Supplementary submission 18

Submission to Inquiry: Sustainability Reporting in the New South Wales Public Sector Inquiry

Processed submission received 29/10/2004 03:45:57 PM

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Confidentiality	**General submission**
Readers	**[All Committees], [Public Accounts], [LA Ecru]**

Introduction.
The University of Sydney's Integrated Sustainability Analysis (ISA) group is a multi-disciplinary research team bringing together expertise in environmental science, economics, energy technology, social science, ecology, climate modelling and climate change, water and waste technology, agriculture, education, engineering, computing, mathematics, atmospheric science and ocean dynamics, nuclear physics and dosimetry, and material science.

ISA undertakes research, applications development and consulting on environmental and broader sustainability issues. The aim of the group is to develop scientifically rigorous, quantitative, consistent and comprehensive approaches for integrated sustainability analysis.

In 2003 the NSW Department of Environment and Conservation through the Environmental Trust funded a two year project at the university to investigate the needs of organizations in the implementation of sustainability reporting (http://www.isa.org.usyd.edu.au). The aim of the project is to develop a reporting tool that organizations will be able to use in the calculation of their triple bottom line. The 'engine' that will drive the reporting tool is the methodology being developed by ISA (see below).

In 2002 Dr Manfred Lenzen, (School of Physics, University of Sydney) and Dr Sven Lundie (Centre for Water and Waste Technology, UNSW) completed a study of the Ecological Footprint of the Sydney Greater Metropolitan Region and New South Wales for the NSW Environment Protection Authority. The report compared methodologies before conducting the study using the methodology developed by ISA.

One of the report's conclusions was that only the ISA methodology can calculate the true bottom line. All other methodologies require decisions to be made about where the cut off point will be (i.e. what will be included in the calculation and what will be declared outside the responsibility of the organization - beyond the boundary of the report).

2 d.: Consider appropriate processes for auditing or verifying sustainability reports;

At present independent audit and verification of reports is very ad hoc. There is a strong need for auditing standards and procedures. This need is separate to the need for reporting standards and

guidelines. There are strong synergies between environmental and social auditing and the traditional financial auditing and verification currently undertaken by accountants and auditing professionals.

3 a.: Consider sustainability reporting initiatives within the public sector in Australia and in international jurisdictions

The Global Reporting Initiative's Sustainability Reporting Guidelines and the Australian guide to environmental reporting Triple Bottom Line Reporting in Australia take an audit approach to sustainability reporting. The guidelines contain a range of indicators that provide good reporting scope or breadth. In order to make the audit manageable a boundary is set. This boundary usually limits the audit to immediate onsite inputs that are deemed to be within the control of the reporting entity. Using the audit approach alone can lead to inconsistencies within and between assessments because the boundary can be somewhat arbitrary and different organizations will draw the boundary in different places.

This issue has been addressed, at the request of the Commonwealth Department of Environment and Heritage, by researchers from the University of Sydney and the CSIRO Sustainable Ecosystems Division. The group has developed a quantitative TBL model, Integrated Sustainability Analysis (ISA), based on Input/Output Analysis. The model differs from the audit approach in that it includes the full upstream supply chain, thus providing reporting depth to complement the breadth of the audit approach and consistency of reporting because there is no cut off point or imposed boundary.

Adopting the ISA methodology is increasingly being seen as good economic sense and part of a sound risk management strategy. Accounting for the full supply chain using this methodology removes the considerable work involved in agreeing to and defining boundaries. In a large organization the work involved in negotiating consistent boundaries so that benchmarks can be set has a huge time/cost implication. Agreeing to boundaries across organizations so that meaningful comparisons can be made is well nigh impossible. However unless this work is done there is a high risk that the effort put into reporting will be worthless as a basis for comparison and for future planning. Using the ISA methodology means that you are dealing with the true bottom line every time.

The Global Reporting Initiative (GRI) and the Global Footprint Network (GFN) are aware of the boundary issue and are exploring ways of dealing with it. To this end there is ongoing dialogue on the technical issues of full chain reporting and ecological footprint analysis. Work has been commissioned to be undertaken with the aim of incorporating ISA approaches into a global Ecological Footprint Standard.

