

Accounting for the Environment: An Australian Natural Value Index¹

Overview

The Australian Land Management Group (ALM Group)² is at the forefront of policy and program innovation in natural resource management so as to better align commercial and government drivers for continuous improvement. To that end the Group has designed, tested and refined the Certified Land Management (CLM) system.

Reflecting a continuous improvement paradigm, the ALM Group is developing an Australian Natural Value Index (ANVI) to monitor the state of the natural assets, the ecosystem goods and services that arise from those assets and those aspects of human capital that relate directly to the management of natural capital.

The ANVI will indicate changes in the ecological integrity of the property. It is specific to a property manager and to the property. It is not a measure to compare the ecological integrity of different properties.

Introduction

An accompanying paper [Twenty First Century Landcare](#) outlines the opportunity and need for innovation in natural resource management policy and program design. To meet this need in part it proposes an accelerated national rollout of the Certified Land Management (CLM) system which has been designed, tested and refined by the not-for-profit Australian Land Management Group (ALM Group).

The CLM system operates on a whole-of-property catchment-linked basis to assist and verify improved environmental and animal welfare management. CLM requires universal external annual auditing against process and outcome standards. It complies with internationally recognised environmental management standards, meets the ACCC requirements for registration as a

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² www.almg.org.au

certification trade mark and can be applied by landholders with no greater complexity or cost than many other programs without those credentials.

CLM illustrates what can now be supported by government and by industry organisations intent on moving land management and agricultural profitability into the 21st Century. There is no reason to delay. Nevertheless there is a need for further innovation.

This paper introduces development by the ALM Group of an Australian Natural Value Index (ANVI) as a means of tracking a property's ecological integrity over time.

An evolving agenda

There are several evolving developments of potential relevance to land-based commercial enterprises over the medium to longer term, including but not restricted to the management of farmland.

The development receiving considerable public attention, particularly in the climate change mitigation space, is the use of economic boycotts—oft referred to as disinvestment—to pressure for changes in investment away from businesses judged to not have a social licence to operate. This could impact on the capital available for food and fibre production and on farm political and policy mindscapes.

There are also interesting and potentially far-reaching legal developments, including the proposed assignation of legal status to ecosystems such as has happened with the Whanganui River in New Zealand, whereby the river is to be recognised as an integrated living whole from the mountains to the sea. As noted by Jane Gleeson-White in 'Six Capitals', giving nature rights would transform our relationship with nature. Such an approach contrasts sharply with the Australian Government's proposal to amend the Environment Protection and Biodiversity Conservation (EPBC) Act to stop environmental groups from launching legal action to block proposed mining developments.

In the longer term these financial and legal innovations may have far reaching impacts. However the development most immediately relevant to landholders—and hence to the ALM Group—is the move internationally and nationally to include natural capital in business and national accounts. Consequentially, and in parallel with having specific and time-bound targets within CLM, the ALM Group is developing an Australian Natural Value Index

(ANVI). The eventual incorporation of the ANVI into the CLM continuous improvement framework will further strengthen its relevance and utility.

Natural capital

Some might think the term natural capital is new but in fact it was first used by Schumacher in 1973 in his book 'Small is Beautiful', and related talk and writing on ecosystem services probably dates to about the same time or a bit later. These concepts and terms are culturally determined and probably don't reflect any greater understanding than what has been embedded in indigenous life for thousands of years.ⁱ

The term natural capital is closely identified with work done by the Rocky Mountain Institute Chief Executive Officers Amory Lovins and Hunter Lovins who with Paul Hawken in 1999 published 'Natural Capitalism', and with work done by Professor Robert Costanzaⁱⁱ and his colleagues.

Hawken, Lovens and Lovens defined natural capital as the total of the ecological systems that support life. However there are many other definitions of natural capitalⁱⁱⁱ including that adopted by the Economic of Ecosystems and Biodiversity (TEEB) global initiative viz. the finite stock of natural assets (air, water and land) from which goods and services flow to benefit society and the economy. It is made up of ecosystems (providing renewable resources and services), and non-renewable deposits of fossil fuels and minerals.

There now are global efforts, including by the World Bank, OECD, UN, the Australian Bureau of Statistics and others^{iv}, to develop methods to incorporate natural capital into national accounts. The primary focus of these and other organisations is to find ways to integrate changes in natural capital into financial reports by assigning monetary values.^v

Natural capital and landholders

Natural capital includes geology, soil, air, water and all living things. It is from this natural capital that humans derive a wide range of services, often called ecosystem services. The natural part of natural capital is what underpins much of indigenous culture and it is not new to most landholders. What is new is that it is being tagged as 'capital' and it is being discovered by academics and chief financial officers in key organisations affecting farmers.

