

Natural Capital Suite: Streamlining investment in natural resource management

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Key Points

- There is a rapid emergence of accountability and reporting frameworks focused on our use of natural assets.
- This rapid emergence is in response to the global push for environmental, social, and governance accountability.
- Truui's Natural Capital Suite of products allows users to efficiently quantify environmental accounts.
- The Natural Capital Suite uniquely incorporates environmental, social, cultural, and economic indicators aligning with international reporting standards.

Abstract

In response to the global push for environmental, social, and governance (ESG) accountability in line with Sustainability Development Goals, companies face challenges in operationalising and quantifying environmental accounts. Further, it is difficult for environmental investors to find projects that consistently report against these standards. This lack of consistent quantification of environmental outcomes results in either a reluctance for investors to engage in environmental projects or redirecting most potential investment into the burden of significant transaction costs to establish and report on projects.

To address this, Truui developed the Natural Capital Suite to efficiently quantify environmental accounts. Utilising a science-based approach, the Natural Capital Suite facilitates consistent and repeatable reporting, substantially reducing transaction costs. The Natural Capital Suite uniquely incorporates environmental, social, cultural, and economic indicators aligning with international reporting standards. It also allows large scale environmental investors to conduct portfolio planning, organisations to conduct natural capital accounting and project brokers to design and report on farm scale projects and engaging in environmental crediting schemes for farm scale projects.

Through developing the Natural Capital Suite, we have learned that the current methods for planning, commissioning and delivering environmental investment have such high transaction costs that less than half of intended environmental investment gets spent on ground.

The suite's significance lies in facilitating investment in natural resources while minimising transaction costs, addressing a growing global market demand for investment in nature. By digitally connecting supply and demand, the suite streamlines investment processes, underscoring the importance of scalable solutions in driving sustainable development efforts.

Keywords

Natural Capital, natural resource management, prioritisation, reporting, nature restoration

Introduction

Natural capital is the stock of renewable and non-renewable natural resources (e.g. plants, animals, air, water, soil, minerals) that combine to yield a flow of benefits to people ([Natural Capital Coalition 2016](#)). There is a rapid emergence of accountability and reporting frameworks focused on our use of natural capital. This is demonstrated through national level adoption of frameworks.

For example:

- Australia is a signatory to the Kunming-Montreal Global Diversity Framework ([GBF 2023](#)) adopted during the COP 15 in Montreal. This framework sets out a pathway for a world living in harmony with nature by 2050 and sets out 23 targets for 2030 one of which aims to halt biodiversity loss.
- The Taskforce for Nature Related Financial Disclosures (TNFD) released its final framework in 2023 ([TNFD 2023](#)). The TNFD provides a risk management framework to identify, assess, manage and report on nature related dependencies, impacts, risks, and opportunities. This framework encourages organisations to integrate nature into strategic and capital allocation decision making and is structured similarly to the Task force on Climate related Financial Disclosures ([TCFD 2017](#)), the basis for carbon accounting.
- Australia is committed to the 17 global Sustainable Development Goals (SDGs) ([UN 2015](#)) which includes several that directly focus on environmental outcomes.

As well as this high-level government commitment, there is increasing appetite from companies to meet community expectations for sustainability, both social and environmental. A logical consequence of government and corporate organisations using natural assets is the need to account for their actions by investing in nature positive actions. One example is the emergence of the carbon market; whereby large polluters need to balance their carbon emissions with carbon positive measures to meet legislative requirements and to continue operating. It is not unreasonable that accounting for natural capital will follow a similar path to accounting for carbon. A result of accounting for our consumption of natural capital would therefore result in nature restoration investment becoming a corporate obligation. The challenge is how can government and corporate organisations quantify and invest in natural capital?

Investing in nature capital is difficult

The natural resource management (NRM) industry is dominated by earnest, science-driven and highly motivated individuals who want to create the best environmental and social outcomes for the historically meagre investment available. The barriers for investment are high. Firstly, because environmental systems are complicated and the prediction of potential benefits of alternative on-ground actions is fraught with scientific uncertainty. Secondly, investment in the NRM sector has historically been driven by government investment. Government investment necessarily has high levels of accountability. As such, successfully gaining government investment requires compelling and sophisticated programs of investment to address intrinsic uncertainty in predicting environmental outcomes from their actions. The consequence of this historic investment in the environment are large transaction costs in establishing, implementing and reporting on new investment streams.

