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## Commissioner's foreword

I am pleased to present the *State and Benefit* Framework for the Victorian 2018 State of the Environment (SoE) Report.

The long-term goal of environmental reporting is to inform community, policy and decision making to improve environmental outcomes and ultimately, protect and enhance the benefits we obtain from our environment. As Victoria's population and economy continue to grow it is increasingly important that we understand both the state of our natural environment and the benefits we derive from it.

*State and Benefit* is a framework for reporting reform. It aligns Victoria with international environmental reporting initiatives and improves the efficacy of our collective environmental monitoring and reporting effort.

The title for this framework, *State and Benefit*, reflects the two key principles that will underpin the 2018 SoE Report. These principles are to present objective and accurate information on the state of Victoria's natural assets, and to emphasise the direct and indirect benefits that all Victorians derive from healthy and sustainable ecosystems.

*State and Benefit* aims to establish Victoria as a leader in environmental reporting. It commences a reform journey that will continue past the 2018 SoE reporting cycle to deliver a shift to digital reporting, introduce a set of agreed statewide indicators to help make Victoria's many environmental reports comparable, and will take into account the socio-economic values of our natural capital. It will report on climate change impact and adaptation indicators and will align with international frameworks - the United Nation's (UN) System of Environmental Economic Accounts (SEEA) and the new UN Sustainable Development Goals (SDGs).

The transition to digital reporting will, in the longer term, provide easy-to-access data in a timely manner, allow us to harness citizen science and assist individuals and communities to better develop their own perspectives on what the science tells them. The 2018 SoE Report as a digital system will be complemented by a synthesis report to provide a comprehensive picture of both the *State and Benefit* of Victoria's environment.

The new State of the Bays Report, due in 2016, will be issued as the first report under the *State and Benefit* framework. The next report to be coordinated under the SoE umbrella will be the Victorian Catchment Management Council's (VCMC's) Catchment Condition and Management Report, due in 2017. To deliver these reports my office will work in collaboration, using a model of co-creation, with the Department of Environment, Land, Water and Planning (DELWP), the VCMC, the Victorian Environment Protection Authority (EPA), and many other important partners and stakeholders.

*State and Benefit* will help us better understand and address the ongoing challenges faced by our natural assets and to adapt to climate change.

I would like to thank our many portfolio partners, in particular DELWP, and other individuals, groups and associations for their enthusiasm and shared commitment and support for this change in approach to SoE reporting in Victoria.



**Dr Gillian Sparkes**

Commissioner for Environmental Sustainability  
December 2015



## Abbreviations

DELWP .....	Victorian Department of Environment, Land, Water & Planning
DPSIR .....	Driving force-Pressures-State-Implications-Responses
EPA.....	Victorian Environment Protection Authority
ESD.....	Ecologically sustainable development
GDP.....	Gross Domestic Product
MDGs.....	Millennium Development Goals
OCES .....	Office of the Commissioner for Environmental Sustainability
SDGs.....	United Nations Sustainable Development Goals
SEEA.....	United Nations System of Environmental Economic Accounts
SNA .....	System of National Accounts
SoE .....	State of the Environment
<i>STATE AND BENEFIT</i> .....	State and Benefit Framework
TEEB.....	The Economics of Ecosystem and Biodiversity
UN .....	United Nations
VAGO.....	Victorian Auditor-General's Office
VCC .....	Victorian Coastal Council
VCMC.....	Victorian Catchment Management Council
WAVES.....	Wealth Accounting and the Valuation of Ecosystem Services

### The authorising environment for SoE reporting in Victoria

In 2003 SoE reporting was introduced in Victoria through the *Commissioner for Environmental Sustainability Act 2003* (the Act). The Act also established an independent Commissioner for Environmental Sustainability (the Commissioner) and set out statutory objectives and functions to be delivered to support ecologically sustainable development (ESD) in Victoria.<sup>1</sup>

Clause 17(2) of the Act states that the Commissioner is required to prepare a report on the State of the Environment of Victoria according to a framework developed by the Commissioner and approved by the Minister for Environment, Climate Change and Water.

The framework details the methodology and approach to be undertaken in preparing the SoE Report.

Under the Act, the Commissioner has four objectives. These are to:

1. Report on matters relating to the condition of the natural environment of Victoria;
2. Encourage decision making that facilitates ecologically sustainable development;
3. Enhance knowledge and understanding of issues relating to ecologically sustainable development and the environment; and
4. Encourage sound environmental practices and procedures to be adopted by the Government of Victoria and local government as a basis for ecologically sustainable development.

