



Why it's vital to value Nature

Nature at the heart of decisions



Contents

Pages

03

**Working for free?
Nature as a
service provider**



05

**Using regulation
to protect
the environment**



05

**Nature's role
in reducing
carbon emissions**



07

**Valuing nature
and the services
it provides**



08

**Fully accounting
for nature in
economic wellbeing**



09

**Putting nature
at the heart of
economic decisions**



A sustainable economy fundamentally relies on a healthy and valued natural environment. The effects of carbon emissions from human activity on the climate are a daily reminder that degrading the natural environment has real costs for humankind.

The increasing prevalence of heat waves, bushfires and floods globally is making the connection between emissions, rising temperatures and major disruptions to our day-to-day lives crystal clear.

But our impact on the world is not limited to emissions. In almost every part of our lives we interact with the natural environment, and while we're all generally aware that human activity changes the environment, most of the time we don't consider the full cost of these interactions to *ourselves*.

In economic parlance, this failure to consider the full costs of an activity is called market failure. But it has very practical, real world effects. For example, the bleaching of the Great Barrier Reef and the resulting loss of its unique ecosystems has a direct, negative impact on us – the reef protects local communities from storms and erosion and is a direct generator of 1,000s of jobs in the tourism sector. If we do nothing to stop the bleaching, these human benefits will ultimately be lost.

Fully recognising the value of these nature-based services is therefore vital. KPMG acknowledges that Federal and state governments are taking steps in this direction, with the Federal government a key partner of the Taskforce on Nature-related Financial Disclosures (of which KPMG is also a member). We also acknowledge the steps taken by the Australian Bureau of Statistics and other organisations towards estimating the economic contribution of the services the natural environment provides.

KPMG recommends that the government place nature at the heart of its wellbeing budget, with protecting the environment made a key goal (as it is in New Zealand's Wellbeing budget, first launched in 2019). With this designation, and in a similar way to gender-responsive budgeting decisions, policies and spending decisions that explicitly support sustaining the natural environment should be given proper recognition and weight.

Furthermore, the government should look to marry its decarbonisation commitments and policy decisions with explicit consideration of the trajectory for the natural environment, to develop a holistic National Nature-Positive Economic Transition Roadmap.

Working for free? Nature as a service provider


There are countless examples of nature providing tangible services to humankind, from bee pollination's role in crop production through to river plants cleaning our water supply by absorbing nutrients and many more besides. And because these services are largely provided for free – there's no fee to pay to most of the bees that pollinate our crops – we inherently undervalue them and risk over-exploiting them.



The value of bee pollination services

Bees are an integral part of our food production system. Two thirds of all horticultural and agricultural crops in Australia benefit from honeybee pollination,¹ with these services worth up to A\$1.8 billion per annum in Australia alone;² for consumer favourites such as avocados (100% of the crop is dependent on bee pollination), mangos (90%) and cherries (90%), bee pollination is a crucial input.

In general, we don't have to pay the bees for the services they provide³, but because they don't charge we also don't fully recognise their contribution. The bee population globally is in decline, due to habitat loss, climate change, the heavy use of pesticides, and a range of pests and diseases. This decline will ultimately harm us, through lower crop yields and higher food prices, and we need to somehow recognise the full value of the services bees provide so we can use their services optimally.

100% 
of the crop is dependent
on bee pollination

2/3 
of all horticultural
and agricultural
crops in Australia
benefit from bee
pollination

\$1.8 billion 
- estimated worth of pollination
services in Australia

Given the breadth and depth of services the natural environment provides it's not hard to find evidence that we are exploiting this asset. This brings with it significant physical, transition, financial and broader systemic risks for the economy and the stability of our financial system. Ultimately this will cost us in the future, in the form of lower productivity and/or more exposure to natural disasters and risks, higher prices for many products (from apples to clean drinking water) and a lower standard of living.

