



**Infrastructure
Australia**

Gaps in valuing sustainable and resilient infrastructure

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Acknowledgment of Country

Infrastructure Australia acknowledges Traditional Owners of Country throughout Australia and recognises their continuing connection to lands, waters and communities.

We pay our respect to Aboriginal and Torres Strait Islander cultures; and to Elders past and present.

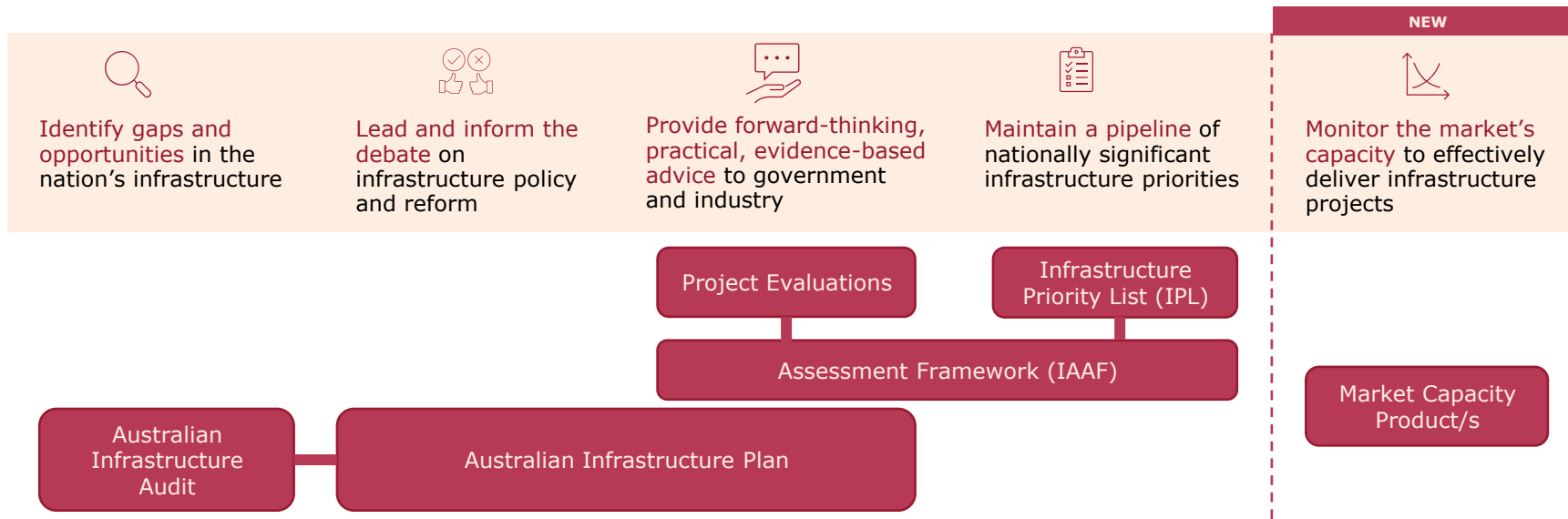


Our Mission: Drive change for sustainable, resilient and productive infrastructure that benefits Australians now and in the future

What we do

- 1) **Evaluate business cases** for nationally-significant investment proposals seeking more than **\$250 million** in Commonwealth funding.
- 2) **Set the agenda** for long-term **infrastructure reform** that will improve living standards and national productivity.

Core Activities



Products

Australian Infrastructure Plan 2021

Our 2021 **Australian Infrastructure Plan** has a focus on the sustainability and resilience of the infrastructure sector.

The Plan recommended:

- a consistent approach to the quantification of costs, benefits, performance of assets, systems and places during project planning and assessment
- creation of a common set of data and scenarios to inform risk management, land-use and strategic planning.
- a universal incorporation of place-based resilience planning.

