

## Submission to Inquiry into environmental infrastructure

Thank you for the opportunity to comment on the critically important topic of environmental infrastructure for growing populations. This submission is informed by a 20 year program of research into various aspects of Victoria's approach to environmental governance, its effectiveness, and what might be done better (Attachment 1. for details). The overarching message is that: (1) Nature is Victoria's ultimate infrastructure, and (2) Victoria needs a systematic, coherent and concerted approach to the provision and maintenance of this infrastructure.

The environment (and as a consequence environmental infrastructure) is in serious decline, and transformative change is required

The Guardian newspaper reports that 64 leaders from five continents are warning that:

*Humanity is in a state of planetary emergency due to the climate crisis and the rampant destruction of life-sustaining ecosystems<sup>1</sup>.*

Importantly, the evidence supporting such warnings comes from the most authoritative assessments available: it is not mere speculation by uninformed interests.

The *Intergovernmental Science-policy Platform on Biodiversity and Ecosystems Services* (IPBES), released their first major report in 2019. Their case for action is compelling:

*Nature is declining globally at rates unprecedented in human history – and the rate of species extinction is accelerating, with grave impacts on people around the world. ... The health of ecosystems on which we and all other species depend is deteriorating more rapidly than ever<sup>2</sup>.*

Furthermore, when the report was released in May 2019, the chair of the IPBES, Sir Robert Watson said:

*We are eroding the very foundations of our economies, livelihoods, food security, health and quality of life worldwide<sup>3</sup>.*

To address this decline, the IPBES conclude that 'transformative change' is required, which they understand as a:

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<sup>1</sup> Greenfield, P (2020) *World leaders pledge to halt Earth's destruction ahead on UN summit*, The Guardian. <https://www.theguardian.com/environment/2020/sep/28/>

<sup>2</sup> IPBES (2019). *Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services of the IPBES*, accessed via <https://ipbes.net/>

<sup>3</sup> Watson quoted in Metherill L. (2019) One million species at risk of extinction, UN report warns, and we are mostly to blame, 6 May, [www.abc.net.au](http://www.abc.net.au).

*Fundamental system-wide, reorganisation across technological, economic, and social factors including paradigms, goals and values<sup>4</sup>.*

Put simply, business as usual, incremental change, or even modest reform is not sufficient to arrest and reverse ecosystem decline: transformative change is required.

The scientific case for action on climate change is equally compelling, with the *Intergovernmental Panel on Climate Change* (IPCC) concluding that:

*Human influence on the climate system is clear, and recent anthropogenic emissions of green-house gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems<sup>5</sup>.*

Furthermore, the IPCC state that:

*Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems<sup>6</sup>.*

Credible evidence also demonstrates that Victoria's environment is in serious decline, and this has been known for a considerable time. For example, as early as 2002, the *Victorian Catchment Management Council* (an independent statutory body which advises the Victorian government on catchment management) concluded, in their catchment condition report, that:

*Our natural resources are under pressure and, in many cases, will not be not be passed on to the next generation in good condition. ... Under current resourcing and management paradigms our efforts to protect and sustainably manage natural capital are not keeping pace with the breadth of degradation symptoms depreciating the natural capital base<sup>7</sup>.*

More recently, the 2018 State of Environment (SOE) Victoria report, prepared by the *Commissioner for Environmental Sustainability* (an independent statutory body with responsibility for SOE reporting in Victoria) concluded that:

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<sup>4</sup> IPBES (2019). Op cit p5.

<sup>5</sup> IPCC (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, p2.

<sup>6</sup> *ibid*, p8

<sup>7</sup> VCMC (2002) *The health of our catchments: a Victorian report card*, VCMC Melbourne, p vi.

*Victoria's biodiversity - the number of animal and plant species our environment supports - has seriously decreased over the past two centuries. The loss has come from land clearing, fire, pest plants and animals, land development, river regulation, water pollution, and more recently, reduced resilience under climate change. Many of our native species are now threatened, and native vegetation continues to be lost*<sup>8</sup>.

Furthermore, the Commissioner for Environmental Sustainability found that "Most biodiversity indicators are poor and trending downwards"<sup>9</sup>.