In performing the functions and exercising the powers under the Act, the Commissioner must have regard to the following principles:

- The effective integration of economic, social and environmental considerations with the need to improve community well-being and the benefit of future generations;
- That actions should add value and be targeted to achieving the most benefit for the people of Victoria;

- That decision making should focus on developing solutions and achieving improvements; and
- The need to ensure impartiality, openness, transparency and accountability.

SoE reporting is a key function assisting the Commissioner in achieving these objectives and delivering on the principles.

The next Victorian SoE Report required under the Act and developed in accordance with this framework is due to be tabled by 28 November 2018. After over 10 years, two reports and some 300 recommendations to government a targeted review of SoE reporting undertaken in 2014 showed that SoE reporting needs to change if it is to be of better use to government, interest groups and the community. The outcomes of that review inform this framework and will guide the delivery of the 2018 SoE Report.

As the first steps in a longer term reform the Office of the Commissioner for Environmental Sustainability (OCES) will undertake three critical developments during this SoE reporting cycle:

- **Establishing a set of statewide environmental indicators** to be used across a range of reporting products and statutory obligations.
- **Commence aligning Victoria's environmental reporting efforts** by co-creating with DELWP the State of the Bays Report (2016), assisting the VCMC with the Catchment Condition and Management Report (2017) and demonstrating a consistent narrative between these reports and the next Victorian SoE Report (2018).
- **Providing accurate information when Victorians need it** – the evidence base of future reporting will be on line, with the 2018 SoE Report being the first step in providing information in a digital format.

1. Parliament of Victoria, *Commissioner for Environmental Sustainability Act 2003*, Melbourne, 2003.

## Establishing a set of statewide environmental indicators

Despite a proliferation of current Victorian environmental reports, it is difficult to determine the linkages between them. This represents a significant gap or deficiency in current reporting arrangements and in response, a set of statewide indicators will be developed. These will enable the monitoring of critical issues about Victoria's natural capital to inform decision making and investment by demonstrating the interrelationships between the biophysical information, the socio-economic benefits obtained from the environment and how we are adapting to climate change.

In this SoE reporting cycle there are opportunities to make systemic changes that will enable critical steps forward in our approach to reporting on the environment, increasing the benefits it delivers, while building on recent international and national developments in reporting.

Best-practice indicator development focuses on a bottom-up approach to ensure that indicators relay fundamental information about our natural assets, their condition and the benefits they provide. However, there still needs to be planning undertaken to ensure that future reporting can produce critical information on emerging environmental issues and provide an evidence base for decision-making.

Indicators are only as good as the information and data that is used to populate them – and this, in turn, is dependent on the level of investment in data collection, management and analysis. OCES will advocate for improved data collection and monitoring during this reporting cycle.

## Condition and extent indicators

OCES will work across the environment portfolio to bring together the underlying scientific knowledge and understanding of the Victorian environment so as to measure the condition and extent of environmental assets.

In 2014, the Victorian Auditor-General's Office (VAGO) released a report on the *Effectiveness of Catchment Management Authorities<sup>2</sup>* recommending a number of improvements to catchment management, including environmental reporting. Agencies across the portfolio including OCES are working together to develop an agreed set of statewide condition and extent indicators for Victoria in response to the VAGO report recommendations. These indicators should be available early in 2016.

In defining these indicators, OCES will work with our partners to give consideration to the need for alignment and consistency across Victorian environmental reports, while being aware of the differences in data availability and the dependencies between different domains and ecosystem types.

An agreed set of statewide condition and extent indicators can directly inform the production and alignment of the State of the Bays Report and the VCMC's Catchment Condition and Management Report, among others. In combination with Victoria's international reporting obligations, such as the Montreal Protocol (Forests) and the Convention on Biological Diversity, they will enable the 2018 Victorian SoE Report to be an integrating process that links these discrete stories about specific natural capital into a broad narrative that can inform statewide policy development.

The work being undertaken by DELWP and the environment portfolio to review the *Flora and Fauna Guarantee Act 1988* and develop the next Victorian Biodiversity Strategy in 2016 will advance the level of discrimination of relevant biodiversity indicators at the operational scale. It will also set out statewide biodiversity priorities that can provide guidance for the whole conservation sector, in addition to supporting an authorising environment for biodiversity reporting.