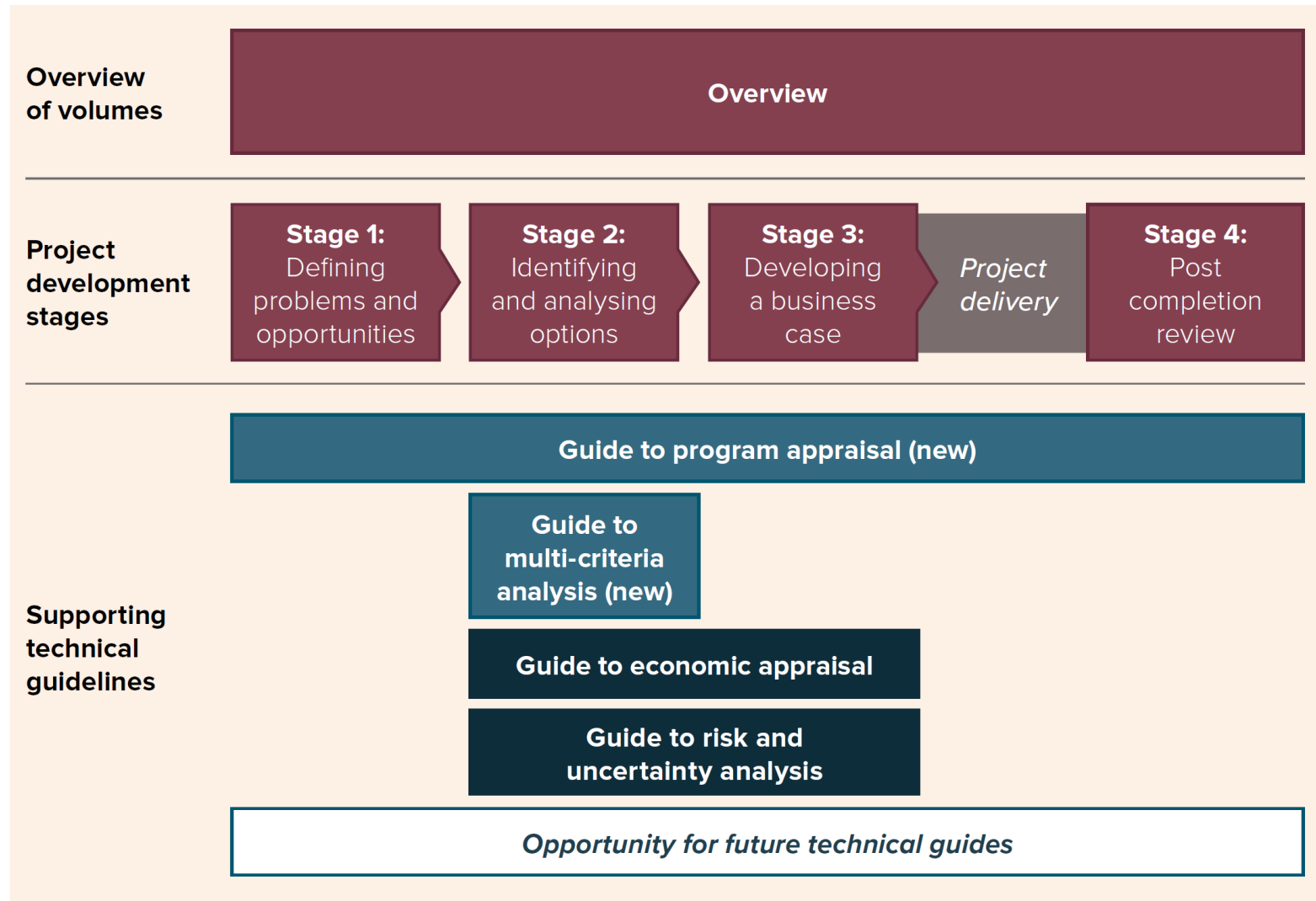
Reforms to meet Australia's future infrastructure needs

2021 Australian Infrastructure Plan



Priorities and Reforms
to strengthen our
nation's future

Assessment Framework 2021



Assessment Framework 2021

Strategic Fit

'Is there a clear rationale for the proposal?'

- Case for change
- Alignment
- Network and system integration
- Solution justification
- Stakeholder endorsement

Societal Impact

'What is the value of the proposal to society and the economy?'

- Quality of life
- Productivity
- Environment
- Sustainability
- Resilience

Deliverability

'Can the proposal be delivered successfully?'

- Ease of implementation
- Capability and capacity
- Project governance
- Risk
- Lessons learnt

Emissions Reduction Target and infrastructure investment

In June 2022, the Australian Government announced a new emissions reduction target of 43% for 2030, previously 26-28%.

The Minister for Climate Change and Energy has announced the Climate Change Bill (2022) will embed the emissions target into Infrastructure Australia's objectives and functions.

Once enacted, this means infrastructure proposals seeking federal funding will need to estimate and report their emissions in business cases to IA.



Measuring and valuation of greenhouse gas emissions

The definitions, data sources and models used to estimate net emissions will be those described in the National Inventory Report.

Infrastructure Australia is preparing guidance on carbon values that can be used in cost benefit analysis to monetise emissions.

