

## **ACCOUNTING FOR ENVIRONMENTAL COSTS TO INFORM STRATEGIC DECISION-MAKING – EXPLORING YARRA VALLEY WATER'S EXPERIENCE**

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### **ABSTRACT**

Conventional business practices rarely take into account the impact a business is having on the environment and society, such as the impacts of greenhouse gas emissions or the use of precious resources. Significant costs and risks are therefore overlooked. Yarra Valley Water has begun to incorporate environmental costs into its business accounting practices. In 2007, the Institute for Sustainable Futures at the University of Technology, Sydney, helped Yarra Valley Water to prepare an Environmental Cost Statement. This paper draws on the experience with Yarra Valley Water to explore accounting for environmental costs as a tool to inform strategic decision-making.

### **INTRODUCTION**

The need for an Environmental Cost Statement has emerged from Yarra Valley Water's (YVW) journey towards sustainability. The journey is a process of continuous learning and refinement.

YVW began its journey with recognition of the need for a definition of what sustainability means for the organisation. YVW chose The Natural Step as a starting point, and translated its principles into the vision of striving to 'provide our services within the carrying capacity of nature'. With the end point anchored, YVW then established a process to achieve that vision.

YVW identified the following six strategic environmental priorities: the extraction from and discharge to waterways, septic tank management, water conservation, biosolids reuse, greenhouse gas emissions (GHGE) and sustainability leadership. Incremental targets were established to set key milestones and monitor progress.

While YVW had significant sustainability momentum, there were people within the business who considered environmental objectives as value judgements, rather than sound business decisions.

YVW needed a method to move the analysis of environmental options into the sphere of normal business decision making processes. It had to provide a means of comparing options on a level playing field, and in a language that everyone could relate to.

YVW engaged the Institute for Sustainable Futures (ISF) to prepare an Environmental Cost Statement for 2006/07. The aim of this project was to continue the process, commenced in 2005/06, of exploring how best to incorporate YVW's environmental objectives in its financial statements. In consultation with YVW, ISF adapted a particular methodology that has been used by a number of organisations in the UK such as Wessex Water, Anglian Water Group, and a prominent alcohol producer, to account for environmental and social costs.

The methodology draws on an emerging field of accounting and reporting methodologies for sustainability. An Environmental Cost Statement is one aspect of Sustainability Accounting. In preparing an Environmental Cost Statement, YVW joins a small group of companies leading the field in exploration of the use and application of Sustainability Accounting.

### **SUSTAINABILITY ACCOUNTING**

Sustainability Accounting, as ISF applied it to YVW's Environmental Cost Statement, could more accurately be described as 'Financial Sustainability Accounting' to draw a distinction with other forms of sustainability reporting. Sustainability Accounting extends the boundaries of conventional financial accounting, and attempts to address some of its shortcomings.

It does this by identifying and recognising environmental and social costs that are currently externalised as well as making visible internalised environmental and social costs. It helps organisations to measure the environmental and social costs and benefits of their actions, by

calculating the financial costs of restoring or avoiding the most significant environmental and social damage caused by their activities. More information on Sustainability Accounting methodology can be found at:

<http://www.projectsigma.co.uk/Toolkit/SustainabilityAccountingGuide.asp>.

In the case of the UK alcohol company, Forum for the Future, a UK-based not-for-profit consultancy, used Sustainability Accounting to measure the monetary value of the company's share of the total social damage cost of alcohol. This led to costing of actions to mitigate that responsibility, such as contributions to health care schemes. The value of such data is that it enables a company to explore and cost alternative options which otherwise may not be investigated. In this case, mitigation options were less expensive than damage costs.