These constraints of complicated science and funding models create high transaction costs that must be paid before any money gets spent on the ground. The end result is that less than half of headline pre-election announcements ever makes it onto the ground (NQDT, 2023; HLW, 2023; SQL, 2022). A flow-on effect is the potential for substantial non-government investment into natural capital being either consumed by this same high transaction cost model, or abandoned because it is too hard.

Creating a currency

We believe that the primary reason for the high transaction costs in natural capital investment is the lack of agreement on how to sufficiently quantify the natural environment and the associated co-benefits to support investment decisions. That is, we don't have a natural capital currency by which to track, report or compare actions. This has largely been overcome with carbon accounting, such that there are agreed methods of quantification. The currency is Tonnes of CO₂ equivalent. The same does not exist for the more esoteric notion of natural capital.

There are many challenges developing and implementing a natural capital accounting scheme. Key challenges that we have focused on are:

- The scheme needs to be compliant with the aforementioned international frameworks.
- The concepts must be fungible (i.e. the concepts of the scheme must work everywhere). There is a diverse range of natural systems across Australia, but a natural capital accounting scheme should be applicable in any region.
- The scheme must work now. A scheme that requires data that does not exist before it can be implemented is an academic exercise.
- The scheme must be tractable. An overly complex scheme itself becomes a transaction cost and will not be adopted, so it must use commonly understood principles.

Modelling versus monitoring to quantify natural capital change

Over the last eight years Truii has been on a journey with the Queensland and Australian Government, supporting investment in water quality projects in Reef catchments. An outcome of this work has been the development of a series of web applications that reduce transaction costs in funding and reporting for on-ground actions. The basic premise underpinning these Reef tools is to use modelling approaches, whereby the current condition of an environmental asset is first established and the potential benefit (or otherwise) of an on-ground action is quantified through a modelling process. This modelled benefit is then used as the basis for investment.

The modelling is supported and refined through dedicated monitoring programs to ensure it represents the best available science. However, it is important to note that these monitoring programs are government run initiatives and are not materially part of the on-ground investment program cost. Monitoring is largely part of the machinery to validate and refine the modelling.

There are several benefits of a modelling approach (over a monitoring approach):

- 1) The natural world is very noisy, and monitoring is an expert scientific process. Anything less than a highly intensive and long-term monitoring program is unlikely to yield data that can be confidently used to demonstrate the quantitative benefit of an on-ground action.
- 2) Environmental responses often take a long time to be realised. A modelled approach allows the future state to be predicted and for investment to occur based on a future outcome, not financed after the outcomes have been realised.
- 3) Monitoring is difficult to do well. Those who are expert at delivering on-ground actions are rarely the same individuals who are expert at designing and implementing research programs.
- 4) Quantifying a change due to an on-ground action versus a climate signal is also extremely difficult through monitoring.

Outcomes before outputs

A natural capital accounting process needs to focus on the end conditions or outcomes before outputs. However, it is important to also acknowledge the outputs when reporting. For example, an action that

involved stock exclusion, may result in a CO2 reduction as the outcome whilst the reporting of the natural revegetation benefits would be equally important to a natural resources management group.

What outcomes are Important?

Based on a review of the international reporting frameworks and regional scale NRM plans, there are common high level outcome areas that occur. We have adopted four high level outcome areas with indicators to support each outcome:

1. Environment,
 - Water (including water quality)
 - Biodiversity
 - Soil
 - Climate

2. Social,
 - Equality
 - First Nations
 - Economic

3. Governance,
 - Accountability and transparency

4. Productivity
 - Profitability
 - Resilience
 - Reputation

The outcome areas aggregate underlying indicator measures to ultimately produce measures for the outcome areas themselves. This allows an ESGP reporting framework compliant with international agreements and allows drilling down to individual indicators and measures with user supplied confidence scores assigned to each measure(Figure 1, 2).