One scenario is that as landholders we leave it to multiple upstream and downstream global and national players in supply chains, the financiers and

the retailers to define how natural capital will be incorporated into the business of farming.

A second scenario is one in which landholders are engaged in and influence emerging thinking as it relates to natural and human capital in the farm sector.

Landholders being part of the natural capital conversation is important for several reasons.

First, because farm-based businesses depend on having a well-functioning natural capital—soil, water and vegetation.

Second, some might argue that the services provided by nature essentially are provided free to landholders. Landholders might be considered people whose businesses depend on the largely costless services provided by nature, as well as being nature's custodians with a claim to be paid for ecosystem services.

Third, because influential commercial and government organisations, including National Australia Bank, Rabobank and the Australian Bureau of Statistics, are looking at natural capital through a business risk lens with implications for financing agriculture.

And fourth, because a focus on natural capital, technological developments, particularly internet-based communications and a rapid move towards consumer-led markets, could open up great opportunities for agriculture and Landcare.

Pricing natural capital

As indicated earlier the ALM Group is in the early stages of developing an Australian Natural Value Index (ANVI).

The ANVI will supplement the specific and time-bound continuous improvement targets that are central to the auditing process within Certified Land Management (CLM).

There is a robust debate in the literature on the advantages and disadvantages of pricing natural capital.

In a nut shell the advantage is that it eases the integration of all factors in national and business accounts.

The more diffuse potential disadvantages include that a focus on pricing components of ecosystems has a lack of emphasis on interactions, interdependencies and impacts about which our understanding is far from perfect—that is, the process inclines us to consider what we know and to ignore what we don't know. Second it opens the door to even greater application of the policy of environmental offsetting, which too often ignores the uniqueness and place specificity of every ecosystem. Additionally there is strong evidence that pricing has a negative impact on intrinsic motivation and hence the net outcome, in terms of resilience and such like, could be much less than otherwise.³

The pricing or commoditisation of ecosystems reflects two interrelated global developments.

First the dominance of the economic discipline in public policy whereby valuing and pricing frequently are used interchangeably.

Second the rise and rise of private corporations. In 2013 two thousand of the largest publically listed companies generated about half the world's GDP. The single entity Walmart employed over two million people.

These two factors combine to forge institutional arrangements dominated by values that are priced and hence arguably that are unlikely to reflect the breadth of beliefs and values present in a community.

Given all these considerations, and variation in pricing unrelated to the integrity of the relevant ecosystems, the ANVI at least initially will not be expressed in financial terms but as a natural value unit.

Australian Natural Value Index (ANVI)

The ANVI will reflect the state of the natural assets and the ecosystem goods and services that arise from those assets together with those aspects of human capital that relate directly to the management of natural capital. That is, the ANVI will indicate changes in the ecological integrity of the property and changes in managerial capability. It is specific to a property manager and to the property. It is not a measure to compare the ecological integrity of different properties.

Reflecting the uniqueness of each manager and each property, each landholder will assign his/her weighting to each of the elements comprising

the ANVI. Weightings may change at predetermined intervals without adversely affecting the utility of the longitudinal data set. Initially the ANVI would be computed on a property basis but with an eye to weighting factors to reflect their importance in the (sub)catchment and/or their connectivity.

Having established the framework for the ANVI, the major task now is to develop a meaningful and repeatable calculator that enables landholders to assess and have verified changes in natural and human capital.

Determining the Australian Natural Value Index (ANVI)

The ANVI will be comprised of biophysical and behavioural elements with the behavioural components being drawn from what are categorised elsewhere as human, social and intellectual capitals.

Moving from the narrow conception of natural capital to one that includes elements to do with human, social and intellectual capitals introduces a degree of complexity. However reductionism and a lack of accommodation of complexity are major contributors to reduced environmental and social resilience. Furthermore, including human, social and intellectual elements aligns well with the definition of environmental management as adopted by the ALM Group viz.

Environmental management (natural resource management) is the management of the potential and realised impacts of people on the environment with the purpose of attaining ecologically sustainable development; that is, using, conserving and enhancing the community's resources so that ecological processes, upon which life depends, are maintained and the total quality of life now and in the future can be increased.

