as part of the Natural Infrastructure Plan.



## Step 3: Investment delivery

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### **Step 3a: The objective is to fund, deliver and manage the investment.**

Investment delivery is critical to the success of any infrastructure project – including those using a nature-based solution.

This phase involves implementing the solution while focusing continuously on delivering the required outcomes and benefits.

Success requires scientific, traditional and local knowledge regarding ecosystems and the application of appropriate interventions to protect, manage and restore them. Equally important, natural infrastructure projects require business, planning and execution expertise to ensure projects are viable and investible, and solutions can be scaled efficiently.

Implementation success is dependent on the project implementers and partners, especially local communities. The skills and experience of project developers are also important and have a key role in ‘orchestrating’ and coordinating with the right stakeholders to be involved.

Having the relevant skills and an enabling environment are pivotal to allowing local communities, iwi/Māori, and organisations to support a project. For example, these groups may be keen to undertake additional restoration and conservation activities. However, it is important to assess the capacity and capability of these local groups at the outset<sup>9</sup>.

### **Step 3b: The output is a costed and funded design solution for natural infrastructure, which includes estimates of the value benefits and outcomes.**

#### **Key success factors include:**

- Confirmation that a feasible and preferred option has been selected
- Completed cost estimates and a multifactor benefits evaluation
- Governance structures have been put in place
- A procurement plan has been developed<sup>10</sup>.

For more information refer to the Infrastructure Commission’s Infrastructure priorities assessment framework<sup>11</sup>.

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<sup>9</sup> <https://envirostrat.co.nz/wp-content/uploads/2022/11/NBS-Report-Final-Version-November-15-2022-compressed.pdf>

<sup>10</sup> <https://media.umbraco.io/te-waihanganga-30-year-strategy/r3deapot/ipp-application-readiness-tool.pdf>

<sup>11</sup> <https://media.umbraco.io/te-waihanganga-30-year-strategy/4qljq5zt/ipp-infrastructure-priorities-assessment-framework-v2.pdf>

# Step 4: Investment realisation

**Step 4a: The objective is to measure, monitor, report, and verify (MRV) the benefits and outcomes from implementing the preferred solution.**

This phase involves reviewing the performance of investments against expectations and reviewing benefits, the performance of assets, and the investment portfolio, in relation to current and emerging needs.

Just as for traditional infrastructure, having a clear baseline is imperative for nature-based solutions. Suggested environmental, social and cultural indicators are provided in the Investment Evaluation Model.

Having clear performance measures to measure, monitor and manage the impact of natural infrastructure investment will ensure Users can manage and articulate the benefits and outcomes to compare with traditional infrastructure options.

## (i) Measuring and monitoring

The outcomes from the investment in natural infrastructure must be regularly measured and monitored. Users will need to identify the key metrics to measure the multiple benefits and outcomes which can measure the realisation of key outcomes (refer to the Investment Evaluation Model).

These metrics should measure the multiple benefits and outcomes that the User and other beneficiaries have achieved from the use of natural infrastructure. Users should measure multiple benefits (including financial, environmental, social and/or cultural) using quantitative indicators where possible and use qualitative indicators where necessary and/or appropriate. Metrics selected should align with international standards such as the IFC<sup>12</sup> or ICMA<sup>13</sup> principles and/or those within Treasury's Cost Benefit Analysis tool<sup>14</sup>.

There is a need for long-term monitoring and adaptive management. Tracking outcomes should be used to adjust practices to ensure resilience and investment performance.

## (ii) Reporting

Timely and regular reporting on outcomes is an important aspect of natural infrastructure investment. It's a valuable tool for driving real change, whilst ensuring accountability and transparency. Reporting must include information on the outcomes achieved. Ideally, reporting should be undertaken against the metrics used to evaluate the natural infrastructure solution.

## (iii) Verification

It is best practice to complete an independent verification or audit for a nature-based solution, although this is not currently the practice in Aotearoa New Zealand.

Verification systems for natural infrastructure are available globally. Verra's Verified Carbon Standard (VCS) and Climate, Community and Biodiversity Standard (CCB), the Gold Standard for the Global Goals, and Plan Vivo are some of the most well-known certifications for the voluntary market. There is a lack of verification or certification standards for natural infrastructure projects specific to coastal and marine ecosystems such as mangroves, coral reefs or seagrass beds, especially in relation to biodiversity outcomes. However, there is emerging development in 'blue carbon' standards and methodologies associated with interventions across marine ecosystems (e.g. seagrasses and seaweed)<sup>15</sup>

For more information refer to Chapter 2.3 of EnviroStrat's Guide to Nature-Based Solutions (2022)<sup>16</sup>

**Step 4b: The output is measurable positive financial, environmental, social and/or cultural benefits and outcomes owing to implementation of natural infrastructure.**