PARIS AGREEMENT

The Parties to this Agreement,

Being Parties to the United Nations Framework Convention on Climate Change, hereinafter referred to as "the Convention",

Pursuant to the Durban Platform for Enhanced Action established by decision 1/CP.17 of the Conference of the Parties to the Convention at its seventeenth session,

In pursuit of the objective of the Convention, and being guided by its principles, including the principle of equity and common but differentiated responsibilities and respective capabilities, in the light of different national circumstances,

Recognizing the need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge,

Also recognizing the specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, as provided for in the Convention,

Taking full account of the specific needs and special situations of the least developed countries with regard to funding and transfer of technology,

Recognizing that Parties may be affected not only by climate change, but also by the impacts of the measures taken in response to it,

Emphasizing the intrinsic relationship that climate change actions, responses and impacts have with equitable access to sustainable development and eradication of poverty,

Recognizing the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change,

Types of infrastructure related emissions

Embodied emissions result from the production of materials used in the construction of infrastructure, as well as those from the construction process itself.

Operational emissions result from the ongoing operations of infrastructure assets.

Enabling emissions result from the activities of infrastructure's end-users.

Emissions type	Share of infrastructure emissions (%)	Share of total Aust emissions (%)
Embodied	8.4	5.9
Operational	12.9	9.1
Enabling	79	55

Climateworks - Reshaping Infrastructure for a Net Zero Emissions Future (2020)

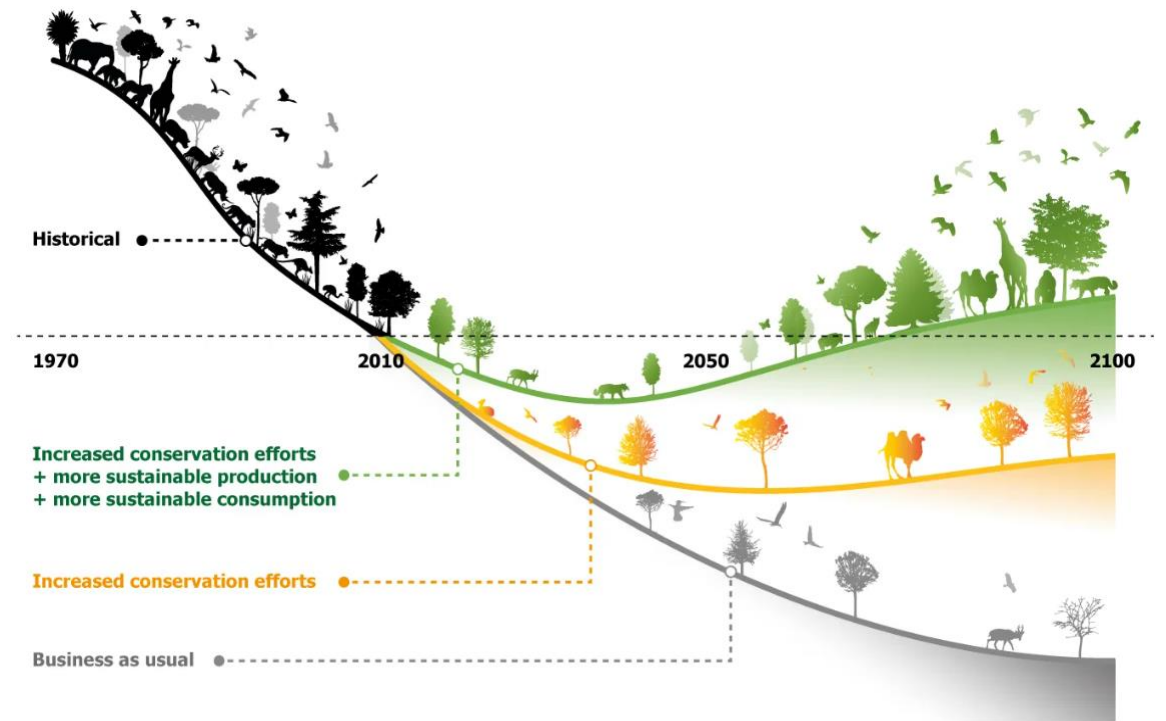
Biodiversity loss and sustainable infrastructure

Climate change is one of the main drivers of biodiversity loss.

Rising temperatures are affecting biodiversity, while changing rainfall patterns, extreme weather events, and ocean acidification are putting pressure on species already threatened by other human activities.

Biodiversity loss contributing to climate change.

Destruction of biodiversity and ecosystems undermine earth's ability to regulate greenhouse gas emissions and protect against extreme weather, therefore accelerating climate change and increasing vulnerability to it.