The most recent State of the Environment report⁴ makes this clear. Between 2000 and 2017, 7.7 million hectares of land was cleared in Australia, and the number of species on the government's threatened species list increased by 8 per cent between 2016 and 2021.⁵

Australia has a vast land mass which spans a wide range of climates, and as a result is home to a substantial number of different natural ecosystems, each of which positively contributes to our economy and broader health and wellbeing. But the importance of agriculture and mining to our economy together with the more general trend for human activity to encroach on nature's space has led to us consistently using more of the natural environment than can be regenerated.

¹ [We need bees for more than honey - Curious \(science.org.au\)](https://www.science.org.au/curious/animals/we-need-bees-for-more-than-honey)

² [Bees and bee pests and diseases - DAFF \(agriculture.gov.au\)](https://www.daff.gov.au/agriculture/bees-and-bee-pests-and-diseases)

³ There are around 1,300 professional beekeepers (apiarists) who provide pollination services to farmers across the country, but the majority of bees are either attached to non-commercial hives or are wild bees.

⁴ <https://soe.dcceew.gov.au/overview/introduction>

⁵ <https://soe.dcceew.gov.au/overview/key-findings>

Using regulation to protect the environment

So, what is being done to protect our natural environment, so it can continue to provide inputs to our economy⁶?

Historically, environmental protection has largely been motivated by the acceptance of political and societal leaders that we have a duty of care towards the natural world. The pressures on Australia's natural environment have traditionally been managed in a narrowly framed way using:

- Environmental regulation; and
- Nature conservation: Creating protected areas – heavily protected national parks, less-protected conservation parks and multiple land-use zones where human activity is permitted with some restrictions.

Whilst these approaches have had some notable successes in mitigating the most damaging effects of human activity on nature, they are insufficient to bend the curve on biodiversity loss. The National Reserve System (NRS) is Australia's framework and cornerstone of national efforts to secure and manage terrestrial biodiversity to meet natural national obligations under the Convention on Biodiversity.

The NRS is the network of public, Indigenous and private protected areas and the existing, world-leading, science-based approaches for the protection and management of well-connected and protected areas.

These include the vitally important work by the NSW Biodiversity Conservation Trust, the Queensland Land Restoration Fund, local LandCare and conservation non-government organisations (NGOs) such as The Nature Conservancy and WWF Australia.

More broadly, momentum is building globally to enact further protections and recognition of natural assets. For example, Australia has signed up to the High Ambition Coalition championing a global deal for nature with the central goal of protecting at least 30 per cent of the world's land and oceans by 2030.

Despite all these efforts, the world is continuing to destroy natural capital year-on-year, and in many cases, governments are subsidising these activities; estimates from the UK government's Dasgupta review into the economics of biodiversity are that US\$4-US\$6 trillion of natural capital is destroyed globally this way each year.⁷ By continuing to destroy our natural environment, we are permanently damaging our productive capacity.

Nature's role in reducing carbon emissions

Furthermore, natural capital has a vital role to play in achieving net zero emissions and even net negative emissions. Forests, wetlands, grasslands, mangroves, the oceans and a range of other ecosystems are a low cost way of permanently sequestering carbon. For example, each year forests and soil together absorb around one third of the emissions produced by human activity.

The ocean as a carbon sink

The world's oceans are one of the planet's largest carbon sinks. They have collectively absorbed about 25 per cent of all the emissions humans have released since the start of the industrial revolution, with the majority of this accounted for by phytoplankton, microscopic marine algae and bacteria that 'breathe in' carbon dioxide, store the carbon within themselves and 'breathe out' oxygen. Indeed, these micro-organisms are so numerous and efficient at absorbing carbon dioxide that they remove as much carbon from the atmosphere as all the plants and trees on land combined.⁸

But this natural carbon capture asset is now under threat from the rising levels of plastic pollution within the oceans; the plankton eat these micro plastics, which slows down their absorption of carbon dioxide. Plastic pollution in the world's oceans is also now directly impacting the fishing industry; the ingestion of plastic waste is harmful to the health of the fish, which ultimately reduces the stock of fish in the ocean. So, by not protecting the ocean ecosystem, we are making it harder to reduce carbon emissions while also increasing the cost of fishing to the world economy.