More immediately, while Victoria's parks, gardens, waterways, wetlands, and other open space are sources of considerable comfort to many Melbournians, and Victorians, during the 'lockdown' many of these pieces of critical 'environmental infrastructure' are in danger of being loved to death.

### Themes for consideration

This section outlines some themes which may be of relevance to the Committee's deliberations.

The appropriate framing of 'environmental infrastructure' is critical

As a starting point, it is useful to appreciate that the terminology of 'environmental infrastructure' represents but one way in which nature can be conceptualised, as explained in a recent article about the ways in which nature can be thought about in urban settings: greenspace, urban forest, green infrastructure, or urban greenery<sup>10</sup>. Further, the specific way in which 'environmental infrastructure' is conceptualised has profound implications for the way in which it is governed.

At a fundamental level, the web of life makes human life possible and everything that humans do (as individuals, employees of companies, consumers of goods and services, members of a community, citizens of a state or country, members of parliament, and inhabitants of planet earth) directly or indirectly has environmental implications – we are part of nature and rely on it to survive. In effect, the web of life provides the fundamental infrastructure that supports human life, livelihoods and wellbeing. Under such a frame, Victoria's environmental infrastructure includes:

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<sup>8</sup> Commissioner for Environmental Sustainability, 2020, <https://www.ces.vic.gov.au/reports/state-environment-2018/biodiversity-plants-animals>

<sup>9</sup> *ibid*

<sup>10</sup> Cooke B (2020) The politics of urban greening, *Australian Geographer*, 51(2), 137-153.

- A safe climate
- Flourishing biodiversity in healthy ecosystems
- Healthy waterways and wetlands
- Forested water catchments, etc.

While it is possible to think of specific parks, wetlands, or waterways, as discrete pieces of ‘environmental infrastructure’, such understandings can overlook that nature makes life possible. Human life, and material wellbeing, is not possible in the absence of healthy ecosystems: ***Nature is the ultimate infrastructure.***

Further, if human societies are to flourish into the future, our social and economic systems, and associated systems of governance need to be grounded in a foundation, which appreciates the deep connections between humans and the non-human environment in which we exist. For example, it has been suggested that it is useful to understand biodiversity and nature in terms of ‘living with’ other people and species rather than nature merely being the provider of ‘ecosystems services’<sup>11</sup>.

‘Excess land’ and ‘waste land’ needs to be reframed and re-imagined.

The way in which we think about ‘things’ and ‘spaces’ shapes how we see them, and what we consider them to be used for. For example, it is only in the past 50 or so years that we as Australians have come to think of whales as ‘something to marvel’ at, rather than ‘a source of blubber’.

A similar shift in how we think about ‘creeks’ and ‘swamps’ is taking place across the Melbourne Metropolitan area (as it is elsewhere around the world). In the not too distant past Melbourne’s creeks and waterways were considered as little more than drains: a convenient way to rid the city of waste. Thankfully, our waterways are being actively re-imagined (e.g. efforts to transform Merri Creek<sup>12</sup>, Darebin Creek<sup>13</sup> and other places like Stony Creek in Melbourne’s west). However, much more work remains to be undertaken (e.g. the lower reaches of Moonee Ponds creek are still largely concrete flood channel), and efforts needs to be systematic and scaled up.

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<sup>11</sup> Turnhout, E., Waterton, C., Neves, K., & Buizer, M. (2013). Rethinking biodiversity: from goods and services to "living with", *Conservation Letters*. 6(3), 154-161.

<sup>12</sup> Bush J. et al (2003), Merri Creek: Managing an urban waterway for people and nature, *Ecological Management and Restoration*, 4(3), 170-179.

<sup>13</sup> Mirams S (2011) *Darebin parklands: escaping the claws of the machine*, Melbourne Books, Melbourne.

We also need to think beyond waterways: Our rail corridors also need to be re-imagined. While relevant authorities (e.g. Vic Track) can view such public land as excess to needs, and better suited to selling off for residential development around ‘activity centres’, the limitations of such an approach becomes apparent when rail corridors are thought of as environmental infrastructure. In effect rail corridors can be biodiversity corridors, and should be managed as such, instead of barriers being erected (in the form of buildings) our rail corridors could be planted out to provide habitat, enhance the lungs of the city, provide a path for active transport, and provide a place for immersion in nature (a good example of informal space adjoining a rail corridor can be found at Cain Avenue, Northcote, on the south side of the Hurstbridge rail line).