### Socio-economic indicators

Socio-economic indicators can demonstrate how our actions impact on natural capital and how natural capital (through ecosystem services) provides benefits to society.

The conservation of biodiversity and ecosystem function has an intrinsic value and the importance of our stewardship of the environment cannot be overstated. However, the benefits of healthy ecosystems to human health and well-being are also critical.

Broadening the SoE Report to include an analysis of this fundamental relationship is central to the SoE reporting reform and the new approach that *State and Benefit* represents.

### Climate change impact and adaptation indicators

The 2013 Victorian SoE Report (and the 2012 foundation paper *Climate Change Victoria: the science, our people and our state of play*<sup>3</sup>) presented evidence on climate change trends and key risks to Victorians including increased droughts, fires, storm events and coastal inundation. The changing climate is also adversely impacting our rivers, biodiversity, coastal and marine assets.

Climate change presents direct dangers to human health and wellbeing due to the increased occurrence of extreme climatic events (such as droughts, floods and heat waves) and these same events disrupt economic activity and impact economic growth. In response, the 2018 SoE Report will capture the relationship between the stress of climate change and its impact on society's well-being.

A number of indicators related to climate change are tracked nationally including greenhouse gas emissions, temperature, rainfall, sea level rise and carbon storage in our natural environment.

OCES will also look to identify and develop indicators for measuring effectiveness in climate change adaptation as successful adaptation means that many adverse impacts can be reduced or avoided. This will help assess Victoria's climate vulnerability and track progress towards climate resilience.

The review of the *Climate Change Act 2010* and the next Victorian Climate Change Adaptation Plan in 2016 provide a policy framework and authorising environment for climate change and adaptation reporting.



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## Aligning Victoria's environmental reporting efforts

Numerous agencies collect information about the state of Victoria's environmental assets (land and biodiversity, forests, water, coasts, marine, air). *State and Benefit* offers a process to facilitate a more streamlined, consistent approach to the way data is collected and reported across the State.

Many reports have unique indicator sets.

The introduction of statewide indicators will ensure linkages between relevant statutory environmental reports. Ultimately, and by continuing past 2018 into the next SoE reporting cycle this consolidation can produce a reporting regime at State level, of statutory environmental reports that "talk to each other".

The processes of collaboration and co-creation with Victorian environment portfolio partners to deliver *State and Benefit*, provides a pathway to this integrated approach to reporting.

This collaborative process will reveal options on how to best direct resources to improve the efficacy of existing monitoring and data management systems. Through these processes *State and Benefit* aims to deliver both a SoE Report and a reporting process reform.

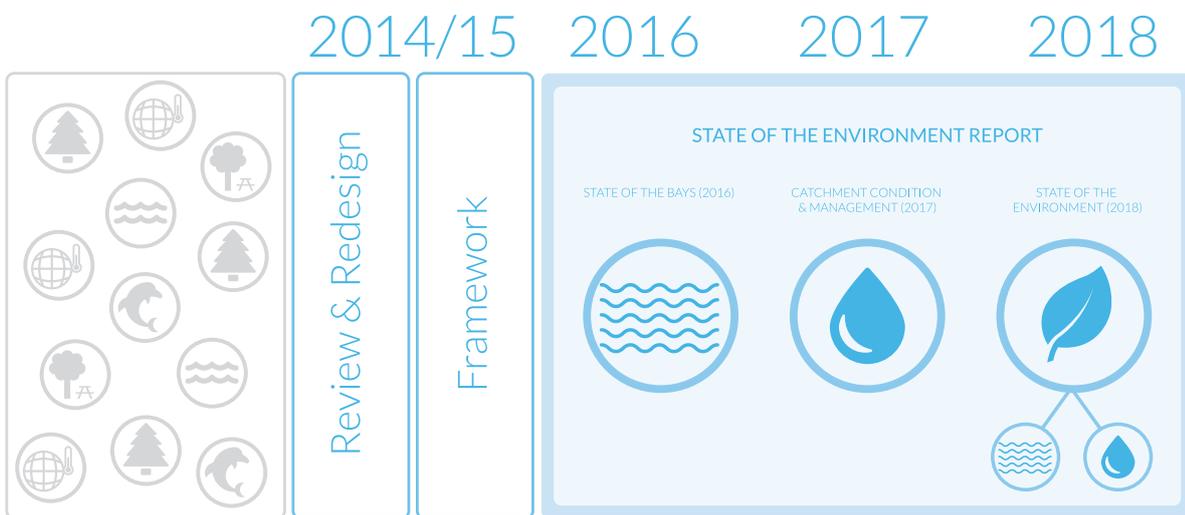
The SoE reporting reform aims to drive improved monitoring regimes leading to better environmental outcomes. By showing a nexus between environmental, economic and social outcomes it will help identify integrated policy solutions and responses.