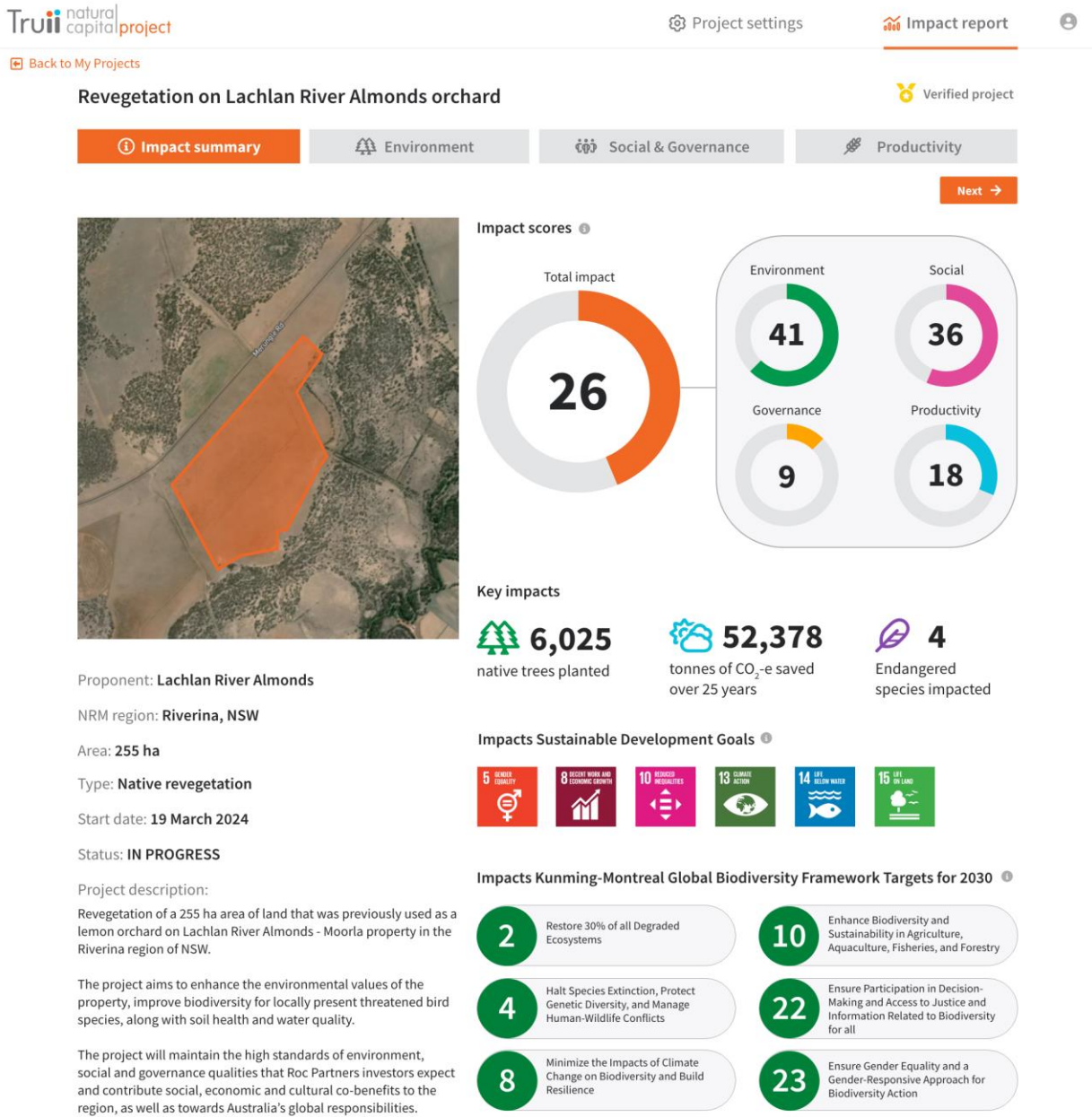


Figure 1: Screenshot from Natural Capital Project



Figure 2: Environmental reporting example

The NRM investment workflow

A modelling approach is the basis for quantifying natural capital and the associated co-benefits or ecosystem services. To implement a solution, we need to consider how natural capital investment works and where the high transaction costs are in that investment process.