12 <https://www.ifc.org/en/insights-reports/2025/guidelines-for-blue-finance>

13 <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/>

14 <https://www.treasury.govt.nz/information-and-services/public-sector-leadership/investment-management/investment-planning/treasury-s-cbax-tool>

15 <https://envirostrat.co.nz/wp-content/uploads/2022/11/NBS-Report-Final-Version-November-15-2022-compressed.pdf>

16 <https://envirostrat.co.nz/wp-content/uploads/2022/11/NBS-Report-Final-Version-November-15-2022-compressed.pdf>



## Part 4:

Investment principles supporting  
natural infrastructure investment

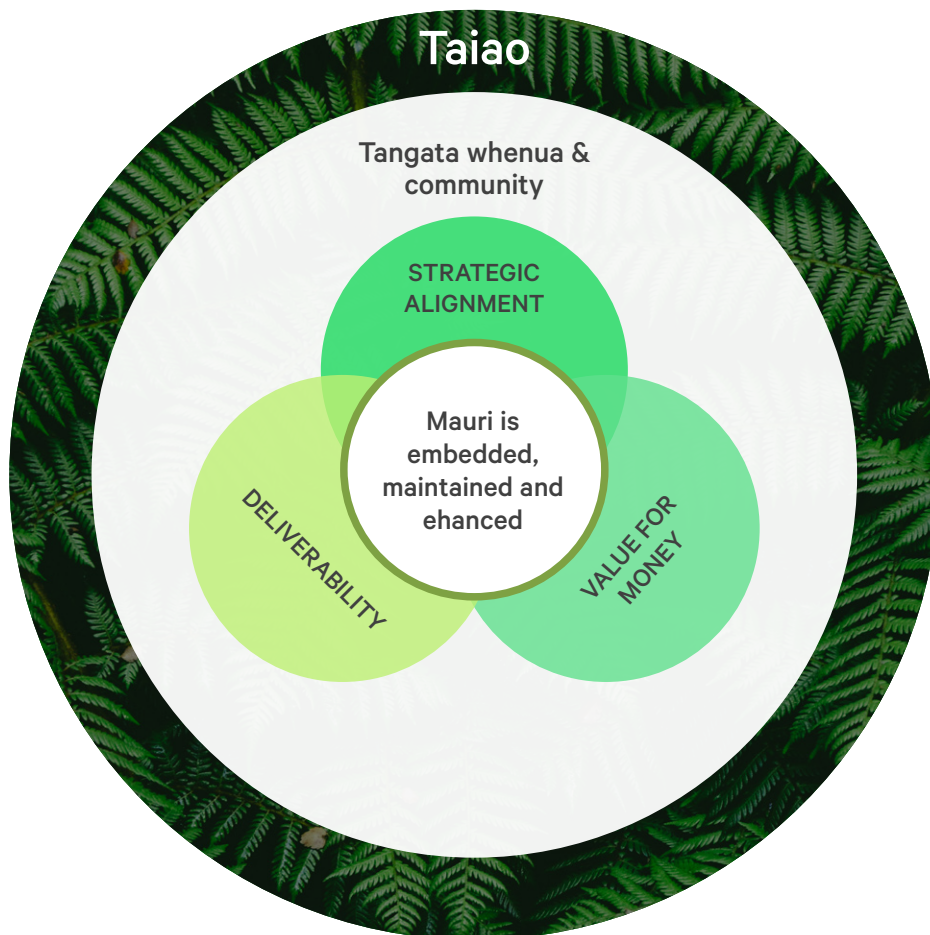
# 4. Investment principles supporting natural infrastructure investment

## What makes a good natural infrastructure project?

The guiding principles, already mentioned in Section 3, step 2b, outline what must be true for natural infrastructure solutions to be credible. These are principles, not prescriptive requirements.

The key **Checklist** under each principle are provided as a guide to Users if their ambition is to improve both nature and people outcomes. Not all checklist points will be relevant for all projects/investments and not all checklist items are therefore 'compulsory'. They are provided as helpful guidance.

For readers wishing to see the business case for nature-based solutions demonstrated, we encourage readers to read the [six case studies](#) developed as part of the Natural Infrastructure Plan.



# Principle 1: Taiao - credible ambition and outcomes through valuing the natural world

## Key elements:

- The solution starts by acknowledging the intrinsic value of the natural world.
- The solution must demonstrate measurable additional<sup>17</sup> net positive outcomes to the health of the natural system which goes beyond compliance with applicable laws and regulations (including consent requirements)<sup>18</sup>.
- The solution design should follow the Mitigation Hierarchy<sup>19</sup> and deliver a measurable net increase to the condition and or extent of natural or modified ecosystems (terrestrial or aquatic).
- There must be no material conflicts with other environmental or social objectives, threatened<sup>20</sup> biodiversity, or ecosystem services beneficiaries from the solution.
- The solution must not introduce risks associated with the conversion of natural habitat or critical habitat.
- The design and implementation of the solution is informed by science, and mātauranga Māori<sup>21</sup>.