Aligning reporting also improves community access to information which in turn improves the accountability and transparency of government.



These key outcomes will be delivered through:

- Integrated environmental reporting with consistency and comparability between state-level reports
- A focus on environmental monitoring needs and data integrity
- Reports that provide an evidence base to support better agency prioritisation of investment
- Integration of indicators across the environment portfolio and agencies
- Identification of knowledge gaps and a facilitation of remedies.



This alignment of reports commences with the new State of the Bays Report, to be issued in 2016 as the first report under this *State and Benefit* framework. The next report to be coordinated under the SoE reporting umbrella will be the VCMC’s Catchment Condition and Management Report, due in 2017. To deliver these reports OCES will work in collaboration, using its model of co-creation, with the DELWP, VCMC, EPA the Victorian Coastal Council (VCC) and other important partners and stakeholders.



## Accurate information when Victorians need it – a shift to digital

The evidence base for future reporting will be on line with the 2018 *State and Benefit* SoE Report the first step in providing information in a digital format for all Victorians.

This will be accompanied by a synthesis report to provide a comprehensive picture of the environment in Victoria, including a discussion of key scientific findings in relation to the *State and Benefit* of the environment, with policy implications that intersect across the domains and ecosystems covered by multiple statutory environmental reports. It will also demonstrate the link between our local, state, national and international reporting obligations.

The shift to digital reporting will, over time, improve access to immediate and accurate data and help create reports that are more practical, useful and relevant.

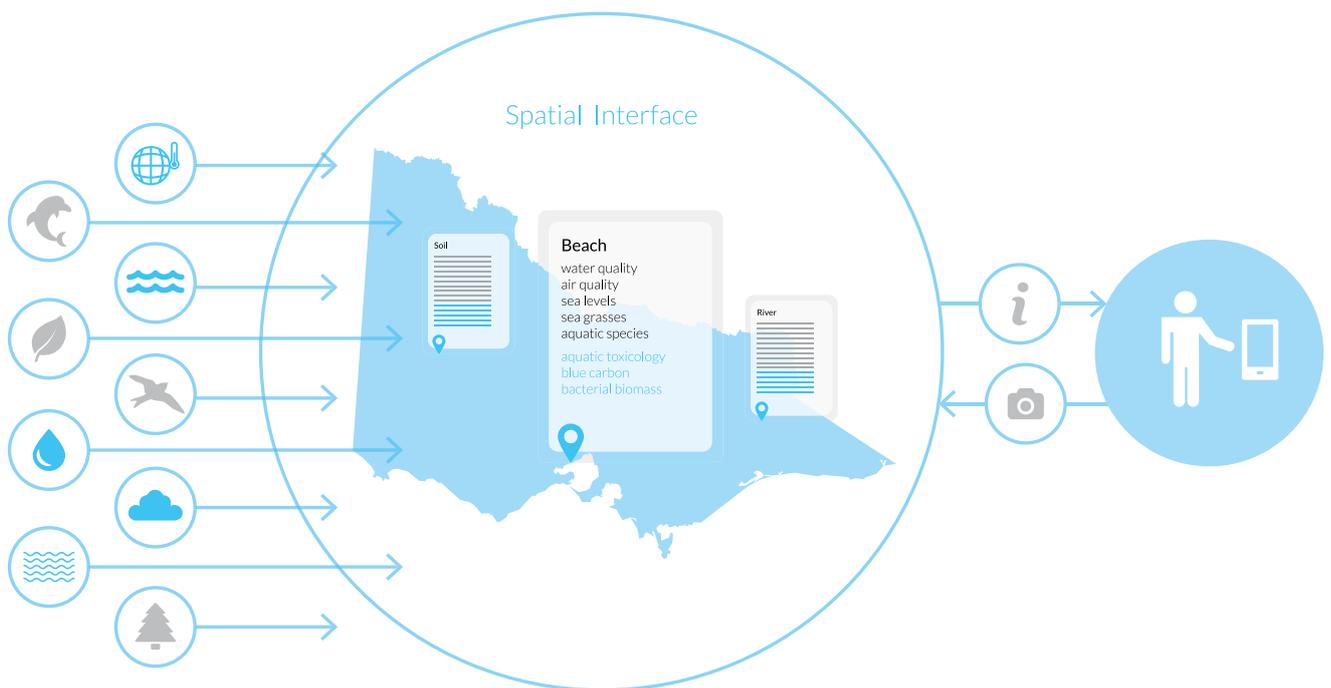
Using existing Victorian Government digital mapping platforms and integrating a wide range of data sets that can be presented spatially, the digital report will in the longer term enable inquiries to be made at many levels of detail and across a range of domains, including air, land, fresh water, marine and coastal, soil, air, biodiversity and community.