⁶ <https://home.kpmg/au/en/home/insights/2021/12/demystifying-natural-capital-and-biodiversity.html>

⁷ <https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review>

⁸ <https://www.clientearth.org/latest/latest-updates/stories/what-is-a-carbon-sink/#:~:text=Phytoplankton%20are%20the%20main%20reason,and%20trees%20on%20land%20combined>





Australia's unique biodiversity has historically underpinned our economic success as a nation, but this economic success has largely been at the expense of our most precious asset: nature. The time has come to value nature in the same way as traditional capital and account for its value in a more integrated and holistic manner to enable us to make better, nature-smart' decisions and affect an orderly, nature-positive economic transition.

Carolyn Leeshaa

Director, Natural Capital & Biodiversity Global Lead,
KPMG Australia

Despite the obvious win-wins from protecting the natural environment, successive international scientific reports⁹ present a clear, unified message: our planet is rapidly approaching a 'tipping' point' – the first of its kind induced by humans. The WWF 2018 Living Planet Report estimates that 60 per cent of the animal population have been lost since 1970, despite the fact, that our economies, well-being and livelihoods are becoming more reliant on nature than ever¹⁰. This change will ripple through our globalised system and impact our economies and the ability of people, communities and businesses to thrive.

Nature loss and climate change are two inter-related issues that compound each other, and they must be addressed together in tandem. To put it simply, we cannot reach net zero and achieve the UN Sustainable Development Goals without halting and reversing nature loss and measurably and visibly moving to a regeneration of the natural environment. Natural ecosystems can become one of our biggest allies in controlling the level of carbon dioxide in the atmosphere, and so limiting global warming.

Valuing nature and the services it provides

So what can be done to better recognise the value of the natural environment to our economy and way of life, to incentivise an adequate level of protection? As a start, we should fully recognise nature as an asset that contributes a stream of services to our economy.

Stanford University's Natural Capital Project¹¹ has established a range of models to begin the process of accurately valuing the services the natural environment provides to us, with these valuations then included in policy and business decisions. For example, their research has identified the importance of a diverse natural environment in reducing the risk of zoonotic diseases (such as COVID-19) spilling over from animals to humans.¹² By not accounting for this negative spillover when deciding on how much to protect diversity, we are increasing the likelihood of another novel disease jumping across to humans and triggering another pandemic.

Other researchers have been able to identify the best marine sites to develop wave energy electricity generation capacity¹³ to maximise the benefit (in terms of power production) to humans while also considering the impact on nature. Offshore sites, 2-10km from the land are best as they minimally disrupt fishing access, tourism activities and pre-existing shipping lanes.

And the Australian Bureau of Statistics (ABS) and others are now developing the techniques to put a value on the ecosystem services nature provides. In its first edition of the ocean accounts¹⁴, the ABS estimates that 85,600 homes and 18,800km of coastline are protected by coastal mangroves. To replace the mangroves with seawalls would cost almost \$220 billion, with the protection services estimated to be the equivalent of \$2.2-\$8.7 billion annually.

⁹ For example, reports from IPCC, IPBES, IUCN, OECD, World Resources Institute

¹⁰ <https://www.wwf.org.uk/updates/living-planet-report-2018>

¹¹ <https://naturalcapitalproject.stanford.edu/who-we-are/natural-capital-project>

¹² <https://www.sciencedirect.com/science/article/abs/pii/S0960982221012069?via%3Dihub>

¹³ <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0047598>

¹⁴ <https://www.abs.gov.au/statistics/environment/environmental-management/national-ocean-account-experimental-estimates/aug-2022>

Fully account for nature in economic wellbeing

Economists, too, are now actively tackling the issue, by fundamentally re-framing how we assess economic performance;¹⁵ it's always worth remembering that GDP measures the amount of *gross* activity the economy undertakes in a given quarter or year, and by design it does not count the depreciation of the capital stock, both physical (machinery, equipment, buildings), human (education and skills) and natural. Furthermore, the complexity of the natural environment, its largely hidden nature and the global spillovers – the oceans belong to everyone and no one – mean that by and large we can't see or touch the services they provide, such as carbon capture. As a result, measuring and taking full account of these services is intrinsically very difficult.