The ISA input into these initiatives is setting the international agenda on the technical aspects of comprehensive reporting standards and tools.

3 b.: Study the processes agencies are using to achieve the integration between the dimensions of social, economic and environmental sustainability and core principles of sustainability

The University of Sydney has developed an analytical framework that achieves integration by evaluating TBL indicators in a standard, repeatable way, and in a common framework enabling accurate benchmarking and meaningful comparisons between indicators.

Within the one framework, the methodology enables reporting on indicators covering environmental, social and economic issues including: energy, water, land disturbance, greenhouse gas emissions, employment, income, taxes, exports, imports, profits, as well as impacts on education, community and cultural services. These indicators can be decomposed to reveal impacts at many different levels, from micro (e.g. a company's on-site emissions) to macro (world-wide supply-chain emissions). Results are presented so that benchmarks, trade-offs and priorities for action across the three dimensions of sustainability can easily be identified and impact on the core principles of sustainability can be clearly seen and considered.

Only through addressing indicators in the three areas within the same framework can the inevitable trade offs be assessed objectively.

3 c.: Examine the value of core sustainability indicators across all public sector agencies versus development of indicators which are agency-specific

This does not need to be an either/or decision. The Global Reporting Initiative and Environment Australia both suggest core indicators and what they call 'additional' indicators. Core indicators are seen as those most relevant to most organizations. Additional indicators, they suggest, can be tailored to specific needs and used to give a more complete picture.

Core indicators, calculated in a consistent and repeatable way (e.g. using ISA methodology) across all public sector agencies will allow for comparisons to be made within and between agencies and over time. This will require that the boundary issue is addressed and the boundary for all core indicators is consistent across agencies.

Use of additional agency-specific indicators will allow for stakeholder involvement in their development. Stakeholder involvement is recognized as important in gaining commitment to the organizational change implied in the adoption of government-wide sustainability reporting.

Ultimately the question is not core or additional indicators but which are relevant and can be used as benchmarks to demonstrate improvement over time. Different indicators may be relevant and important to different stakeholder groups.

Conclusions
We trust that these comments and suggestions will be useful to you in your deliberations on this important issue. We will be happy to supply further information or to address the committee if you think this would be helpful. Please see attachments for additional material.

Quantitative Integrated Triple Bottom Line Reporting

Drivers for Triple Bottom Line Reporting

With the introduction of the Financial Services Reform Act in 2001 and its implementation from March 2002 comes the requirement for companies to report on Socially Responsible Investment (SRI) issues. In Australia, many businesses are developing triple bottom line (TBL) attitudes to their operations. Internationally, major companies and non-government organisations are behind the Global Reporting Initiative (GRI) which is developing protocols for organisations to report on their economic, social and environmental outcomes. At present though, there are no agreed methods for TBL assessment and reporting that are comprehensive or fully quantitative. Two significant deficiencies in the currently accepted methods are that they do not adequately account for off-site or upstream effects, and that the three sets of indicator types are not integrated into the same framework.

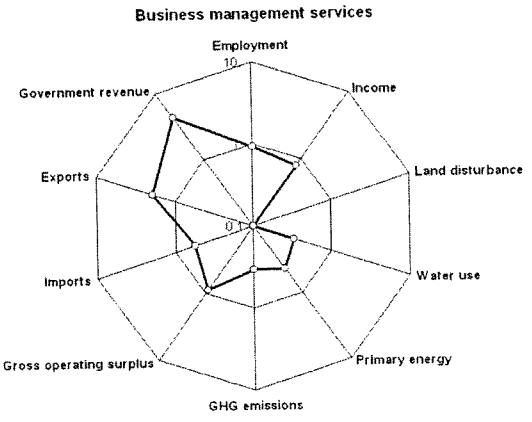
Our Method: a quantitative approach to Integrated Sustainability Analysis

In the early 1970's Nobel Prize winning economist Wassily Leontief combined economic and physical input-output tables (statistical data describing the structure of economies) to examine the way physically important factors (such as energy) were used in modern economies. The Integrated Sustainability Analysis (ISA) team, in close cooperation with researchers at CSIRO Resource Futures, has extended the basic input-output techniques into a fully quantitative, consistent and comprehensive Triple Bottom Line (TBL) Reporting framework that includes:

1) **direct**, on-site TBL **impacts** that exist in the immediate business environment,
2) all indirect, off-site impacts from the goods or services in the entire **upstream supply chain**,
3) all indirect, off-site impacts from intermediate and end-uses in the **downstream use chain**,
4) simple output and **presentation tools** that still reflect the complexity of modern operations,
5) **applicability** to many spatial levels from companies to economic sectors, states, councils, cities, or government institutions, and
5) **stimulus** to organizational management, change, and innovation.