Ultimately, the digital platform will help government harness citizen science as a legitimate and powerful environmental policy and management tool.

Multiple sources of data

Multiple layers of data

Information anytime, anywhere



### Ecologically sustainable development

“Ecologically sustainable development” (ESD) is defined in section 4 of the Act.

■ ■ **Ecologically sustainable development is development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.**<sup>4</sup> ■ ■

The Act includes a set of guiding principles for ESD:

1. That decision making processes should effectively integrate both long-term and short-term economic, environmental, social and equity considerations;
2. If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
3. The need to consider the global dimension of environmental impacts of actions and policies;
4. The need to develop a strong, growing and diversified economy which can enhance the capacity for environment protection;
5. The need to maintain and enhance international competitiveness in an environmentally sound manner;
6. The need to adopt cost effective and flexible policy instruments such as improved valuation, pricing and incentive mechanisms;
7. The need to facilitate community involvement in decisions and actions on issues that affect the community.

In addition to linking the condition and extent stories about Victoria’s natural capital consistent with previous SoE Reports, the 2018 SoE Report will bring a logic and system to understanding the benefits of our natural capital to human health and well-being. In doing so, *State and Benefit* addresses the ESD principles of the Act which have not previously been mainstreamed in environmental reporting in Victoria.

### Reporting methodologies

#### Trend away from DPSIR

Victoria’s 2008 SoE Report adopted the Driving force-Pressures-State-Implications-Responses (DPSIR) reporting methodology. The 2013 report commenced a trend away from a rigid acceptance of the DPSIR methodology. *State and Benefit* progresses this move away from DPSIR by acknowledging the complexity inherent in environmental systems and the interactions between society and the environment. Environmental changes are induced by drivers and impacted by pressures, but these drivers and pressures are also affecting each other and are being influenced by other anthropogenic changes – demographic, cultural, technological, material.

Recently, the European Environment Agency’s *The European Environment: State and Outlook 2015*<sup>5</sup> documented its own trend away from the DPSIR methodology to focus on systemic challenges and support for decision making. This gap in DPSIR is also being addressed by the development of recent international standards including the UN’s System for Environmental-Economic Accounts (SEEA)<sup>6</sup>, the Economics of Ecosystem and Biodiversity (TEEB)<sup>7</sup>, Natural Capital Declaration<sup>8</sup>, and Wealth Accounting and the Valuation of Ecosystem Services (WAVES).<sup>9</sup>