This artwork illustrates the main findings of the article, but does not intend to accurately represent its results (<https://doi.org/10.1038/s41586-020-2705-y>)

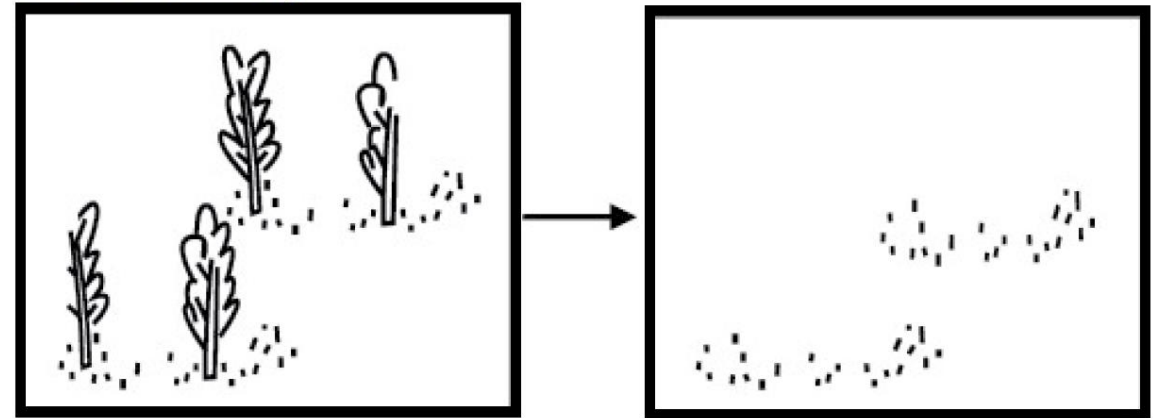
CSIRO, 2020, *Bending the curve of biodiversity loss*

Assessing environmental impacts of infrastructure proposals

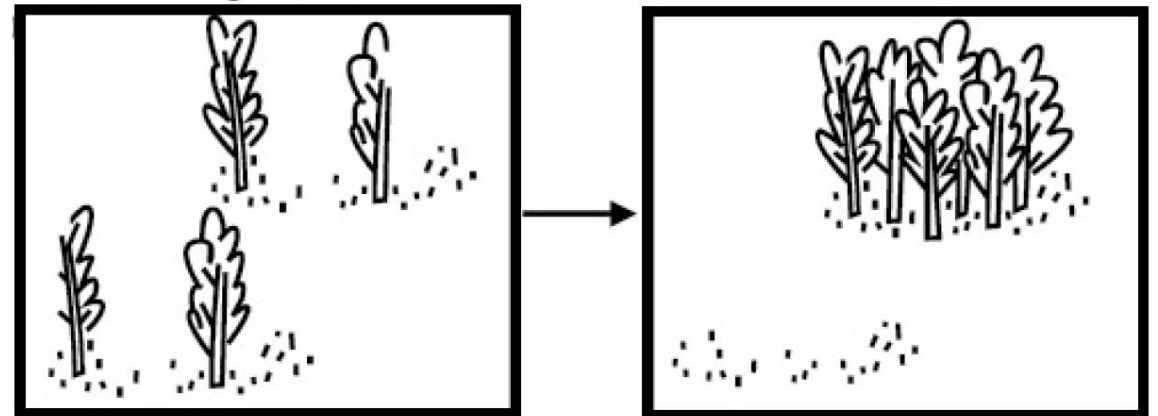
Australia has had legislative requirements to offset biodiversity loss in place since 1999. All Australian States and Territories, as well as the Commonwealth, have legislation or policy that implements requirements to offset biodiversity.

If an infrastructure proposal is required to offset biodiversity, then offsetting costs are a capital cost and included in the cost benefit analysis. However this covers offsetting the impacts to threatened species only.

A. No clearing



B. Clearing with offset



Impact	Method	Parameters
Direct use (recreational benefits)	Revealed preference	0.3% increase in property prices per percentage point increase in the share of open space in the surrounding catchment
Passive use	Replacement cost approach (NSW Biodiversity Offset Scheme)	\$13,065 per hectare (Statewide average excluding Sydney basin)
Urban cooling (cost of cooling)	<i>Health benefits (urban) = area of tree canopy in m² × benefit per m² of tree canopy</i>	cooling costs: \$13.50 per year per household per degree (°C) of temperature reduction.
Urban cooling (avoided GHG)	The benefit from reduced GHG emissions is the amount of reduction in GHG emissions multiplied by the value per tonne of CO ₂ .	GHG benefits: \$3.70 per year per household per degree (°C) of temperature reduction
Health benefits	<i>Health benefits from cooling = number of people within impacted catchment × no. of days above 30 degrees per year × reduction in temperature in degrees (oC) × health benefit for 1oC reduction in temperature per person per year</i>	\$2.90 for each degree reduction per person per year per day above 30 °C

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