## RESULTS

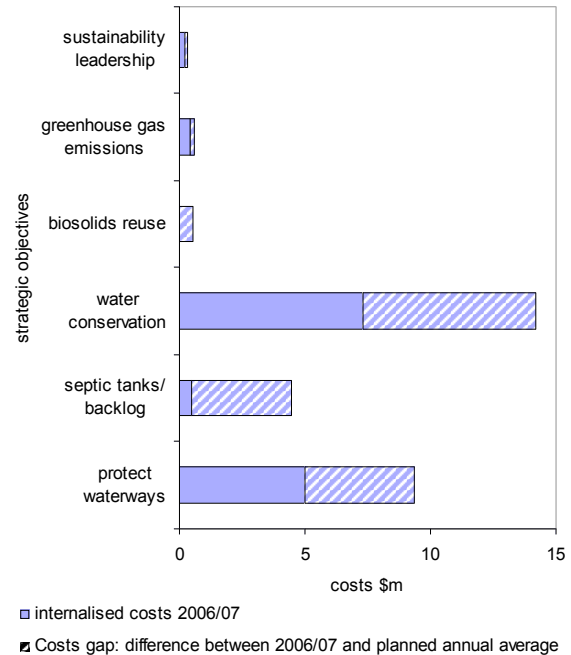
As a tool, Sustainability Accounting is still in its infancy. The focus to date in other applications has primarily been on easy to access proxy costs (i.e. costs used as an approximation of real costs, in the absence of real cost data). ISF's approach in the YVW project was to attempt to find and use real costs as much as possible, as these reflect actual business and societal expenditure.

In this project ISF focused on internal and external environmental flows reflected in income and expenditure, such as expenditure on greenhouse gas emission (GHGE) reduction. For each of YVW's six environmental priorities, YVW has committed to objectives and actions to improve environmental performance. ISF calculated, across the six priority areas, those costs that YVW has already internalised and the 'costs gap'. The costs gap is the difference between costs already internalised and annualised average future year costs to avoid or restore environmental impacts. These costs include planned, estimated or proxy costs associated with the six environmental strategic objectives. This methodology was selected to provide an accounts statement consistent with that presented in its annual report.

The Environmental Cost Statement highlights the following key points:

- In 2006/07 the organisation spent \$13.4m to deliver environmental benefits
- To achieve environmental objectives, the commitment needs to rise to at least \$29.5m per annum in coming years

The largest single cost item last year was \$7.3m associated with water conservation. Below is a graphic representation of the 2006/07 Environmental Cost Statement results.



*Figure 1: YVW 2006/07 Environmental Cost Statement*

This is a relatively broad-brush analysis that gives a sense of the quantum of expenditure required to achieve the objectives, both now and in future years.

## PROCESS LEARNINGS

In preparing the 2006/07 Environmental Cost Statement, YVW and ISF extended the application of the Sustainability Accounting methodology beyond its use in other organisations to date. As a consequence, a series of methodological and process challenges arose. Key learnings from the process are described below.

Sustainability accounting experience is generally limited to proxy costs. Moving beyond proxy costs was one of two main challenge that drove most of these learnings. Proxy costs are a valuable starting point, and they do not reflect real costs to a business. This limits the usefulness of the feedback they provide to a business seeking to understand and reduce its impacts. In this project, we sought to use real business costs wherever possible. The second major source of learnings arose as a consequence of extending the application of the accounting methodology to new areas of impact. More experimentation with the

methodology and in different organisations will gradually help to resolve the methodological dilemmas.

Sustainability Accounting encourages wide systems boundaries to be drawn. For an individual organisation, this means attempting to account for operational impacts, upstream impacts of the supply chain and downstream impacts of products/services. This incorporates both operational impacts and the impacts arising from the organisation's core business. It also involves attempting to account for externalities associated with impacts.

ISF accepted YVW's own definitions of boundaries and impacts for the first cut cost statement. Materiality of impacts was assessed through YVW's strategic planning process to arrive at the six priority areas. YVW has attempted to be inclusive within categories of impacts within the organisational boundary – for instance, GHGE include all material sources of GHG from YVW's operations, including vehicles. Other emissions however, such as NO<sub>x</sub> and SO<sub>x</sub> are excluded. In the first year, YVW has also not attempted to account for secondary impacts that may arise as a result of taking measures to address other impacts. For example, the life-cycle impacts of biosolids reuse measures are excluded.

A key aspect of Sustainability Accounting is deciding what sustainability means for the organisation by defining a sustainable level of any particular impact. This enables the organisation to calculate the difference (in physical and then monetary terms) between current levels of impact and sustainable levels of impact – the 'sustainability gap'. For some impacts, such as GHGE, this may be a relatively straightforward process given the extensive information on external measures of sustainability, such as the work of the Intergovernmental Panel on Climate Change.

For other impacts, the process may be more complicated and calculating a quantifiable sustainability gap for some of YVW's six priority areas posed challenges. For example, the objective to run operations in a way that protects and enhances the waterways that YVW extracts from and discharges into, certainly aims for a sustainable outcome. However, there is not a clear, quantitatively defined gap between current levels of impact and sustainable levels of impact. This meant that ISF and YVW had to find new ways of applying the Sustainability Accounting methodology.