## Checklist:

- Does the project acknowledge the intrinsic value of the natural world?
- Is the project expected to deliver net positive measurable outcomes to the state of nature?
- Is there a measurable environmental baseline and monitoring plan in place to monitor achievement of outcomes?
- Are natural capital impacts and outcomes measured using standardized metrics aligned with the GRI<sup>22</sup>, ICMA Principles<sup>23</sup>, TNFD<sup>24</sup> or the Nature Measurement Protocol?<sup>25</sup>
- Does the solution restore or protect coastal, marine, or watershed ecosystem health?
- Is there a good understanding of the type and magnitude of the environmental and societal benefits the project seeks to provide (above legislative or consenting compliance)?
- Has the design of the selected solution been informed by science and practice?
- Has the design of the selected solution been informed by mātauranga Māori<sup>26</sup>?
- Does the solution involve the conversion of natural habitat or critical habitat?
- Does the investment deliver upon the Blue Economy Principles for Aotearoa New Zealand?<sup>27</sup>

17 To what would have occurred in the absence of the project over and above any offsetting credits claimed. The solution must not be solely for the purposes of a biodiversity or carbon offset. The solutions role in compensating for emissions should be strictly limited to addressing only residual emissions that cannot be reduced through direct emission cuts and decarbonization

18 This means it will deliver a measurable and net positive contribution to protect, restore, conserve and/or sustainably use our natural or modified ecosystems, marine and/or freshwater resources that goes beyond compliance with applicable laws and regulations. Solutions that maintain or replace existing assets without demonstrable and measurable improvements in environmental and/or social outcomes do not meet these principles.

19 [https://www.icmm.com/website/publications/pdfs/environmental-stewardship/2015/guidance\\_mitigation-hierarchy.pdf](https://www.icmm.com/website/publications/pdfs/environmental-stewardship/2015/guidance_mitigation-hierarchy.pdf)

20 As per either national or global lists.

21 <https://www.tandfonline.com/doi/full/10.1080/03036758.2016.1252407>

22 GRI 101, 2024; <https://www.globalreporting.org/standards/standards-development/topic-standard-for-biodiversity/>

23 <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/>

24 <https://tnfd.global/metrics/>

25 <https://www.naturepositive.org/news/latest-news/global-nature-and-sustainable-business-organizations-agree-to-develop-a-nature-measurement-protocol/>

26 [https://www.epa.govt.nz/assets/Uploads/Documents/Te-Hautu/Matauranga-Maori-Report\\_Companion-Guide.pdf](https://www.epa.govt.nz/assets/Uploads/Documents/Te-Hautu/Matauranga-Maori-Report_Companion-Guide.pdf)

27 <https://www.sustainableseaschallenge.co.nz/tools-and-resources/blue-economy-principles>

# Principle 2: People - there are opportunities for tangata whenua and community co-creation

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## Key elements:

- The solution responds to a societal challenge identified as a priority by those affected.
- The solution presents opportunities for effective and early participation of tangata whenua.
- The solution respects and safeguards nature's contributions to local communities and iwi/Māori well-being.
- Stakeholders who are directly and indirectly affected by the solution have been identified, consulted and their involvement in the project has been considered.

## Checklist:

- Does the project present opportunities for effective and early participation of tangata whenua?
- Does the solution respect and safeguard local communities and iwi/Māori and provide solutions to a challenge for them?
- Have the stakeholders, who are directly and indirectly affected by the project, been identified? Is there a responsive plan for how they will be involved in the project?
- Have all relevant rights holders (Crown, iwi/Māori, commercial or customary rights holders or other permit holders) been identified and engaged?
- Are the local community and iwi/Māori participating in the design decisions? Are they using the Investment Evaluation Model to assess different impacts and benefits of the different options over the short, medium and long-term time horizons?

# Principle 3: Strategic alignment - there is alignment with the infrastructure priorities New Zealanders need

## Key elements:

- The solution supports future infrastructure priorities and/or improves the function or resilience of existing infrastructure systems and networks that New Zealanders need<sup>28</sup>.
- The solution describes how it meets at least one of the strategic objectives of the Government's Infrastructure Plan<sup>29</sup>:
  - Enabling a net-zero carbon emissions Aotearoa
  - Supporting towns and regions to flourish
  - Building attractive and inclusive cities
  - Strengthening resilience to shocks and stresses
  - Moving to a circular economy.
- The solution describes how it supports other National Plans e.g. National Adaptation Framework<sup>30</sup> and Plan<sup>31</sup> and/or Emissions Reduction Plan (both of which explicitly have nature-based solutions as core pillars).
- The solution describes how it supports a sector-level growth strategy.
- The solution describes how it aligns with a Territorial Local Authority's Long-Term Plan.
- The solution describes how it aligns with regional and/or national marine policies and/or management plans?

