

Table 6. Summary of Recommendations, Challenges and SDG targets for future reporting by theme

Lead themes	Recommendations	Challenges the recommendation addresses	UN SDG targets for future reporting
Cultural Landscape Health and Management	1. That the Victorian Government, in consultation with Traditional Owners and relevant agencies, develop contemporary cultural indicators to inform future environmental reporting. These indicators must reflect the priorities of Traditional Owners, have practical and cost-effective data-collection methods, be meaningful, and demonstrate change within a five-year reporting period.	Transitioning from a singular focus on Aboriginal cultural heritage reporting to a new approach which incorporates the social, economic, spiritual, cultural, environmental, and health and wellbeing values of Victorian Traditional Owners, Registered Aboriginal Parties and Aboriginal Victorians.	1.5
			4.7
			11.4
Climate Change Impacts	2. That DELWP, in coordination with research partners, conduct further analysis to improve localised climate projections (particularly in agricultural regions). These projections would aim to reduce the uncertainties associated with rainfall projections as a minimum.	Regional climate projections at a finer spatial resolution and more accurate rainfall projections are required to improve management outcomes. Rainfall projections are currently associated with reasonably large uncertainties (relative to other climate variables such as temperature).	2.4
			6.5
			9.5
			13.2, 13.3
Air	3. That EPA Victoria prioritise the implementation of the EPA Inquiry Recommendations 6.3 and 7.2 to develop a publicly accessible, real-time assessment of air quality across Victoria that incorporates air-quality monitoring data, citizen science observations, air-quality modelling and an up-to-date air-pollution inventory. Future monitoring and assessments would also be expanded to include ultrafine particles and data on indoor air quality.	Victoria's current air monitoring network does not cover regional Victoria and the growth areas of Melbourne adequately. It needs to target hot spots such as major roadsides and industrial areas. EPA Victoria's air pollution inventory has limitations. The immediacy of data access is an issue, with data generally not available until at least two years after the base year of the pollution inventory. There is a limited knowledge of the concentrations and health effects associated with ultrafine particles and indoor air pollutants.	3.9
			9.5
			11.6

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Air	4. That Victoria's Chief Environmental Scientist, supported by relevant government agencies and research partners, lead the establishment of a contemporary pollen-monitoring network to enable community access to information on pollen levels in the air in a timely manner, through actions including increasing the number of locations monitored, the frequency of the monitoring, and automating the monitoring process.	Up to 50% of the population have the potential to suffer from the allergy conditions of hay fever and seasonal asthma, with 25% of the population suffering regularly. Pollen is monitored at eight locations across Victoria, with a single measurement recorded and reported every 24 hours at each location through a process reliant on significant manual work.	3.9 9.5 11.6
Biodiversity	5. That DELWP streamline the governance and coordination of investment in the science and data capability of all government biodiversity programs and improve the coherence and impact of the publicly-funded, scientific endeavour. Further, that DELWP establish the position of the Chief Biodiversity Scientist to oversee this coordinated effort and provide esteemed counsel to the DELWP Secretary and the Minister for Environment to improve the impact of investment in biodiversity research across the Victorian environment portfolio. That DELWP improve biodiversity outcomes on public land by streamlining and coordinating governance arrangements.	Various investment programs across multiple land management units have created different, inconsistent data sources and terminologies for reporting on the state of biodiversity, land and forest assets in Victoria. Data is inadequate to answer many of the critical questions about biodiversity science in Victoria. Victoria's biodiversity science and data capability are undermined by a lack of coordination and a strategic approach to investing in the critical research that will enable an ecosystems approach to decision making and policy interventions.	2.5 4.7 6.3, 6.4, 6.5, 6.6, 6.b 11.4, 11.7 12.2, 12.8 13.1, 13.3 14.4 15.1, 15.3, 15.4, 15.5, 15.6, 15.7, 15.8, 15.9 16.6 17.14, 17.17