In practice, the starting point for Sustainability Accounts will usually depend on availability of relevant data. Boundaries, both in terms of the organization and its impacts, can be drawn, extended and refined over time. In the case of YVW, the final Environmental Cost Statement reflects both the intention of accounting for the cost of achieving the strategic objectives and the reality of available information.

In order to calculate the cost of achieving an environmentally sustainable organisation, it is necessary to know the contribution that particular costs make to achieving sustainability. It was difficult to obtain data on attribution of costs to achievement of outcomes across the majority of YVW's strategic objectives. The areas in which such data was most readily available are GHGE and biosolids reuse.

The final Environmental Cost Statement provides a useful picture of the cost of YVW progressing towards sustainability in material areas of impact. Perhaps the key benefits of the project were realised through the project process and what it revealed. The final 'numbers' analysis provides a mechanism for engagement of YVW staff and stakeholders beyond the immediate project participants. The Environmental Cost Statement was published in YVW's Sustainability Report 2006/07.

## DISCUSSION

This project shone a light on opportunities and challenges associated with YVW progressing towards sustainability and explored benefits of using a particular tool, Sustainability Accounting to help YVW achieve its sustainability objectives. The project resulted in multiple beneficial outcomes for sustainability at YVW.

Water companies seek to make decisions in the best interest for the community. However very few infrastructure decisions return a positive NPV. That means that water companies have to make subjective decisions as to the value of the benefits. Sustainability Accounting is a methodology that can make this process more transparent.

To develop Sustainability Accounting and enable improved decision-making, business systems need to shift to support better tracking and monitoring of expenditure on sustainability initiatives and progress against natural resource targets. For example, systematic tracking of outcomes associated with program expenditure such as water efficiency programs. YVW now has an opportunity to put in place processes for holistic monitoring of the costs and benefits of

sustainability measures. This should contribute to improved resource allocation decisions.

The project revealed major points of interest for strategic decision-making for sustainability at YVW. Definitions of sustainability vary and definitions matter. Without an articulation of what sustainability means, it is difficult to measure progress towards sustainability and therefore resource allocation may be sub-optimal. In some areas of sustainability, such as sustainable levels of water use, more work is required to establish meaningful targets at the level of water service providers. The spectrum of where organisations position themselves on sustainability is also important. YVW has placed itself in a leading position by defining what sustainability means for the organisation, and the definition is likely to be refined as better information becomes available.

Sustainability Accounting connects natural resources flows directly with costs. This can lead to improved decision-making by helping to align financial outcomes with environmental outcomes. Using the language of monetary flows leads to improved mainstream awareness of natural resource issues and opens up opportunities for engaging people across the organisation in decision-making for sustainability. For example, finance staff who may not otherwise be involved in decision-making for sustainability become engaged when the language of costs and benefits is adopted. The different perspective this brings can result in greater innovation.

Collecting cost information in this project helped YVW to identify potential gaps in planned expenditure to meet its strategic sustainability goals. For example, it is unclear to what extent program expenditure assigned to the objective to run operations in a way that protects and enhances waterways, such as sewer renewals, quantitatively contributes to achievement of the objective. Addressing gaps such as this should help the organisation to plan more effectively and thus shift itself along the sustainability spectrum.

The tool used in this project makes transparent the costs i.e. externalities, not internalised by organisations, such as costs associated with GHGE. It has helped YVW to identify and plan to internalise the true cost of its operations. The use of Sustainability Accounting can help to demonstrate at the organisational level that avoidance and restoration costs are less expensive than damage costs. For example, the cost of reducing GHGE is much lower than the associated damage costs of climate change, such as drought.

## CONCLUSION

YVW has set itself stretch sustainability targets and has begun to internalise externalities. In doing so it may realise early mover advantages. Identifying and internalising the true cost of operations can help a water utility like YVW to make a case for higher water retail prices. It also helps the organisation to stay ahead of regulation rather than having to play catch-up. In short, it is good business risk management. This project has demonstrated that Sustainability Accounting is a useful risk management tool and a useful tool for continuing the process of mainstreaming sustainability across the business. Extension of its use will continue to improve its effectiveness.