Fundamentally, then, we need to take account of the depreciation of the natural environment when considering economic performance. The natural environment is a finite resource, with estimates suggesting that since 1992 the stock of natural capital per capita has declined by almost 40 per cent.¹⁶

This is clearly not sustainable, and if we continue to deplete the natural environment we will eventually move into a phase where our living standards begin to decline.



Despite the obvious win-wins from protecting the natural environment, successive scientific reports have made it clear that human activity is continuing to deplete it.

The UK government's Dasgupta review into the economics of biodiversity has introduced a growth model which includes natural capital as a provider of both resources (iron ore, oil, natural gas etc) and services.¹⁷ From this we can add a new measure of economic progress, *Net Domestic Consumption* (NDC), that is a compliment to the traditional GDP. NDC is defined as GDP minus the depreciation of all capital assets, including the natural environment. Generating positive NDC is much harder than increasing GDP from one period to the next, since the value of our consumption (GDP) needs to be more than the value of the capital we use up to make it. While this is generally true if we only consider the buildings, machinery, equipment and education and skills we have built or acquired, once the natural environment is added to the equation NDC could easily drop into negative territory.



¹⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf

¹⁶ *Inclusive wealth report 2018*, Managi S & Kumar P (2018)

¹⁷ *Chapter 4** in https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf

Putting nature at the heart of economic decisions

It is therefore clear that much more needs to be done to fully recognise the value of nature to our living standards, to ensure that the natural environment can continue to provide the services upon which we rely.

The federal government's upcoming launch of a wellbeing budget¹⁸ is a golden opportunity to establish a framework for valuing the natural environment (and the loss of wealth from destruction of the environment) and its contribution to economic activity. KPMG is therefore advocating for maintaining and repairing the natural environment to be one of the core pillars of the wellbeing budget.

By putting nature at the heart of the budget-setting process, policymakers will need to explicitly consider the impact of policy changes and spending and taxation decisions on nature. The government doesn't have to go it alone in protecting the natural environment, but it does need to establish the framework and institutions needed to mobilise the private sector to properly value nature as a productive asset. With this established, the market economy stands a much better chance of choosing to protect nature, for rational, economic reasons.

Steps have already been taken to bring ecosystem planning into public decision making. The federal government is a key supporter of the global nature-related risk management and disclosure framework proposed by the Taskforce for Nature Related Disclosures (see below); KPMG is also a proud member of this group. And federal and state governments are now explicitly recognising the importance of natural ecosystems, and explicitly incorporating their protection into regulations, town planning and other decisions where nature and people interact.

For example, the NSW state government's regional development plans, such as the recently released Hunter region plan, explicitly consider and enshrine protection for their natural environments.

The private sector is also now beginning to tackle the problem, given the increasing recognition of the importance of the natural environment to all parts of the economy. The Taskforce on Nature-related Financial Disclosures (TNFD) has been established to enable businesses and financial institutions to understand, assess and act on their dependencies and impact on the natural environment and support organisations on a journey to integrate nature into all aspects of their operations. The TNFD is adopting a 'double materiality' approach and considers the two-way interactions with nature – meaning organisations should consider and disclose not just how nature may (positively or negatively) impact the organisations' immediate financial performance (from the outside in), but also how the operations of an organisations (positively or negatively) impact nature (from the inside out).

The framework's ultimate object is the re-direction of the global flow of capital away from activities that harm nature and towards activities that benefit it. As such, it enables the identification of investment exposure and opportunities. The importance of putting a value on natural capital services is clear, with estimates suggesting that the continued degradation of the environment reduces global GDP by US\$479bn a year¹⁹. And the contribution of nature to economic activity is set to grow rapidly with the increasing need to reduce emissions, which can be done through nature-based solutions to decarbonisation, as well as the shift to explicitly value and recognise more of the currently implicit income streams nature-based services provide.