## Checklist:

- Is there a clearly defined societal or business challenge(s) or growth opportunity the project seeks to address?
- Does the project support future infrastructure priorities and/or improve the function or resilience of existing infrastructure systems and networks that New Zealanders need?
- For central government, does the project make a meaningful contribution to the five strategic objectives in the New Zealand Infrastructure Strategy?<sup>32</sup>
- Does the solution make a meaningful contribution to a sector level growth Strategy?
- Does the project make a meaningful contribution to delivering on a National Policy Statement / National Plan (e.g. Climate Adaptation Plan)?
- Is the project making a tangible contribution to a Territorial Local Authority's Long-Term Plan?
- Does the investment align with and deliver tangibly on any regional and national marine management policies or plans?

28 <https://tewaihanga.govt.nz/draft-national-infrastructure-plan/5-drive-excellence-from-the-core-government-investment/53lift-the-bar-for-project-appraisal-selection-and-delivery>

29 <https://media.umbraco.io/te-waihanganga-30-year-strategy/4qljq5zt/ipp-infrastructure-priorities-assessment-framework-v2.pdf>

30 <https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/adapting-to-climate-change/national-adaptation-framework/>

31 <https://environment.govt.nz/assets/publications/climate-change/New-Zealands-first-national-adaptation-plan-Table-of-actions-Addendum-2025.pdf>

32 <https://media.umbraco.io/te-waihanganga-30-year-strategy/4qljq5zt/ipp-infrastructure-priorities-assessment-framework-v2.pdf>

# Principle 4: Value for money - there are direct and indirect benefits and outcomes from the investment

## Key elements:

- The solution design and implementation are informed by balanced decisions that consider social, environmental, fiscal, risk and resilience, and cultural outcomes.
- The direct and indirect financial and non-financial benefits associated with the solution, and the recipients of these benefits are identified and documented in comparison to the no-project scenario counterfactual.
- The solution provides financial value above the costs required to deliver, operate, maintain and decommission it<sup>33</sup> and it provides additional non-financial co-benefits.

**Value** means the net fiscal, economic, and wellbeing benefits of an asset or investment proposal over its life cycle.

## Checklist:

- Have the direct and indirect benefits and costs, who pays and who are the recipients of these benefits over the lifetime of the natural infrastructure asset been identified and documented in comparison to the no-project scenario counterfactual?
- Are benefit-sharing mechanisms aligned with rights and stewardship responsibilities?
- Has a cost estimation been completed for the selected solution?
- Have all potential monetary (use NPV) and non-monetary benefits from the supply of ecosystem services been identified and quantified?
- Are risk-return profiles matched to relevant and appropriate investor types?
- Has the value of the solution been assessed using an evaluation framework, cost benefit analysis, or another suitable method for the project type against available alternative solutions?
- Have the direct community benefits (employment, capacity building, recreation access) been identified and evaluated?
- Has the proposed solution design been informed by balanced decisions that consider the social, environmental, risk and resilience, fiscal and cultural outcomes that need to be achieved?

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33 <https://tewaihanga.govt.nz/draft-national-infrastructure-plan/5-drive-excellence-from-the-core-government-investment/53lift-the-bar-for-project-appraisal-selection-and-delivery>

# Principle 5: Deliverability - the solution achieves positive intergenerational multiple outcomes

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## Key elements:

- The solution is known to be feasible; it has been designed and will be adaptively managed to achieve clear multiple outcomes that could endure in perpetuity<sup>34</sup>.
- Governance and accountability over the outcomes are achieved through transparency on ambition, actions, outcomes, and challenges.

## Checklist:

- Does the solution secure feasible multiple (financial, environmental, social and/or cultural) outcomes that last at least as long as the lifespan of the asset, and preferably in perpetuity? (Refer to the Investment Evaluation Model in section 5, which follows, to support this multiple benefits analysis).
- Are there risks that these natural assets may not being sustained in perpetuity? What mitigation has been applied?
- Is a governance structure in place for the project?
- Does the governance structure enable equitable decision-making and benefit sharing across stakeholder groups?
- Is there clear accountability over achieving the outcomes of the selected solution?
- Have all the necessary permits, consents, and licenses been obtained?
- Is there a commitment to transparency to regularly measure and report on the environmental, social, cultural and financial benefits and broader outcomes of the selected solution?
- Has the project identified the main sources of risk and is there a plan in place to adaptively manage them?
- Have conflict resolution mechanisms been established?

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<sup>34</sup> <https://tewaihanga.govt.nz/draft-national-infrastructure-plan/5-drive-excellence-from-the-core-government-investment/53lift-the-bar-for-project-appraisal-selection-and-delivery>



## Part 5:

Investment Evaluation Model to support natural infrastructure investment

# 5. Investment Evaluation Model to support natural infrastructure investment

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## **About this nature-based solutions Investment Evaluation Model**

Although this Investment Evaluation Model has been developed to support the multiple benefit analysis for a nature-based solution to an infrastructure challenge, this Model can be used to evaluate the value for money aspect of one or many infrastructure designs - whether opting for a traditional approach or a nature-based approach.