TBL of an Australian Business Management Services Sector – an Example

A convenient visualisation of ten TBL indicators for an Australian economic sector is shown in the form of a spider diagram below. The bold line with circles depicts the total (direct and upstream) TBL impacts of the sector. The lighter polygon towards the centre (labelled "1") represents the economy-wide averages for the TBL impacts of all Australian economic sectors. Positions inside the economy-wide average represent a better than average performance against the associated indicator and positions outside the centre line are worse than average. Note that better performance for some indicators implies a reduction in the magnitude of the indicators' value (land disturbance, water use, primary energy, greenhouse gas emissions, and imports), and an increase in the magnitude for other indicators (employment, income, gross operating surplus, exports and government revenue). The spider diagram shows a typical service sector with excellent outcomes for all indicators with the exception of government revenue and exports.

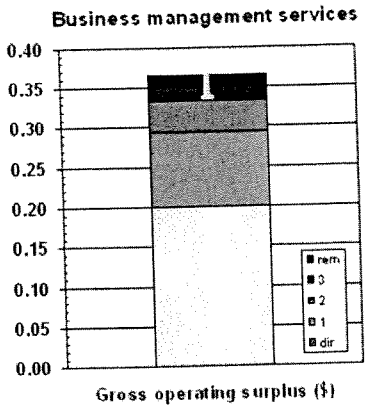


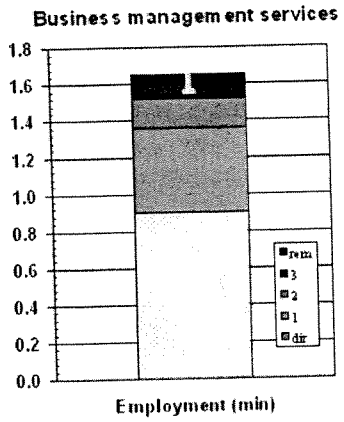
Indicators per dollar of output – broad applicability

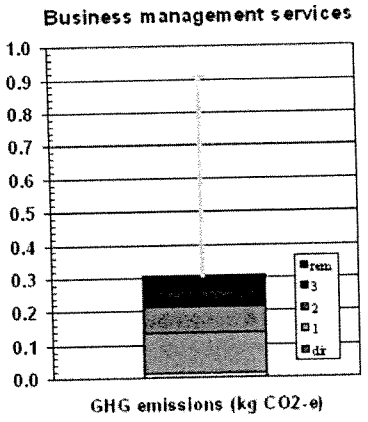
In the ISA / CSIRO framework, TBL indicators are calculated in their appropriate units per dollar of final demand, or final output. This way of accounting allows comparisons and benchmarking to be made across a range of organisational scales and applied to the financial balance sheets of companies and institutions, allowing TBL reporting at the company level that is commensurate with sectoral, regional and national reporting. Therefore, this requires only already-available financial information and direct on-site impacts (eg. energy, greenhouse gas emissions and water use) to be provided. In the sample results below, surplus, employment and greenhouse gas emissions are expressed in units of $ of surplus per $ of output, minutes of employment per $ of output, and kg CO2-equivalent per $ of output

Quantitative results up the supply chain – production layer decomposition

The diagrams below show three TBL accounts for the example of the Australian business management sector. In order to be consistent, all indicators are evaluated in an integrated way, using the same method, and covering the entire upstream supply chain. The shaded portions of the bars represent the direct impacts (on-site, in the sector), the first-order impacts (occurring at the suppliers of the sector), second-order impacts (at the suppliers of the suppliers), third-order impacts (at the suppliers of the suppliers of the suppliers), and all remaining higher-order impacts. This type of breakdown, called a **production layer decomposition**, gives valuable insights into how "deep" the TBL impacts of a sector or company extends in the economy.