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Biodiversity	6. That DELWP improve biodiversity outcomes on private land by accelerating private land conservation. This will require resourcing permanent protection measures that focus on high-priority ecosystems and landscapes, and investing in local government capability to enforce the existing <i>Guidelines for the Removal, Destruction or Lopping of Native Vegetation and the Invasive Plants and Animals Policy Framework</i> .	The accelerated rate of biodiversity loss on private land.	4.7 6.6 12.2, 12.8 15.1, 15.3, 15.4, 15.5, 15.8
Land	7. That Agriculture Victoria lead the design and delivery of a state soil and land condition monitoring program, that includes analysis of the threats and impacts of land use and land-use change, to improve decision-making across a variety of sectors including agriculture, planning and water management.	There is no coordinated or systems approach to the collection, consolidation, reporting and assessment of land data across the state. There is only a basic understanding of the effect of land use and land-use change on soil and land in Victoria.	2.4 6.5 9.5 12.2 15.3
Forests	8: That DELWP maintain their commitment to resourcing and maintaining the VFMP and enhance it to (i) improve statewide understanding of the impacts of forest fragmentation on forest-dependent species (including the development of an authoritative list of Victorian forest-dependent species), and (ii) improve assessment of protected areas by conducting detailed research to identify the benefits of various types of IUCN-protected areas for target species. Any amendments to the VFMP must not disrupt future trend analyses.	The state-scale assessment of forest fragmentation does not provide a complete assessment and its impact on biodiversity in native forests. There is little evidence of the level of long-term species protection provided by the classification of IUCN protected areas. Inconsistency in methodologies has been disrupting comparative analysis between existing datasets and may disrupt future trend analyses.	15.1, 15.5

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Fire	9. That the Victorian Government establish a structured framework based on the findings of the dual-scale ecosystem-resilience monitoring program, piloted by DELWP in 2017–18, and undertake a detailed analysis of the persistence of key fire-response species to increased fire frequency in Victoria, particularly in areas where below-minimum Tolerable Fire Interval exists.	Biodiversity impacts from planned fires and bushfires at regional and statewide scales are currently unclear. An approach to monitor biodiversity responses (flora and fauna) to fire at multiple scales (regional and statewide) is missing.	1.5, 13.1
Marine and Coastal Environments	10. That DELWP expand the Marine Knowledge Framework to include all state marine and coastal environments.	Expanding ecosystem monitoring programs beyond Port Phillip Bay, Western Port, Gippsland Lakes and Victoria's system of Marine National Parks and Marine Sanctuaries. Aligning the research priorities of agencies, academic institutions and citizen scientists with the needs of marine and coastal management.	6.3, 6.5 11.3, 11.4, 11.7 12.2, 12.5, 12.8 13.1, 13.3 14.1, 14.2, 14.3, 14.4, 14.5, 14.b 15.5, 15.6, 15.7, 15.8, 15.9 16.6 17.7
Water Resources	11. That DELWP use the current long-term water resource assessment (LTWRA) to identify metrics for monitoring the condition of, and risks to, Victoria's water resources and waterway health for reasons related to flow, and commit to long-term monitoring. Complementary thresholds would also be established for these metrics, and actions determined for circumstances when thresholds are crossed. Further, in a changing climate, it is recommended that DELWP review the 15-year period between LTWRAs, as more frequent assessments may be required to maintain ecosystem health and function.	Given the significant water resource, water quality, climate and population changes that can occur during a 15-year period, more frequent LTWRAs are highly likely to be required to ensure environmental values and the health of water ecosystems are being preserved. Metrics and thresholds currently do not exist to promptly determine when the condition of Victoria's water resources and waterway health for reasons related to flow has deteriorated to such an extent that urgent action is required.	6.4, 6.5 9.5 13.2

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Water Quality	12. That DELWP, working with its portfolio agencies, implement an agile water-quality monitoring framework that (i) clarifies the roles and responsibilities of all agencies and the community, (ii) improves monitoring of pollution hotspots, and (iii) builds on EPA Victoria's implementation of EPA Inquiry recommendations 6.3 and 7.2.	The identification of water quality monitoring sites and needs is not currently well coordinated between agencies across the state.	6.3, 6.6 9.5
Waste and Resource Recovery	13: That Sustainability Victoria, in 2019, develop indicators and implement a comprehensive monitoring and reporting framework to measure delivery of the current SWRRIP and WRRIPs against their circular-economy design principles. From July 2020, that Sustainability Victoria expand that monitoring and reporting framework to track the progress of the implementation of the strategy and publicly report, at least annually, on Victoria's transition to a circular economy.	<p>The Victorian government has acknowledged that there is a need to transition Victoria to a circular economy to improve Victoria's waste management and resource recovery.</p> <p>There is currently no regular public reporting on the delivery of the SWRRIP. Metrics need to be developed and reported on for the delivery of the SWRRIP. These indicators should be consistent with the circular economy strategy currently in preparation.</p>	12.3, 12.4, 12.5