## **Users for the Investment Evaluation Model**

The intended Users of this model include public and private sector, iwi/Māori infrastructure developers.

It seeks to support Users primarily looking to evaluate the fiscal, risk and resilience, environmental, social and cultural benefits associated with a nature-based solution.

The Model also assesses these benefits over multiple time horizons to reflect the long-term nature of infrastructure, and the appreciation of natural assets.

## **Assessing the impacts and benefits using the Investment Evaluation Model**

The Model is provided as separate [Excel spreadsheet](#). Snapshot of this tool shown overleaf.

The Model uses a qualitative assessment and uses stakeholder inputs to complete. Key indicators relevant to the multiple evaluation of a nature-based solution are provided. Not all indicators may be relevant to a project. In this instance new indicators can be used, and/or key indicators removed.

Figure 3: Snapshot of Investment Evaluation Model

Nature-based Solutions - Investment Evaluation Model											
January 2026											
Benefit Domain	Benefit Indicator	Attribute	Key indicator (select indicators that your organisation collectively agree are appropriate)	Core indicator? Yes/No	-2	0	2	Immediate Team (2-3 years)	Short-term (5-10 years)	Medium-term (20-30 years)	Longer-term (60-80 years)
					(negative/reduction)		(positive/improvement)				
FINANCIAL <small>(linked to the value of the investment)</small>	F1	Avoided/reduced CAPEX	Capital expenditure (includes contracted works, design, land, enabling works)	Changes in CAPEX cost at the start	Yes	Significant increase in upfront CAPEX costs compared to other solutions	No material change compared to other solutions	Significant reduction in upfront CAPEX costs (i.e. avoided costs) compared to other solutions			
	F2	Avoided/reduced OPEX	Costs associated with operating the asset, including asset renewal, maintenance & repair costs	Avoided operating cost: reduced operating, routine maintenance, asset renewal, and repair cost versus alternative solutions	Yes	Significant increase in OPEX costs compared to other solutions	No material change compared to other solutions	Significant reduction in OPEX costs compared to other solutions			
	F3	Avoided/reduced consenting and/or compliance costs	Consenting and compliance costs	Regulatory costs and resources to comply with legislative obligations, including environmental mitigation, and emissions trading value (use TSY CBX central price path) of grey infra. Avoided cost due to faster or simpler consenting, based on nature friendly design	Project specific	Significantly increase in regulatory costs and resources to comply with legislative obligations	No material change compared to other solutions	Significant reduction in regulatory costs and resources to comply with legislative obligations			
	F4	Increased/maintained property/land value	Property/land value changes due to presence of natural infrastructure	Land capital market value change (not including 'improvements')	Yes	Significant decrease in property / land values (>10%)	No material change to property / land value	Significant increase in property / land value (>10%)			
	F5	Improved/maintained asset design life	Longer design life of natural asset versus traditional (and therefore this delays or downsizes CAPEX to replace an asset)	Depreciated CAPEX (of replacement) avoided investment costs	Yes	Significant reduction (>10 years) to design life of asset	No material change in design life of asset	Significant extension (>10 years) to design life of asset			
	F6	Improved/new revenue streams/investment due to the provision of Ecosystem Services to benefiting parties	Revenue opportunities for valued Ecosystem Services provided by natural infrastructure (e.g. carbon, biodiversity, water, pollination etc.)	Total value of Ecosystem Service exchange (revenue per year)	Yes	Limits and/or restricted investment and/or revenue generating opportunities	No material change in investment or revenue generating opportunities	New investment or revenue generating opportunities generated			
	F7	New and improved products, services and/or brand value	Changes in products and/or financial value of products and services due to presence or increased use of natural infrastructure	Market value of products and services (or brand premium that can be attributed to natural infrastructure)	Project specific	Significant (>10%) reduction product value and/or market access	No or unknown material change	Significant (>10%) improvement in product value and/or market access			
	F8	Improved/maintained Return on Investment	Changes in Return on Investment (RoI)	Return on Investment (in the short, medium and long-term)	Yes	Significant (>10%) reduction in RoI (in the short, medium and/or long-term)	No material change in RoI (in the short, medium and/or long-term)	Significant (>10%) improvement in RoI (in the short, medium and/or long-term)			
RISK & RESILIENCE <small>(linked to the value of the investment)</small>	RR1	Improved/maintained availability of insurance	Asset is considered resilient enough to be insurable	Value of asset rendered insurable by added natural hazard resilience from natural infrastructure	Yes	Property/asset not able to obtain insurance	Solution maintains status quo and therefore risks insurance withdrawal	Property/asset able to maintain access to insurance			
	RR2	Improved/maintained insurance premiums	Business or built infrastructure asset insurance	Avoided cost of insurance (including parametric discounting due to natural hazard resilience & payments linked to weather events to repair natural infrastructure) versus alternatives without or with less natural infrastructure	Yes	Insurance premiums significantly (>10%) increased	No change to insurance premiums	Insurance premiums have significantly (>10%) decreased			
	RR3	Improved/maintained asset protection and resilience (incl climate change resilience)	Value of assets protected - both the piece of infrastructure itself as a functional unit (e.g. coastal protection) and any other proximal infrastructure with improved resilience to hazards (e.g. inland flood prone property)	Value of Asset/land with improved levels of resilience: Total Depreciated Replacement Cost (DRC) for assets/land	Yes	Significant decrease in property / land values (>10%)	No material change to property / land value	Significant increase in property / land value (>10%)			
	RR4	Improved/reduced service disruption ("loss of function")	Changes in asset/property resilience because natural infrastructure avoids disruption to network infrastructure service/ use, e.g. catchment management avoids road washout or power line damage	Value of Asset/land with improved levels of resilience: Total Depreciated Replacement Cost (DRC) for assets/land	Yes	Significant reduction in asset/property resilience	No change in asset/property resilience	Significant improvement in asset/property resilience			
	RR5	Improved/maintained primary sector productivity/outputs	Changes in primary sector productivity/outputs	Primary sector productivity and/or output resilience under changing conditions (choose a metric to suit your business).	Project specific	Significant reduction (>10%) in primary sector productivity and/or output resilience under changing conditions.	No material change in primary sector productivity or output resilience under changing conditions.	Significant improvement (>10%) in primary sector productivity and/or output resilience under changing conditions.			
	RR6	Increased/maintained food security	Changes in availability, affordability, or reliability of food supply and access	Food availability, affordability, or reliability of supply and access	Project specific	Significant reduction in food availability, affordability, or reliability of supply and access	No material change in food availability, affordability, or reliability of supply and access	Significant improvement in food availability, affordability, or reliability of supply and access			
	RR7	Reduced loss of useable land due to improved resilience or integrity	Avoided loss of useable land due to improved resilience or integrity	Ha of retreat avoided; link to hazard models relative to baseline	Project specific	Significant (>10%) reduction in land resilience and/or ha of retreat avoided	No material change	Significant (>10%) improvement in land resilience and/or ha of retreat avoided			
		Improved resilience of operations and supply chains	Changes in availability, affordability, or reliability of critical material supply and access	Critical material availability, affordability, or reliability of supply and access	Project specific	Significant reduction in critical material availability, affordability, or reliability of supply and access	No material change in critical material availability, affordability, or reliability of supply and access	Significant improvement in critical material availability, affordability, or reliability of supply and access			