The Natural Resource Management industry has traditionally been driven by public good investment by government. The investment cycle is dominated by major investment announcements prior to elections, followed by a 3–4-year process of contracting and delivering that investment. Hence there are short spikes in funding which is sensitive to the political proclivity of the day. Because of the spikey nature of funding cycles,

it has largely been a whole new prioritisation adventure every political cycle. Those who remain in the industry get to see new rounds of investment prioritisation and a new reinvention of project reporting every four years. The end result is that most NRM investment never reaches the ground, instead it is consumed in the transaction costs required to get investment planned and reported.

This picture of irregular government led NRM funding is now changing rapidly to an industry-led motivation for environmental investment. Shareholders are demanding responsible corporate behaviour. Superannuation funds are providing funding tranches for responsible investment. Domestic and export markets demand environmentally sound agricultural practices, the carbon market has become a cap-and-trade system (no longer a voluntary market) and increasingly, biodiversity and water quality is entering the cap-and-trade system through the requirement for offsets for industrial development. The result is an appetite for corporate investment in environmental projects that are scientifically robust, defensible, and enduring.

Natural Capital Suite (Truii, 2024a) is designed to reduce these transaction costs. After working in this area, supporting NRM investment programs, we realised that there is not one solution, but rather different solutions for the different components of the NRM industry and different phases of investment.

Our solution is a series of software applications (Figure 3), each targeting constraints in the environmental marketplace. These applications are delivered as Natural Capital Suite. The elements of each application in Natural Capital Suite have a common theme of using the best available science to quantify the value of environmental work. We currently have three Natural Capital Suite applications.

