

**Commonwealth Department of Environment and Energy
Environmental Economic Accounts Workshop**

Towards a Common National Approach

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Melbourne

Accounting for Nature

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Wentworth Group of Concerned Scientists



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As ... just said, in collaboration with NRM Regions Australia, the Wentworth Group and experts in Commonwealth and State agencies have completed a five year trial of a method for measuring the condition of a range of environmental assets (including soil, native vegetation, rivers, estuaries, fauna), in ten NRM regions across the country.

There is so much I would talk about today given my 20 year history in environmental information from when Judy West first set up the Virtual Herbarium before anyone had even heard of Google Earth, let alone Facebook, to weird questions I get these days about *Accounting for Nature* like 'do you use satellites to measure native vegetation', or 'have you thought about using drones?'.

We spent this morning discussing the SEEA – an outstanding international achievement in helping humanity address the 21st century issues of environment and development.

The one aspect of the SEEA that has remained unresolved is the measurement of environmental degradation. That's what we are here to talk about today and tomorrow – how, to quote the Ministerial communiqué, to “... *ensure accurate and reliable information is available to governments, communities and business to better understand the condition of the environment and make better decisions.*”

Given the time, I am not going to talk in any detail about the *Accounting for Nature* model. If you haven't read it or the 30 page Evaluation Report, or the 300 page Technical Report, or if you've decided that condition accounts are not central to your business, nothing I can say in the next 10 minutes will make any difference. The method is on our website, as are these and many other documents.

What I will do is how you a couple of examples from this multi-asset, continental wide, landscape scale trial.

I then want to outline the proposal that a group of eminent Australians have put to government for a national program that would, within 5 years produce the first, annual National Environmental (condition) Accounts, that was developed as a result of this experience.

Consistency

There are many learned people here today so let me start by asking four learned questions:

1. What is the optimal amount of money that should be spent to restore Australia's degraded environmental assets?
2. Where should that money be spent?
3. What's the most cost-effective way of achieving those outcomes?
4. Who should make that decision?

Here are my answers:

1. What is the optimal amount of money that should be spent to restore degraded environmental assets and maintain them in a healthy condition over time? Answer: With a few notable exceptions, we don't know.
2. Where should that money be spent? Answer: We don't know.
3. What's the most cost-effective way of achieving those outcomes? Answer: There are some exceptionally good scientific, statistical and economic tools to help answer that question: if only we had environmental condition information available they could use to answer them.
4. Who should make that decision? This is crucial for this workshop, because we not just talking about one government program, or one government agency, or one level of government, nor are we talking about one asset. It's actually dozens of assets that are managed by millions upon millions of decision makers.

What a damning indictment of government.

We spend hundreds of millions of dollars in this country, every year, collecting environmental information, designing elegant models, playing with satellites, and yet with all this technology and all this science, the best we can do is produce every 5 years, the generalized opinion of learned scientists on the condition of Australia's environmental assets – that so few people bother to read, and even fewer are able to use to inform decisions.

This failing can't possibly be the lack of money.

The Commonwealth environment department alone has an annual budget of \$2 billion. If you add other Commonwealth agencies who are or should have an interest in managing natural resources (agriculture, water, infrastructure, planning, treasury) that figure would probably double.

If all the state and territory and local government agencies combined spent just half that, we are looking at over five billion dollars a year – that's \$50 billion over 10 years, and yet with all that money, we can't tell our community the condition of their environment, let alone present that information in a manner that they can use to make informed choices.

Is it any wonder that this years ANU Electoral Survey found that public trust in government is now at a staggeringly low 26%. This is the lowest figure ever recorded since the question was first asked almost 40 years ago.

This is a massive failure of public policy. Instead of agreeing on a national framework for the selection of indicators, we have instead spent decades funding short term grants, improving the precision of data that nobody uses, arguing over which jurisdiction uses the right indicators, or demanding so much perfection in data collection, making it impossibly expensive to collect.

In short: we have let perfection become the enemy of the good.

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Simplicity

Let me ask a fifth question: Who's aware of the Australian Treasury's Wellbeing Framework?