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Waste and Resource Recovery	<p>14. That the Victorian Government, commencing within the metropolitan region as a minimum, align the institutional planning and procurement processes (including leveraging Victorian Government procurement) to support the delivery of the circular economy strategy from July 2020. Ultimately, this alignment would be adopted statewide and enable an orderly transition to a circular economy in Victoria by 2030. In developing the action plan to deliver the circular-economy strategy, the roles and responsibilities of all agencies should be clarified to nominate those agencies responsible for delivering policy, procurement, program, reporting and regulatory roles. Further, that the Victorian Government commit to long-term, systemic, statewide community education to support this transition and assist the change in behaviours that will be required to improve long-term system outcomes. Reducing consumption and contamination levels in kerbside recycling would be the initial focus.</p>	<p>The Victorian government has acknowledged that there is a need to transition Victoria to a circular economy to improve Victoria's waste management and resource recovery. Victoria's recycling system has recently been impacted by major disruptions and restrictions in global commodity markets.</p> <p>Victoria has committed to delivering a circular economy strategy. This will require a comprehensive review of all of the levers of Government (including procurement) to deliver the strategy.</p> <p>There has been no ongoing community education to support the effective operation of Victoria's current waste and resource recovery system.</p> <p>The current system often responds to crises and has a reactive approach to issues more broadly. The transition to a circular economy presents a real opportunity to smooth out system operation and deliver better outcomes for Victorians.</p>	12.4, 12.5, 12.7
Energy	<p>15. That DELWP establish a set of indicators, and implement measures to collect appropriate data, to track the impact of energy emissions reduction to meet interim targets set under the Climate Change Act 2017. The reporting should also track the transition of Victoria's grid, transport and industry infrastructure to support a low-carbon future.</p>	<p>Reducing greenhouse gas emissions from energy is Victoria's principal challenge to meet its greenhouse gas emissions reduction goals.</p>	13.2, 13.3

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Energy	16. That DELWP implement measures to collect data and track the impact of the transition to a low-emissions electricity system on (i) consumer sentiment and behaviour, (ii) investment in distributed, low and zero-emissions electricity generation, and (iii) the associated markets, governance and business models.	Victorian consumers will drive Victoria's transition to its net-zero emissions target. It is critical to collect data and build an evidence base to support Victorians and understand their needs and choices and develop appropriate markets and business models to serve them.	7.2 13.3
Transport	17. That EPA Victoria, in coordination with other Victorian Government agencies, improve transport-related air and noise monitoring, including: developing a real-time noise-monitoring network across Melbourne (with a view to expansion across larger cities in regional Victoria), focusing on monitoring near major transport hotspots that include busy roads, flight paths and along public transport routes, increasing the number of roadside air-monitoring stations and publishing the noise and air data on the internet in real-time.	Additional research must be undertaken to acquire data and understand the impacts of transport noise on Victorians. EPA Victoria currently monitors air quality alongside only one major roadway in Victoria (in Melbourne's CBD), which is insufficient to understand the impact of air pollution in Victoria associated with motor vehicles.	3.9 9.5 11.3, 11.6
Megatrends	18. That DELWP develop its spatial information capability and database, and ensure it is regularly and routinely updated, to inform decision-making across the environment portfolio.	Technological advances in spatial information has led to significant increases in accuracy. However, legislative and regulatory reform is not keeping pace with this technological advance. This inconsistency generates several risks, including: <ul style="list-style-type: none"> • outdated and unreliable data sources • a reliance on physical maps that can be lost or degraded in the field • confusion across and within government agencies as there is no single and accepted source of truth, resulting in each group developing their own spatial information database with varying levels of accuracy. 	6.6 9.4 12.2, 12.8 15.1, 15.2, 15.5

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International Frameworks: UN SEEA	19. That DELWP establishes environmental-economic accounting as a core capability and delivers a set of environmental-economic accounts for Victoria by 2022, consistent with the SEEA guidelines, DELWP <i>Valuing and Accounting for Victoria's Environment strategy</i> and aligned with the agreed common national approach. Further, that the Minister for Environment include in the Statement of Expectations to the Commissioner for Environmental Sustainability a requirement to incorporate reporting against Victoria's environmental-economic accounts in State of the Environment reporting for Victoria from 2023.	Environmental-economic accounting capability addresses a gap in traditional SoE reporting which presents accurate and relevant environmental information on the state of Victoria's natural capital but not the direct and indirect benefits that all Victorians derive from healthy and sustainable ecosystems.	15.9
International Frameworks: UN SDGs	20. That the Minister for Environment include in the Statement of Expectations to the Commissioner for Environmental Sustainability a requirement to adopt the SDGs as an operating framework for SoE reporting in Victoria from 2023. This will require that DELWP support the Commissioner by leading a portfolio review of the data requirements to assess Victoria's progress against the selected SDG targets, which will include a complementary analysis of current legislation, policy and programs against the SDG targets, and the development of a plan to improve data-acquisition processes for socio-economic indicators by 2021.	The Commissioner for Environmental Sustainability Act 2003 provides objectives and definition for ecologically sustainable development (ESD). However, there has been ambiguity in delivering on the guiding ESD principles. The SDGs are the missing link that provide an operating framework that bring the ESD objectives and guiding principles in the Act to life.	16.6 17.14, 17.17