4 Parliament of Victoria, Commissioner for Environmental Sustainability Act 2003, Melbourne, 2003.

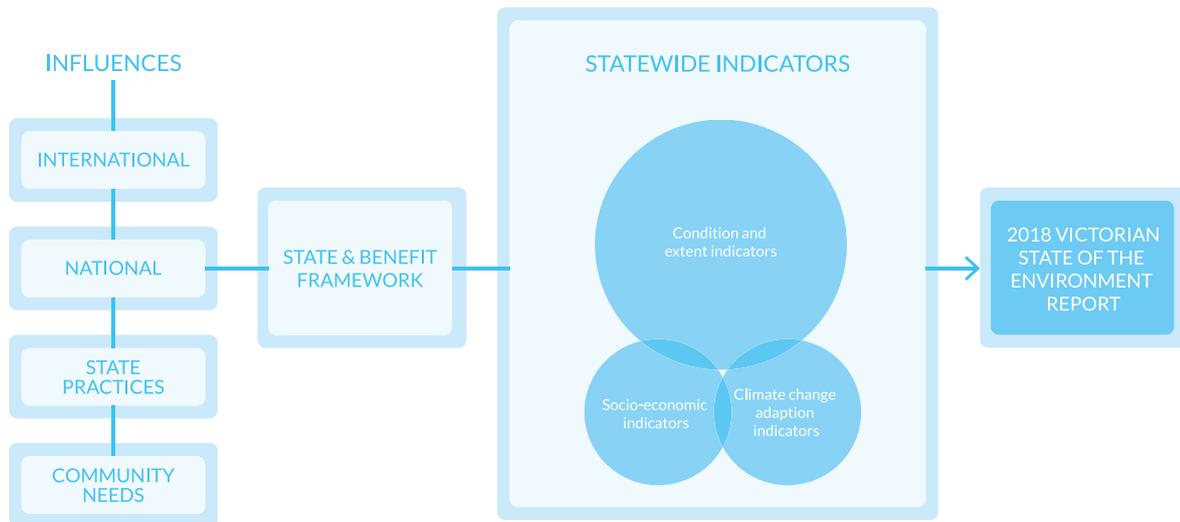
5 <http://www.eea.europa.eu/soer>

6 [http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf)

7 <http://www.teebweb.org>

8 <http://www.naturalcapitaldeclaration.org/>

9 <http://www.wavespartnership.org/en>



### Accounting for ecosystem services

The sustainability of our communities and our economy rely on interactions between our natural capital, our produced assets and our human capital. Natural capital includes a diverse range of land, marine and fresh water ecosystems, biodiversity and associated resources. However, only the extraction and harvest of resources are currently reflected in measures of economic performance, such as Gross Domestic Product (GDP).

The environmental impacts of unsustainable harvesting and damage from pollution are not recognised in the System of National Accounts (SNA). Benefits provided by ecosystems such as air filtration, flood protection and amenity services are not considered in the market by consumers, businesses, government and foreign nations (economic units) and are also excluded. The current national accounting standards only present a partial story of the sustainability of current economic activity.

“Environmental-economic accounting describes a system of accounts that reports on the inventory of environmental assets and the services they provide for use in our society and economy. The SEEA Central Framework, adopted as an international standard by the UN Statistical Commission in 2012, is a multi-purpose conceptual framework for understanding the interactions between the economy and the environment, and for describing stocks (and the changes in stocks), of environmental assets. It puts statistics on the environment and relationship to the economy at the core of official statistics. SEEA is ultimately a key tool for measuring progress towards sustainable development goals.<sup>10</sup>”

## Sustainable development goals

SEEA is being implemented at the same time that the UN is establishing the Sustainable Development Goals (SDGs) to replace the Millennium Development Goals (MDGs).<sup>11</sup>

*"[The SDGs] are action oriented, global in nature and universally applicable. They take into account different national realities, capacities and levels of development and respect national policies and priorities. They build on the foundation laid by the [Millennium Development Goals] MDGs, seek to complete the unfinished business of the MDGs, and respond to new challenges. These goals constitute an integrated, indivisible set of global priorities for sustainable development."<sup>12</sup>*

The SDGs are supported by a series of indicators (currently under development) which will be built with consideration of existing, agreed, international frameworks including the SEEA. The SDGs recognise that the extent and condition of our ecosystem assets provide many social, cultural and economic benefits.

At a national level, the Wentworth Group's *Blueprint for a Healthy Environment and a Productive Economy*<sup>13</sup> establishes the case that it is possible to grow the economy and protect the environment, and describes long-term institutional and economic reforms that are essential to achieve this.

There are also critical processes underway in Victoria that will inform and complement the reform of environmental reporting including the Victorian Government's review of the *Climate Change Act* (2010).

A key consequence of loss of natural capital, in addition to reducing the capacity of the economy, is the diversion of economic resources away from current and future production to 'fixing' avoidable environmental failures caused by past actions.

## A system for success

The link between socio-economic indicators and environmental condition is best understood as a series of connections where environmental assets interact with social and economic functions and processes and in doing so, the environment provides services to society. These services include:

- Provisioning services - such as in the provision of food, fuel, fibre and raw materials;
- Regulating services - such as in the filtering of pollutants from air and the purification of water in catchments; and
- Cultural services - such as in the provision of locations for tourism and recreation.

These services are recognised as socio-economic benefits - either as inputs to economic production or as more general benefits to society and individuals.