Who's aware of the fifth dimension which talks about the cost of dealing with unwanted complexity?

Where did such a strange concept in an economics decision-making framework come from?

I'm raising this because it is actually central to answering the first 4 questions, and therefore it is also central to developing a common national approach to environmental economic accounting.

The term comes from behavioural economics, from Nobel economists such as Karneham and others.

It is actually quite a profound concept because it forces experts to recognise that when information is too complex, it places significant restrictions on the ability of government, businesses, individuals and the community to make informed choices. People are then forced to rely on opinion, and this leads to mistakes.

In those few words, this one concept has described a fundamental problem with environmental policy. It's too complex – which means nobody, even experts, are able to take advantage of the vast array of existing environmental information to inform highly complex, multi-scale, multi-dimensional problems.

And that's what's behind *Accounting for Nature*.

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Accounting for Nature is not a process for triaging data into meaningless 'essential environmental indicators', or who should monitor what, or what targets should be set, nor who should make a decision.

It's simply an institutional framework for combining the disciplines of science and statistics, based on the practical experience of a continental wide 5 year trial, for accrediting environmental information and recording such information in a way that all decision makers – public and private - experts and non experts alike - can understand, access, and have confidence in, to help them make an informed decision.

Central to the ability to create a comprehensive set of environmental accounts - for a range of different assets - is an agreement on common unit of measure for recording all environmental condition information so that it can be placed into an accounting framework.

We've given the common measure a name. It's called an *Econd* - short for environmental condition index - where 100 describes an environmental asset in an undegraded state.

The *Econd* is a simple idea, it is after all just an index, yet inexplicably, it is an idea that has confounded experts for decades.

The Regional Australian Trial

Regional Australian trial - 2011-2015



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Over the past five years, Australia's Regional Natural Resource Management authorities, in cooperation with some of Australia's leading scientists, economists and statisticians in universities and Commonwealth and state government

agencies, have conducted a 5 year, continental wide trial to test the practical application of this *Accounting for Nature* model.

The trial was conducted across ten geographically diverse regions.

These regions reflect different landscapes, they are subject to different environmental pressures, and have different levels of resourcing and access to information.

Contributors

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This trial involved hundreds of experts volunteering their time and expertise.

The trial was important for two reasons:

1. It has demonstrated the utility of a common unit of measure to enable existing scientific information to be placed into an accounting framework, and
2. It has shown that, for a modest financial investment, it is feasible to measure the condition of the nation's key environmental assets – every year – with a precision that is at least sufficient to inform policy and investment decisions at a landscape scale.

Accounting Tables

"Everything should be as simple as possible, but no simpler."
– Albert Einstein

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In the *Accounting for Nature* method, environmental condition accounts contain four levels of information:

1. Summary tables – which show the *Econd* scores for all assets in each year;
2. Asset tables – which show the indicators used to construct the *Econds*; and
3. Data tables – which store the data used to calculate the indicators.

Balance sheet

Final Water Assets, SEQ Catchments, Queensland

Region	Water Assets Region					Total
	R21	R22	R23	R24	R25	
	Land	Engage	Invest			
WATER ASSET						
1. Native Vegetation	45	24	81	11	21	182
2. Rivers and Wetlands	45	47	89	15	13	209
WATER ASSET	90	71	170	26	34	381
SOIL ASSET						
1. Native Vegetation	44	46	80	11	41	222
2. Rivers and Wetlands	21	15	42	13	26	107
SOIL ASSET	65	61	122	24	67	339
WATER AND SOIL ASSET	155	132	292	40	101	720
WATER ASSET	90	71	170	26	34	381

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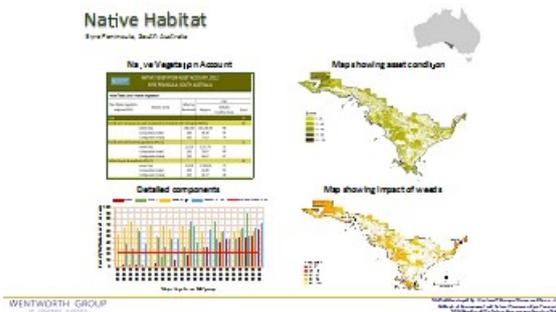
- It is from these asset tables that we are then able to construct a balance sheet which describes changes in the condition of each asset between accounting periods.