Even something as mundane as ‘nature strips’ can be thought of as environmental infrastructure (as can other informal open spaces). It is established that council street tree policy can influence what species make use of Melbourne’s nature strips<sup>14</sup>. Clearly, nature strips are no longer just a place for utilities infrastructure, such as power, telecommunications, and water, they also provide environmental infrastructure<sup>15</sup>. Private land can also contribute to environmental infrastructure.

#### [Increase resourcing for the creation, restoration, and management of environmental infrastructure](#)

Melbourne’s existing network of parks and gardens have undoubtedly made ‘life in ‘lockdown’ much easier to bear. However, in some respects our parks and gardens are in danger of being loved to death – land is being compacted and ‘new’ informal paths created as people endeavour to get ‘time out’ or much needed recreation – e.g. cyclists creating their own single-track paths along waterways such as the Yarra River and Darebin Creek. Importantly, like other forms of infrastructure, environmental infrastructure may require maintenance (although it also needs to be recognised that nature can sometimes look after itself, if we let it).

Further, given that the benefits that nature contributes to peoples’ wellbeing is increasingly recognised in academic literature<sup>16</sup>, restoring degraded areas is no longer merely a ‘green

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<sup>14</sup> White JG, Antos MJ, Fitzsimons JA, Palmer GC. (2005) Non-uniform bird assemblages in urban environments: the influence of streetscape vegetation. *Landscape and Urban Planning*. 71: 123–135.

<sup>15</sup> Hogan T. (2003) Nature strip: Australian suburbs and the enculturation of nature, *Thesis 11*, 74, 54-75.

<sup>16</sup> Kendal et al (2016) *Benefits of urban greenspace in the Australian context: A synthesis review for the Clean Air and Urban Landscape Hub*, University of Melbourne, Melbourne.

fantasy', and instead is a sensible way for improving peoples' quality of life and sense of wellbeing. The techniques of ecological restoration (including water sensitive urban design and biodiversity sensitive urban design) and rewilding can be used to create new environmental infrastructure or enhance the operation of existing environmental infrastructure. There is also a need for the government to purchase private land and protect it for use as environmental infrastructure (e.g. grasslands on the volcanic plains).

Therefore, given the demonstrated need for, and importance of, environmental infrastructure, there would be merit in the Victorian Government establishing a statewide program to assist park management agencies (e.g. Parks Victoria), local councils, and other relevant bodies (e.g. Merri Creek Management Committee) to enhance their park management efforts on public land. Such a program would be well-placed as part of Victoria's post-Covid 19 recovery, and ongoing, efforts, as it would: provide employment; enhance the quality of Victoria's critical environmental infrastructure (parks and gardens); and assist in nurturing the connections people have with nature (as is recommended in Victoria's biodiversity strategy).

[Ensure access to environmental infrastructure is equitable \(and appropriate\)](#)

Access to the benefits of environmental infrastructure is currently unequal: some people have better access than others. This is unjust. Further, the distributional effects of the provision of future environmental infrastructure also needs to be actively considered, if the gentrification effects of urban greening are to be avoided, and/ or managed<sup>17</sup>.

In addition, it is important that access to existing public land is not unduly restricted such that a small number of people have privileged access (e.g. the example of the Northcote golf club and the City of Darebin's efforts to enhance access to this important environmental infrastructure to a greater number of people). Conversely, it is also important that access to some environmental infrastructure (such as protected water catchments) is carefully managed to avoid or minimise disturbance.

[Negotiate respectfully with traditional owners](#)

In recognition that we 'live, work and play' on the un-ceded lands of Victoria's indigenous peoples, respectful relations with these people need to be established. It would be very

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<sup>17</sup> Cooke 2020 op cit.

useful for the Committee to consider ways in which this can be done in relation to environmental infrastructure.