Kilter Rural

Kilter Rural²⁰ is a boutique investment fund manager, specialises in identifying and investing in rural assets that deliver both a positive monetary return and improve the natural environment. Its funds include the Murray-Darling Basin Balanced Water Fund and the Australian Farmlands Fund, both of which invest in high-productivity technology that increases yields while also protecting the asset for future generations.

¹⁸ <https://www.afr.com/policy/economy/chalmers-first-budget-will-include-a-chapter-on-wellbeing-20220707-p5azvt>

¹⁹ Living Planet Index

²⁰ <https://kilterrural.com/>

Forico

To step towards fully valuing its natural capital assets, Forico's inaugural 2020 Natural capital Report and the second 2021 Natural Capital Report, place a dollar value on the most material ecosystem assets under Forico's custodianship. This assessment considers the holistic value of their forests and vegetation communities under management, including the social and economic benefits beyond the production of high quality fibre. Valuing both the business and wider community benefits across a range of indicators, including carbon sequestration, wood fibre, water filtration and natural habitat conservation, led to Forico conservatively calculating a Net Natural Capital Value of \$3.37 billion.

These developments in public and private sector understanding open the way for new ways of responding to this crisis, including drawing on market-based approaches to incorporating ecological services into economic decision making. As with climate, the responses are likely to consist of a judicious combination of information, regulatory and market interventions. Extending and complementing carbon markets can be one powerful mechanism for hardwiring ecological services into the economy, and we will return to this in future KPMG reports.

Bega Circular Valley

The Bega Circular Valley 2030 (BCV2030) is a high-impact regional development initiative, which has the pioneering vision to transform the Bega Valley Shire into a world-leading circular regional economy by 2030. This initiative is putting protecting the natural environment and its resources at the heart of its goals, but the initiative also has ambitious economic growth, social equity and community development and resilience goals. By marrying protection of the environment with economic, social and cultural outcomes, the initiative is a clear example of an alternative way to achieve regenerative economic development and jobs growth in regional areas, weaving together the preservation of the natural environment and the input goods and services it provides.

²¹ <https://forico.com.au/>, KPMG Australia has provided limited assurance services during the production of these reports

In short, we simply cannot expand beyond our planetary boundaries. For humans to survive and thrive on planet earth we need to grow in harmony with nature and transition to a regenerative economic system. To do this, we need to fully account for nature in the decisions governments and businesses make. Valuing nature's services and considering nature as a capital asset is a vital first step in this process.

Authors



Dr. Sarah Hunter
Partner, Senior Economist
KPMG Australia
sarahhunter@kpmg.com.au



Carolin Leesha
Director, Natural Capital & Biodiversity Global Lead
KPMG Australia
cleeshaa@kpmg.com.au

Further contacts

Julia Bilyanska
Partner, ESG Services
KPMG Australia
jbilyanska@kpmg.com.au

Steven Casey
Partner, Policy, Programs and Evaluation
KPMG Australia
stevencasey@kpmg.com.au

Scott Mesley
Partner, ESG Growth Leader
KPMG Australia
smesley@kpmg.com.au

KPMG.com.au

The information contained in this document is of a general nature and is not intended to address the objectives, financial situation or needs of any particular individual or entity. It is provided for information purposes only and does not constitute, nor should it be regarded in any manner whatsoever, as advice and is not intended to influence a person in making a decision, including, if applicable, in relation to any financial product or an interest in a financial product. Although we endeavour to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

To the extent permissible by law, KPMG and its associated entities shall not be liable for any errors, omissions, defects or misrepresentations in the information or for any loss or damage suffered by persons who use or rely on such information (including for reasons of negligence, negligent misstatement or otherwise).

©2022 KPMG, an Australian partnership and a member firm of the KPMG global organisation of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

The KPMG name and logo are trademarks used under license by the independent member firms of the KPMG global organisation.

Liability limited by a scheme approved under Professional Standards Legislation.

September 2022. 966708167AARC.