In other words, it sets out an accounting framework that can be used for storing all environmental data, for any environmental asset, in any landscape, at any scale.

The balance sheet also highlights which indicators most contribute to the change.

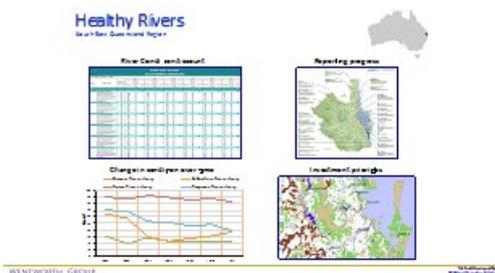
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Let me give you a couple of examples that were produced by the regional Australian trial.

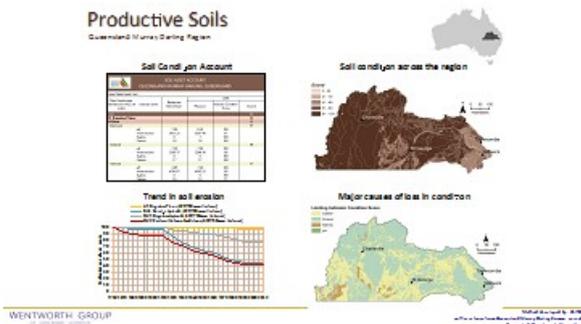


Native vegetation – some call it habitat, others call it ecosystems, most people commonly refer to it as forests.

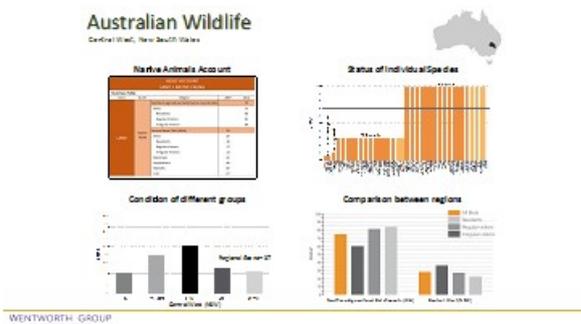
NRM Regions Australia has identified approximately 35 environmental assets that are valued by regional communities. Five assets are common to most regions: native vegetation in 80% of regions, rivers and wetlands in 70%, native fauna in 70%, soil in 50%, and estuaries in 90% of regions along the coast.



Rivers: This is an example of a rivers asset from SEQ, which measures, every year, the condition of each of their river catchments, and use this information to inform their catchment plans and investment priorities.

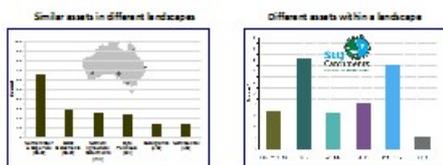


Soil: This is an example of a regional soil condition account that was produced by the QMD Committee with assistance from CSIRO and Queensland government agency experts.



Wildlife: This is an example of a fauna account for the Central West and a native bird account for the North Agricultural Catchments in Western Australia.

Simplifying Complex Information



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And thus slide shows the other benefit of the Econd – in that it allows complex scientific information to be present simply so that experts and non-experts alike can understand what’s happening to all their assets.

The figure on the left shows the condition of native vegetation across six geographically and biologically distinctive regions across Australia. Each region has used different indicators to measure the condition of native vegetation that are relevant to their landscapes.

The figure on the right displays the relative condition of six distinctly different environmental assets in the South East Queensland region. The condition of the endangered marine Dugong population, native vegetation across the catchment, wetlands, estuaries – all on one easy to understand graph.

This is possible because the y axis in every one of these examples is exactly the same where 100 describes the asset in an undegraded condition, and 0 is when an asset no longer exists.