## 6. Contact us

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These tools form part of a wider **Natural Infrastructure Plan**.

For questions or additional information on the Natural Infrastructure Plan, please reach out to The Aotearoa Circle.

E: [Info@theaotearoacircle.nz](mailto:Info@theaotearoacircle.nz)

W: [www.theaotearoacircle.nz](http://www.theaotearoacircle.nz)

[The Aotearoa Circle Investment Evaluation Model](#)

## 7. Acknowledgements

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This Investment Decision Toolkit, investment principles, and Investment Evaluation Model were developed by Program Delivery Lead, **Erica Miles**, Director at West Nine Consulting Limited.

The Investment Evaluation Model was developed, leveraging the Mauri Model initially developed by **Dr Kēpa Morgan** and The Aotearoa Circle wishes to acknowledge Dr Morgan and his team accordingly.

Input on the Investment Principles and Investment Evaluation Model was provided by the ASB (**Anthony Ririnui, Juliet Tainui-Hernandez, Tawa Campbell-Seymour and Temuera Hall**), ANZ (**Miranda James and the team, Sam Parsons** (Boffa Miskell), **Genevieve Smith** (Beca), **Dr Dan Hikuroa, Katherine Short, Helen Mahoney** (Local Government Funding Agency), and **John Blyth** (Beca).

Technical peer review for the investment principles and the Investment Evaluation Model was provided by **Dr Robin Mitchell** and the team at Nature Positive, **Dr Dan Hikuroa**, and **Geoff Simmons** (Parliamentary Commissioner for the Environment).

**The Aotearoa Circle wishes to acknowledge and thank these individuals.**

# 8. Definitions

Key definitions used in these investment decision-making tools are provided below.

## Externalities

- ‘Unaccounted-for consequences for others’ in terms of events for which we are responsible. The qualifier ‘unaccounted-for’ means that the consequences in question follow, without prior engagement with those who are affected. They can be positive or negative<sup>35</sup>.

## Infrastructure

- Infrastructure includes fixed, long-lived structures that facilitate the production of goods and services.
- Infrastructure enables vital services that drive a productive economy, safeguards communities, helps achieve broader environmental goals, and supports our wellbeing. Our infrastructure is vital to our way of life, supporting almost everything we do.
- Infrastructure does not include cultural assets, specialist military equipment, or ICT business systems<sup>36</sup>.

