Shared data means better decisions for the environment

Each year, industry spends millions of dollars collecting environmental data as part of the impact assessment process for proposed developments. Yet, for the past 25 years, the authors of the Australian Government's State of the Environment (SOE) report have struggled to be able to be able to use that data to undertake their comprehensive review of the health of Australia's ecosystems, and to outline a strategy to shape the environmental policy of the future.

Professor Tom Hatton, former Chair of the Western Australian Environment Protection Authority, painted a bleak picture of this disconnect in his presentation at the Resilient Landscapes Biodiversity Conference held in Perth in September 2021.

The first and second SOE reports, from 1996 and 2001, both stressed that a lack of integrated national systems and databases meant that environmental information was difficult to access. Urgent action was required to develop national data information infrastructure. The 2006 SOE report warned that 'it is still impossible to give a clear national picture of the state of Australia's environment because of the lack of accurate, nationally consistent environmental data.' The authors of SOE 2011 reported that accessing information was still 'tremendously complicated'. The 2016 SOE still found access to data and long-term monitoring information inadequate.

'At present, the State of the Environment Report is not an adequate basis to inform contemporary environmental decision-making and the execution of regulatory functions, particularly environmental impact assessment, for the very reason that it cannot access sufficient and contemporary environmental information,' Professor Hatton, who led the 2011 report, said.

Graeme Samuel, in his independent review of the *Environmental Protection and Biodiversity Conservation Act 1999* agreed. The 2021 review found that the problem is not that the information does not exist, the problem is accessing it.

Accessible, robust and transparent

The inability to readily access previously collected data makes the process of undertaking an environmental impact assessment unnecessarily cumbersome, Professor Hatton said.

'Most of the effort and expense by proponents and regulators will generally be repeated from scratch, for the next development proposal in the same region.'

'We need a step-change in the availability, accessibility, robustness and transparency of environmental information,' he said.

Both the Western Australia Environmental Protection Authority and the Samuel Review have called for a 'national environmental information supply chain' for data collection, curation, integration, analysis and use.

Western Australia, through the efforts of the Western Australian Biodiversity Science Institute (WABSI) and the Western Australian Marine Science Institute (WAMSI), is at the forefront of the cultural and technological innovation in environmental information services.

'We have revolutionised the capture and collection of environmental information from industry – surveys that used to just pass through our hands – and now it is available to the public for free use,' Professor Hatton said.

In 2015, WABSI established the Index of Biological Surveys (IBS), which captures data from more than 500 terrestrial biodiversity surveys done by industry. In 2016, WAMSI established the Index of Marine Surveys (IMS), incorporating 50 surveys.

WABSI CEO Professor Owen Nevin said that the Biodiversity Information Office, hosted by the Department of Biodiversity, Conservation and Attractions, will curate the data from the IBS and IMS so that it becomes information that is accessible.

'This means that the survey data generated for environmental impact assessments will no longer just sit on a server or a hard drive, or in a printed copy on someone's shelf,' he said.

Shared analytic environment

The next challenge is to develop a shared analytic environment that allows the data to be used effectively. A shared analytic environment will allow scientists to work on their own areas of expertise while contributing to a larger understanding of cumulative impacts of development decisions on the environment.

The exponential growth in data, combined with decision support tools that did not exist even five years ago, will help make environmental impact assessments more robust and repeatable, Professor Nevin said. WABSI is working with a range of partners, including Microsoft, to best understand how to develop a shared framework for analysis.

The importance of considering the cumulative effects of individual projects was echoed by Professor Matthew Tonts, current Chair of the Environmental Protection Authority.

It was only by effectively understanding the cumulative impacts of individual projects on biodiversity and environmental quality that we would be able to address the 'big, strategic questions' of the future', he said.