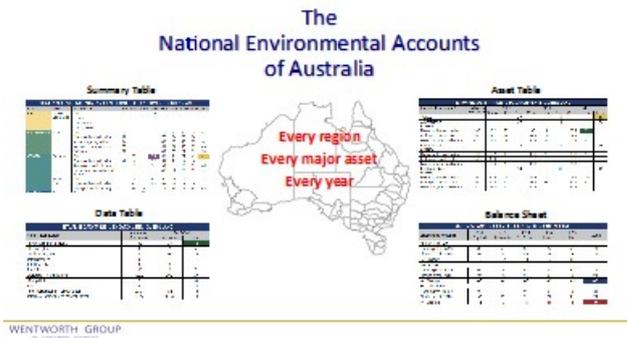
This helps address another problem that has emerged in Australia over the past decade – is the increasing trend with governments moving away from integrated catchment management into silos – water, soil, fauna. As this slide from Victoria highlights, the only way to manage complex landscapes to take an integrated approach.

This can only be done when all assets are described against a common reference benchmark. This is why Econd nest so nearly into an integrated catchment framework.

Proposal for the National Environmental Accounts of Australia

Let me turn to our proposal to establish a 5 year program to create a system of regional scale, national environmental condition accounts. This proposal was presented to the NEM last November which created the catalyst for this workshop, along with a presentation on the SEEA by the ABS.

The proposal is supported by a number of eminent Australians, each of whom brings decades of experience in public policy, natural resource management, economics and/or statistics.



Here’s our vision – every region, every year, measures and reports on the condition of its major environmental assets.

What am I talking about?



I'm talking about producing this (SEQ report card) in every region of Australia, for a range of assets, not just rivers, but soil, estuaries, native vegetation, and fauna; every year so we can monitor change.

Accredited by experts and all based on a common set of national standards so that this information can be aggregated to produce national accounts.

The cost – with the right institutional model in place - \$15 million per annum, for the whole of the continent.

\$70 million is less than the cost of one major EIS in Australia what would impact on a fraction of the continent. Our priorities are all wrong.

This funding will cover professional staff and technical resources within each NRM region to coordinate the compilation of the accounts, as well as a small team of people to develop the national standards.

The Commonwealth government would facilitate the creation of the *National Environmental Accounts of Australia* by overseeing the establishment of national environmental accounting standards, accrediting and auditing the reporting of the information, and supporting regional natural resource management bodies to coordinate the assembly of regional accounts.

State and territory governments would contribute by providing technical and institutional support for regional authorities to undertake data gathering and reporting programs, and assist with regional accreditation.

Conclusion:



Let me conclude with a few observations.

The UN did not spend 20 years developing the SEEA so that academics can sit around and write papers, and for public servants to set up yet more committees to

produce inventories of who has got what data, or argue over which state has got the best model. They did it to help answer the 4 questions I posed at the beginning of this presentation.

Environmental condition accounts are needed to underpin just about everything SEEA aspires to do. It's now time for the Australian scientific community to build on that legacy by demonstrating to the world, a practical way of measuring environmental condition that is so fundamental to the long-term success of the SEEA.

The SEEA is an outstanding contribution to humanity's quest for an ecologically sustainable world. Peter Harper and the ABS team played a seminal role the development of the SEEA. Through the leadership of the ABS, and the work of the Wentworth Group and NRM Regions, supported by hundreds of experts in State and Commonwealth agencies has created a once in a lifetime opportunity for this country to chart meaningful way forward.

We have never has such access to such an overwhelming amount of environmental information. Fifty years ago we designed the Snowy Mountains Scheme using stereoscopes and air photos from DC3 aircraft to map contours.

Today we have satellites photographing the planet at 2 m grids every 16 days. We have sensors on the back of tractors to spot spray individual weeds on a paddock, drones mustering cattle, and chips and DNA sequencing tracing livestock from paddock to plate. And within a couple of years Artificial Intelligence will deliver facial recognition and voice recognition software that will revolutionise real-time environmental monitoring not only of individual species, but individuals within specific populations, in real time.

We don't need to wait for more information or for the next widget to make better decisions, what we need is an agreed system of condition accounts that places environmental information into a format that people can use to make better decisions.

Thank you.

2,580 = 21 minutes