For example, the business management sector generates 20¢ of surplus for each $ of GNT. The suppliers of the business management sector generate another 9¢ of surplus, the suppliers of the suppliers another 4¢, and so on. The overall surplus generated by consuming the commodity business management is 36 ¢/$, which is higher than the economy-wide average of 33 ¢/$. Similar stories can be told for minutes of employment generated, and kilograms of greenhouse gases emitted, and for many more TBL indicators such as: economic indicators (operating surplus, capital investment, economic linkage as an indicator for growth stimulus, imports and exports), environmental indicators (other emissions to air, land disturbance, ecological footprint, etc.), resources use (fuels, water, minerals, forest, etc.) and social indicators (employment, salaries, number of establishments supported, government revenue, expenditure on education and research). Further indicators are under development by the ISA / CSIRO team.

The third bar graph demonstrates that significant greenhouse gas impacts and associated financial risks for example from a potential carbon tax occur in higher orders of production a comprehensive assessment of the impact of a sector or company is usually not complete until 10 production layers are assessed. These higher-order impacts are overlooked in all existing, conventional TBL approaches.

Benefits of the quantitative integrated TBL approach

The need for capturing impacts across the entire upstream and downstream supply chain (the boundary problem) is of particular importance and has therefore been noted in the Guidelines of the Global Reporting Initiative (GRI) and Environment Australia, as well as by the World Business Council on Sustainable Development and the Green Environmental Management Initiative. This boundary problem has been solved by using the Australian economic system as described by the national input-output tables. By taking into account TBL impacts throughout the entire upstream supply chains of companies, the quantitative approach developed by the ISA / CSIRO team avoids inconsistencies and loopholes, for example in the following cases:

1. *Risk and liability*: A manager of an Australian ethical fund assesses the risk that is posed to a construction company "A" and a water supplier "B" when faced with a carbon tax. The manager decides to incorporate A into the ethical portfolio, because A's carbon emissions from on-site construction machinery are lower than Bs emissions from water treatment processes. However, A may face much higher additional, indirect risks than B, which arise out of price increases of carbon-intensive inputs such as aluminium frames and cement. These risks (and responsibilities) are ignored in current TBL approaches.

2. *Demerging and outsourcing*: Assume an Australian dairy company "C" owns the entire production chain, i.e. production of raw milk at the farm, transport logistics from farm to factory and the manufacturing site. This company has significant water usage (mainly at the farm). Assume that the same company C demerges into two companies "C1" and "C", or outsources to a company "C1", with C1 consisting of the farm and transport logistics, while the "new C" is responsible only for dairy manufacturing. In a conventional (on-site only, no upstream impacts) TBL reporting regime, C can improve its TBL (water) performance artificially but significantly, despite the fact that the supply chain and hence the impact of the product processed milk is exactly the same.

3. *Vertical integration*: Assume two water suppliers "D" and "D1", where both D and D1 provide water supply and sewage services, but in addition "D1" owns and manages a water catchment. In an on-site-only TBL framework, comparisons between these two water suppliers are not valid because - even though they supply the same product - they exhibit different degrees of vertical integration and a different business structure. In this case D1's impact is likely to be higher than D's only because of the additional catchment management activities. In order to provide a fair comparison, the upstream supply chain of D must be taken into account.

4. *Green supply chain*: An Australian manufacturing company "E" uses large quantities of packaging materials for their product. The packaging material consists of HDPE and aluminium. Both materials are energy-, greenhouse-gas- and water-intensive. The management of the company decides to replace the packaging material with starch-strengthened biodegradable plastic that is less energy, greenhouse- and water intense. Under conventional (on-site-only) TBL reporting E is not rewarded for this shift to a more sustainable packaging. However, by incorporating supply chain effects the improved environment performance can be quantified.

This approach has been successfully applied to Sydney Water Corporation, 135 industrial sectors, New South Wales and Greater Metropolitan Regions as well as Wollongong Council and the Wollongong Population. The TBL results have been used for strategic business planning and sustainability reporting.

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