<sup>11</sup> <http://www.un.org/millenniumgoals/>

<sup>12</sup> Professor Dave Griggs, Monash Sustainability Institute

<sup>13</sup> <http://wentworthgroup.org/2014/11/blueprint-for-a-healthy-environment-and-a-productive-economy/2014/>

The connection between socio-economic indicators and environmental assets is well-defined for some indicators, where the relationship is clear and well understood. For example, the relationship between air pollution and the risk of respiratory or cardio-vascular diseases is well-known, with thresholds or harm that can be articulated for different categories of people. For other indicators, the relationship between environmental assets and socio-economic benefits is less clear.

For example, there is a complex relationship between the sequestering and storage of carbon by forests, the degree to which it is helping mitigate climate change impacts and the overall related flow of benefits to humans and the environment.

SEEA provides an information and analytical framework for linking economic performance to the quantity and quality of environmental assets. SEEA is already being used by Australian and international agencies and in the community sector.

SEEA also provides a systematic and consistent basis for reporting and informing policy, planning and investment.

*“The ability to report on the outcomes of investment is limited – we need to improve this. We need to be able to demonstrate to Treasury what they have achieved through the dollars invested, and to use this to make an argument to leverage further investment. We need to be able to “talk their language”.*

*“I believe that the next generation of SoE reporting will be based on a natural capital [assets] approach – that is, evaluating a return on investment by demonstrating the benefits of ecosystem services.”<sup>14</sup>*

DELWP’s Valuing and Accounting for Victoria’s Environment is a strategic plan to adopt SEEA as the international standard for Victoria over the next five years. The intention is to build a set of accounts for Victoria to track changes in the state of the environment, impacts of management and external drivers, and the contribution of the environment to Victoria’s social and economic benefits.

A pilot to demonstrate the value of this approach was recently included in *Valuing Victoria’s Parks*<sup>15</sup> (Parks Victoria) and documented the socio-economic benefits of a number of ecosystem services – from water purification,<sup>16</sup> to pollination,<sup>17</sup> to honey production.<sup>18</sup> The OCES will work with DELWP, Parks Victoria and other portfolio partners through its co-creation model, to ensure the 2018, *State and Benefit SoE Report* is consistent with and contributes to, this broad reform agenda.

14 A Victorian Government environment portfolio leader.

15 *Valuing-Victoria’s-Parks-Report-Accounting-for-ecosystems-and-Valuing-their-benefits.docx*

16 In non-metropolitan areas, parks reduce soil sediment entering regulated rivers by 92% compared to an alternative land use; the reduced sediment load from nine of the highest water yielding national and state parks is valued at \$50 million per year based on the avoided costs of additional water storage required under an alternative land use.

17 There are benefits of \$123–167 million to consumers and producers across 30 crops from pollination services provided by Victoria’s parks.

18 The apiculture sector attributable to parks produces honey and related products worth \$3.4–\$4.6 million per year and payments to beekeepers for pollination services are in the range of \$0.6–\$1 million per year.

## Part 3: Understanding ‘State and Benefit’

For this SoE reporting cycle 2014-2018, the framework is titled *State and Benefit*, reflecting the two key principles of the final SoE Report:

- To present objective, accurate and relevant environmental information on the state of Victoria’s natural capital, and
- To emphasize the direct and indirect benefits that all Victorians derive from healthy and sustainable ecosystems.

*State and Benefit* is the first part of a longer term reform. It builds on previous SoE Reports which have focused on researching and preparing robust and informative written reports.

The objective of *State and Benefit* is to continue improve SoE reporting by making it more accessible to the community, more useful for policy makers and start to bring order and comparability to the many environmental reports prepared by the Victorian Government.

Importantly, the *State and Benefit* framework seeks to change reporting on the state of the environment and embed it in government decision making processes. Over time, this approach will equip Victoria to account for the economic benefits of a healthy ecology based on an internationally accepted framework, SEEA. It will also demonstrate the benefit of a healthy environment to the community by including socio-economic indicators with links to the global SDGs. The inclusion of adaptation indicators, in addition to the established climate change impact indicators, will also transform SoE reporting into a policy tool that can be used to help Victoria address the threat of climate change.



## Published by the Commissioner for Environmental Sustainability

Melbourne, Victoria,  
2015

Level 36, 2 Lonsdale Street  
Melbourne Victoria 3000  
T 9948 2846

[www.ces.vic.gov.au](http://www.ces.vic.gov.au)



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