*Consider the governance dimensions of environmental infrastructure provision*

Given the potential effects of efforts to promote environmental infrastructure, it is important that their planning and governance are carefully considered. Recent research into the governance of four urban greening initiatives representing different scales, land tenures and organising structures, found that there are diverse approaches to urban greening [and hence provision of environmental infrastructure], and more ‘informal’ approaches should not be discounted relative to more formal initiatives - a spectrum of approaches can be seen as a strength<sup>18</sup>. Put simply, diverse forms of environmental infrastructure are required. Further, in assessing the governance of these initiatives, it was found that the standards against which initiatives are assessed should be tailored to their specific circumstances: good governance of urban greening [and hence provision of environmental infrastructure] should be both situated and principled.

*Identify and address the drivers that degrade environmental infrastructure*

For environmental infrastructure to meet the needs of a growing population, the drivers of environmental degradation must be addressed. Table 1., adapted from a 2008 report prepared for the Victoria Naturally Alliance<sup>19</sup>, provides a summary of some direct and indirect drivers of environmental degradation.

*Table 1. Summary of direct and indirect drivers of environmental decline*

<b>Direct drivers</b>	<b>Indirect drivers</b>
<ul style="list-style-type: none"> <li>• Changes in land use and cover</li> <li>• Species introduction or removal</li> <li>• Technology adaptation and use</li> <li>• External inputs (e.g. fertilizer, pest control, irrigation)</li> <li>• Harvesting and resource consumption</li> <li>• Climate change</li> <li>• Natural, physical and biological drivers (e.g. evolution, volcanic activity)</li> </ul>	<ul style="list-style-type: none"> <li>• Demographic factors: human fertility, mortality and migration</li> <li>• Economic drivers: production, distribution, consumption, and disposal</li> <li>• Sociopolitical factors</li> <li>• Cultural and religious drivers</li> <li>• Scientific and technological drivers</li> </ul>

*Ensure the ecological processes that underpin environmental infrastructure are sustained*

Specific parks, gardens, wetlands, and waterways can only be sustained if the ecological processes underpinning them are sustained. When ecological processes are degraded or

<sup>18</sup> Coffey B et al (2020) Towards good governance of urban greening, *Australian geographer*, 51(2), 189-204.  
<sup>19</sup> MacGregor et al. (2008) *Ecological processes in Victoria: policy priorities for sustaining biodiversity*, VNPA.

destroyed, the environmental values that depend on them are also degraded reduced or lost: for example, an urban woodland that harbours native plants and animals, and provides a place for people to enjoy, can only continue to do so if the ecological processes that underpin the woodland continue to be provided.

#### Integrated thinking and concerted responses are required

Integration (embedding the consideration of environmental objectives in non-environmental areas/ sectors) is a key defining feature of sustainable development, with two dimensions:

- *Vertical integration* (integrated planning and management across levels (e.g. statewide, regional, local)
- *Horizontal integration* (consideration of environmental infrastructure across departments – e.g. Treasury, Victrack etc and sectors).

More integrated consideration of environmental infrastructure in public sector planning and decision making is critical if Victoria's environmental infrastructure is to meet the needs of a growing population. Put simply, integration requires that the environment, and environmental infrastructure, becomes visible, and relevant to, all areas of policy, planning and governance: all Ministerial portfolios and associated departments need to consider the importance of environmental infrastructure. In a practical sense, what this means is that unused land along rail lines is no longer thought of as waste land to be sold off for residential development (e.g. residential developments built on 'excess' public land along rail corridors). Instead, such land could be understood as a critical link in a vegetation corridor.

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#### **About the author**

The author has a PhD in policy studies. His research centres on public policy and governance (as they relate to questions of sustainability and the environment) and science-policy relations. He is particularly interested in exploring how issues are conceptualised in policy processes, and the implications this has for how they are addressed, including the organisational arrangements that are put in place. Prior to completing his PhD, he worked within the Victorian public sector for 17 years in a variety of policy, planning, and management roles, in both Melbourne and regional Victoria.

He investigated Victoria's approach to environmental governance as part of a Victorian Parliamentary Library Fellowship.

## **Attachment 1. Research by the author which informs the comments provided**

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