## Mauri

- Mauri – the physical life principle (Marsden 2003<sup>37</sup>, Peet, 2006<sup>38</sup>) represents the capacity for air, water or soil to support life (Marsden, 2003<sup>39</sup>) and is a universal concept in Māori thinking.
- Mauri is found in water, land, forests as well as mist, wind, soil and rocks, and is the force that interpenetrates all things to bind and knit them together (Marsden & Henare, 2002<sup>40</sup>).
- Mauri is a concept that permeates all Māori thinking and has been shown to be suitable as

a measure of sustainability (Morgan, 2006 and Hikuroa, 2011<sup>41</sup>).

- When actions impact negatively upon the mauri of something this essential bond is weakened (or broken) and can potentially result in the separation of the physical and spiritual elements resulting in the death of a living thing or alternatively the loss of a thing’s capacity to support other life. (Morgan, 2006, p. 171<sup>42</sup>).
- The use of mauri as the measure of sustainability allows for a more accurate representation of the benefits and impacts of certain actions/options. These are not always represented or included in monetary based assessments but are nonetheless important to the decision-making process (Morgan, 2026<sup>43</sup>).

## Natural infrastructure

- Natural Infrastructure includes fixed, long-lived natural assets that facilitates the production of goods and services. For example, soil, wetlands, forests, rivers.
- Natural infrastructure enables vital services that drive a productive economy, safeguards communities, helps achieve broader environmental goals, and supports our wellbeing. Our natural infrastructure is vital to our way of life, supporting almost everything we do.
- The world’s stocks of natural infrastructure are often called by the generic name ‘Natural Capital’.

## Nature-based solutions

- Actions to protect, conserve, restore, and sustainably use and manage natural or

35 Dasgupta, P. (2025). On Natural Capital: The Value of the World Around Us. London, UK

36 Te Waihanganga - the New Zealand Infrastructure Commission. 2025. <https://media.umbraco.io/te-waihanganga-30-year-strategy/mepk0cfb/nip-draft-layout-28aug.pdf>

37 Marsden, M. (2003). The natural world and natural resources: Māori value systems and perspectives. In C. Royal (Ed.), The woven universe. Masterton: The Estate of Rev. Māori Marsden.

38 Peet, J. (2006). Systems thinking and common ground. International Journal of Transdisciplinary Research, 1(1), 88–99.

39 Marsden, M. (2003). The natural world and natural resources: Māori value systems and perspectives. In C. Royal (Ed.), The woven universe. Masterton: The Estate of Rev. Māori Marsden.

40 Marsden, M., & Henare, T. A. (2002). Kaitiakitanga: A definitive introduction to the holistic world view of the Māori. Masterton: The Estate of Rev. Māori Marsden

41 Hikuroa, D et al. (2011). Implementing Māori indigenous knowledge (mātauranga) in a scientific paradigm: Restoring the mauri to Te Kete Poutama. MAI Review, 2011, 3

42 Morgan, T. K. K. B. (2006). Decision-support tools and the indigenous paradigm. Engineering Sustainability, 159(ES4), 169–177.

43 Morgan, T.K.K.B. The Mauri Model. Retrieved January 2026: <https://www.maurimodel.nz/about-1>

modified terrestrial, freshwater, coastal, and marine ecosystems.

- Nature-based solutions address social, economic, and environmental challenges effectively and adaptively, while simultaneously providing human wellbeing, ecosystem services and resilience and biodiversity benefits<sup>44</sup>.

**Scale**

- The degree to which there has been a significant increase in quantifiable results within, and beyond, the scope of the solution that is to be or has been implemented.

**Value**

- The net fiscal, economic, and wellbeing benefits of an asset or investment proposal over its life cycle.

For other definitions, refer to the [Natural Infrastructure Plan](#).

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44 United Nations Environment Program (UNEP) EA.5/Res.5": <https://digitallibrary.un.org/record/3999268?ln=en&v=pdf>

## 9. Useful supporting resources

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This document does not repeat advice and guidance provided elsewhere by the New Zealand Government. Key resources useful to Users are provided as references throughout the document, or provided below:

Department of the Prime Minister and Cabinet (DPMC) Investment Management and Asset Performance in Departments and Other Entities (accessed August 2025) <https://www.dPMC.govt.nz/sites/default/files/2023-09/co-23-09-investment-management-asset-performance.pdf>

Green Climate Fund – Integrated Results Framework 2021 <https://www.greenclimate.fund/sites/default/files/document/irmf-policy.pdf>

Infrastructure Commission – Draft National Infrastructure Plan (accessed August 2025) <https://media.umbraco.io/te-waihanganga-30-year-strategy/mepk0cfc/nip-draft-layout-28aug.pdf>