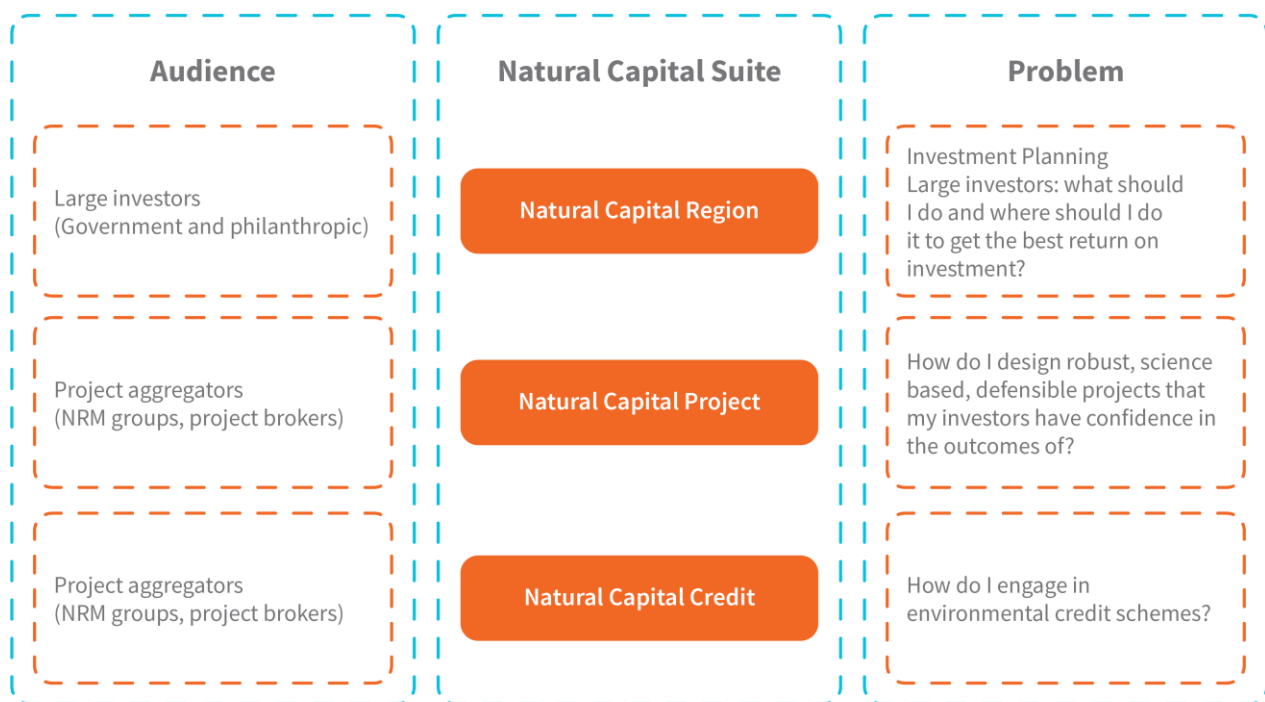


Figure 3. Three key applications in Natural Capital Suite

Scale matters

Truii’s experience over the past eight years supporting investment in water quality projects in Reef catchments has highlighted that one size does not fit all. A single tool cannot work at all scales. For investors such as government agencies and NRM bodies, planning and prioritisation of the most cost-effective projects is required at the regional scale.

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Where funding becomes available for site-based projects, brokers and those developing and implementing site-based projects, such as NRM bodies, need to be able to capture and quantify the multiple benefits of the investment at a more local or site-based scale.

Investors seek different outcomes

Investors have varied motivations for investing in natural capital. Some are interested in acquiring tradable environmental assets such as credits. Others seek assurance that their investments will lead to valuable outcomes. Additionally, some invest to demonstrate their efforts in balancing their natural capital accounts through reporting on the work they've undertaken. Hence, Natural Capital Suite aims to cater for a range of interests.

Natural Capital Suite

Natural Capital Region

Natural Capital Region (Truui 2024b), is for large scale investment programs to determine what type of activities are most cost effective to fund. Natural Capital Region is developed on a region-by-region basis with region-specific data and region-specific libraries of potential on-ground actions which includes their local benefits and costs. We are rolling Natural Capital Region out region by region. To date, Natural Capital Region covers an area of 1M km² (about four times the size of Victoria) and includes instances for:

- South East Queensland
- Queensland Murray Darling Basin
- Burnett Mary
- Mackay Whitsundays
- Margaret River Region (Western Australia)
- Qld Lake Eyre Basin

Natural Capital Project

Planning investment strategies is useful for large scale investors, but project aggregators/developers need to be able to capture individual site-based projects and quantify the benefit at that scale to satisfy investors. Natural Capital Project (Truui, 2024c), quantifies the benefits of individual projects across the same range of indicators as Natural Capital Plan.

We are in the final design stages for Natural Capital Project. A major challenge in designing Natural Capital Project has been to try and map reporting outputs across a range of alternative reporting and governance structures such as Sustainable Development Goals (SDGs), Taskforce for Nature Related Financial Disclosures (TNFD), and environmental social and governance (ESG) reporting.

Our delivery approach for Natural Capital Project is to deliver national coverage, rolling it out on a project type by project type basis. Our initial project type focus is for land restoration work such as revegetation or changes to broadscale grazing management practices.

Natural Capital Credit

A barrier to entry for potential project aggregators/developers to environmental credit schemes is working out how the methods work and how to implement the methods. We have implemented Natural Capital Credit (Truui 2024d) for the Reef Credit scheme. The Reef Credit scheme provides a market for achieving water quality benefits in reef catchments through changed land management

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practices. This implementation allows an easier path for new project brokers. The Natural Capital Credit for Reef Credits captures all the required project details and quantifies the Reef Credits than can be claimed for the activity.

Conclusions

In response to the global demand for environmental, social, and governance accountability in line with Sustainability Development Goals, companies are grappling with the complexity of quantifying environmental accounts and often deterring potential investors. Truii's Natural Capital Suite offers a solution, that streamlines reporting and investment and reducing costs by employing a science-based approach. Addressing these obstacles bridges the gap between supply and demand in natural capital investment.

Acknowledgments

The authors wish to acknowledge the funding support from the Queensland and Australian Government in the development of the tools.

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