The ANVI will provide landholders and others concerned with improving environmental impacts with a reasonably simple metric to gauge the ecological effectiveness of past management. The process of determining the ANVI will assist management through making more explicit those factors important to improving ecological sustainability. The ANVI provides a sounder foundation for recognising and rewarding continuous improvement towards sustainability than are fragmented approaches rewarding separate and multiple ecosystem services or the conceptually flawed 'offsetting' favoured by proponents of environmentally destructive activities.

At least initially it is intended that the ANVI will sit alongside and complement the verification within CLM whereby certification is granted on the basis of continual progression to a predetermined particular goal, for instance improving ground cover.

The ANVI needs to be relevant, practical, repeatable and applicable nationally across all land-based industries and combinations of industries. Whilst considerations of accuracy, precision and sensitivity will play a role in determining the ANVI for each property, the emphasis must be on relevance and repeatability.

Given these considerations the ANVI is not suitable for comparisons between properties except on the basis of the rate of change in categories ranked on importance by the landholder.

The ANVI is expressed in ANVI units relative to a maximum of number of units of say 100. So for instance should there be five categories in the natural biophysical component and five categories in the human component then each category would be allocated a maximum of 10 units.

$ANVI = [aNC1 + bNC2 + cNC3 + dNC4 + eNC5] + [fHC1 + gHC2 + hHC3 + iHC4 + jHC5]$
where a to j are the weightings assigned to that category by the landholder. The sum of a to e adds to one as does the sum of f to j.

For example the category NC1 might be energy use, which the landholder allocates a weighting of say 0.33—i.e. its importance to that landholder is a third of all the natural value components. The actual value for NC1 for that property for that time would be determined as objectively as is possible probably through use, in this instance, of a simple energy use calculator. In other instances there will be a need to rely more heavily on the judgements of an external accredited auditor.

Next steps for the ANVI

To reiterate earlier points the ANVI will be comprised of natural capital features and human capital features that relate directly to natural capital. It will not be expressed in financial terms and it will sit within the proven whole-of-farm, catchment-linked and externally-audited CLM framework. The emphasis will be on ensuring the ANVI features are relevant and are able to be monitored on a repeatable basis.

The next steps, fraught with complexity, are to settle on the features to be included in the ANVI and to identify how each might be best monitored.

Particularly given our limited skill set and resources we seek to progress these tasks as collaboratively as is possible.

ⁱ For example, see *The Biggest Estate on Earth—How aborigines made Australia*, B Gammage Allen & Unwin 2011

ⁱⁱ Professor of Public Policy at the Crawford School of Public Policy at the Australian National University

ⁱⁱⁱ The UN Global Reporting Initiative from 2000 and the UN Principles of Responsible Investment (PRI); Carbon Disclosure Project launched from 2000; Accounting for Sustainability founded by Prince of Wales from 2004; The Economics of Ecosystems and Biodiversity (TEEB) initiative from 2007; South African corporate governance initiatives lead by Nelson Mandela and Mervyn King; Sustainability Accounting Standards Board (SASB) in the US from 2011. In Australia the ABS is working towards having environmental economic accounts and there is a range of associated activity including Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) ecosystem services key concepts and applications; Department of Agriculture, Forestry and Fisheries discussion paper on ecosystem services; Wentworth Group of Concerned Scientists conducting trials in the Natural Resource Management areas of Australia using measurement of the physical characteristics of ecosystems (e.g. biodiversity, soil, carbon and water); Ecosystem Services Framework in the South East Queensland Catchment Management Authority; Victorian Department of Sustainability and Environment has produced a set of experimental ecosystem accounts, including an estimate of condition using the metric “habitat hectares”.

^{iv} Recent analysis estimate the value of unpriced natural capital consumed by primary production (agriculture, forestry, fisheries, mining, oil and gas exploration, utilities) and some primary processing (cement, steel, pulp and paper, petrochemicals) in the global economy is \$7.3 trillion a year—roughly 13% of global economic output in 2009—primarily from greenhouse gas emissions and land and water use. The risk to agricultural commodity prices is particularly striking, where the natural capital cost is usually higher than the revenue of the sector. When environmental and health impacts are taken into account an estimate puts the real cost of a McDonalds hamburger to be about \$200. The corporate cost of natural capital usage for the German sporting goods company Puma is more than two thirds of net profit with 94% of this cost coming from its leather, cotton and rubber supply chains.

^v See Gleeson, Russell and Woods (1999) *Creative Research Environments* <https://rirdc.infoservices.com.au/items/99-128>; Sandel (2012) *What Money Can't Buy—the Moral Limits of Markets*.