IUCN Global Standard for Nature-based Solutions (includes an online assessment tool) <https://iucn.org/our-work/topic/iucn-global-standard-nature-based-solutions>

Ministry for the Environment - National Policy Statement for Biodiversity <https://environment.govt.nz/assets/publications/NPSIB-amended-october-2024.pdf>

New Zealand Government Procurement Rules - rules for sustainable and inclusive procurement: <https://www.procurement.govt.nz/assets/procurement-property/documents/government-procurement-rules.pdf>

The Nature Conservancy – The Power of Policy (accessed September 2025) [https://www.nature.org/content/dam/tnc/nature/en/documents/0/9/092925\\_ThePowerofPolicy\\_FINAL.pdf](https://www.nature.org/content/dam/tnc/nature/en/documents/0/9/092925_ThePowerofPolicy_FINAL.pdf)

Treasury – Investment Management System (accessed November 2025) <https://www.treasury.govt.nz/information-and-services/public-sector-leadership/investment-management/investment-planning/treasurys-cbax-tool>

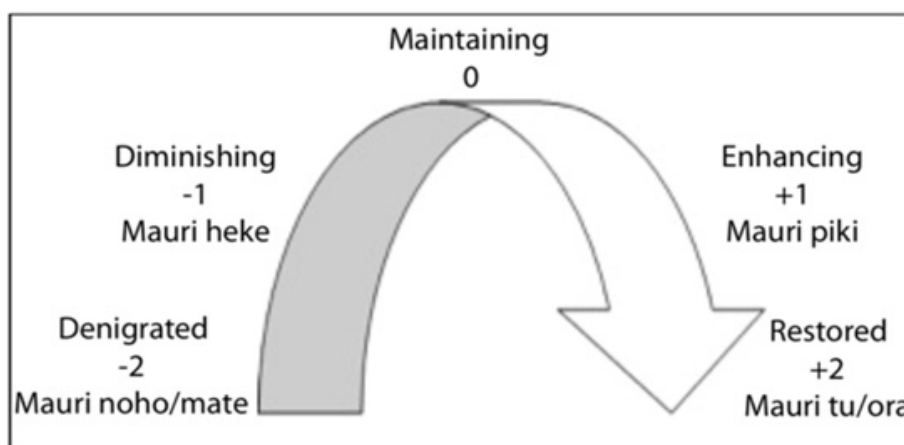
# 10. Further information - Investment Evaluation Model

This Model has been developed using the original Mauri Model developed by Dr. Kēpa Morgan and The Aotearoa Circle wishes to acknowledge Dr. Morgan and his team accordingly. Dr. Morgan originally created the Mauri Model Decision Making Framework and mauri-0-meter in 2004 while researching Lake Rotorua's water quality for his Doctoral Studies at the University of Auckland. More information on the Mauri Model is available: <https://www.maurimodel.nz>

The Model is a decision-making framework that combines a stakeholder assessment of worldviews, with a qualitative impact assessment using a range of indicators to determine the multiple benefits of nature-based solution, and to evaluate trends over time. The Model uses the concept of mauri as the measure of sustainability.

Assessment of the impact to mauri of each indicator is made on an integer whole values ranging from -2 to +2, with +2 representing mauri at full potential or fully restored; +1, mauri at partial potential or partially restored; 0, no change; -1, partial degradation; and -2, complete degradation as shown in the figure below. There is not the option to provide ½ numbers. The Mauri Evaluation Model itself is provided in Tab 3.

Mauri Meter for Performance Indicator Assessment (Morgan and Teaho, 2013).



## References

- Hikuroa, D et al. (2011). Implementing Māori indigenous knowledge (mātauranga) in a scientific paradigm: Restoring the mauri to Te Kete Poutama. MAI Review, 2011, 3
- Marsden, M. (2003). The natural world and natural resources: Māori value systems and perspectives. In C. Royal (Ed.), The woven universe. Masterton: The Estate of Rev. Māori Marsden.
- Marsden, M., & Henare, T. A. (2002). Kaitiakitanga: A definitive introduction to the holistic world view of the Māori. Masterton: The Estate of Rev. Māori Marsden.
- Morgan, T. K. K. B. (2006). Decision-support tools and the indigenous paradigm. Engineering Sustainability, 159(ES4), 169–177.
- Morgan, T.K.K.B., Teaho, L., 2013. Waikato Taniwharau: prioritising competing needs in co-management of the Waikato River. Adv. Environ. Res. 29, 85–106.









The Natural Infrastructure Plan, including its associated separate parts, have been prepared by The Aotearoa Circle in collaboration and consultation with Circle Partners and other key stakeholders to stimulate discussion, improve understanding and support consideration of nature as critical national infrastructure. The plan reflects the views at the time of publication and is intended for general information purposes only.

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**4 March 2026**

**The Aotearoa Circle**



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**The  
Aotearoa  
Circle**

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**Mā te Kaitiakitanga  
ko te Tōnuitanga**  
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Guardianship

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