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EDITORIAL

Issue 3 of the *APCEA Journal* presents two *feature articles*. The *first feature article* by Venkat Narayan and Parmod Chand examines the link between the values of organisations and corporate sustainability reporting through the application of content analysis to two Australian organisations Anglo Coal Australia and VicSuper. Assessment, based on application of values levels in the European Corporate Sustainability Framework, indicates sustainability reporting practices are mainly related to internal environmental management practices rather than external interactions with stakeholders.

In the *second feature article* Karli Verghese, Helen Lewis and Roger Burritt consider growth in the links between sustainable packaging and sustainability accounting. The packaging industry in Australia remains in the early stages of development towards sustainability with life cycle indicators and simple evaluation tools being to the fore and an induced demand for sustainability accounting emerging.

We follow our regular **Environment Extra!** with details of the recently completed PhD by Dr. Susi Sarumpaet which examines environmental disclosures and earnings management by environmentally visible companies in Indonesia.

Finally, this issue of APCEA provides details of recent **Calls for Papers**.

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Instructions for contributors

Articles should be submitted in a word document, *Times New Roman*, 12 point, single spaced, two columns, attached to an email. References should be in the UniSA Harvard author-date referencing style, available from the following link:

<http://www.unisanet.unisa.edu.au/learningconnection/student/learningAdvisors/documents/harvard-referencing.pdf>

As a guide to authors articles should have no more than 6,000 words. However, the submission of short articles is particularly welcomed. Feature articles are independently reviewed by members of the Editorial Board in accordance with the following requirements for classification as a C1 journal article in Australia: 'For the purposes of the HERDC, an acceptable peer review process is one that involves an assessment or review of the research publication in its entirety before publication by independent, qualified experts. Independent in this context means independent of the author.'

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A FRAMEWORK FOR ASSESSING ORGANISATIONAL VALUES REFLECTED IN CORPORATE SUSTAINABILITY REPORTING

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Abstract

Motivated by the increase in sustainability reporting by corporations in recent times, this paper examines the extent to which these reports reflect underlying values and commitments of reporting organisations. We develop a set of assessment criteria based on the value levels contained in the European Corporate Sustainability Framework (ECSF) and apply these assessment criteria to analyse the sustainability reports prepared by two organisations in Australia; Anglo Coal Australia and VicSuper. The assessment criteria developed in this paper could be useful in providing a greater insight into the usefulness and meaningfulness of sustainability reports prepared by organisations.

Key Words:

European Corporate Sustainability Framework; sustainability reporting; values; value levels; accountability.

1. Introduction

Sustainability reporting is increasing dramatically throughout the world. For example, according to KPMG's global survey on corporate social responsibility, sustainability reporting had increased from 14% of the top 250 companies in the world in 2002 to 63% in 2005 (KPMG 2005). More recently, the 2007 KPMG survey shows that reports published by the top 500 companies in Australia have doubled, from 70 to 140, in the period 2000-2006 (KPMG 2007).

Business organisations are investing larger amounts of resources in management practices that generate financial returns for the company and produce beneficial environmental results (Rondinelli & Berry, 1999, p.28).¹ Regardless of the ongoing debate on the merits of sustainability reporting, many organisations around the world are increasingly engaging in sustainability reporting. In this paper, we develop a set of assessment criteria based on the European Corporate Sustainability Framework (ECSF) (van Marrewijk and Werre 2004) to examine the level of commitment of two organisations in Australia towards sustainability issues.

While the issue of "sustainability has become a mantra for the 21st century" (Dyllick and Hockerts, 2002, p.130), it creates both a myriad of problems as well as providing opportunities for organisations. On one hand organisations may not want to expose their activities to potential litigation or public backlash, on the other hand, by addressing sustainability issues organisations can minimise their business risk and potentially find ways to be more competitive (Weaver, Trevino & Cochran, 1999; Dentchev, 2004). Some organisations report on sustainability issues merely because they are in industries which have an obvious impact on the natural environment such as the mining and resources industry. For example, five of the top ten companies in the Business Review Weekly East Coles Most Admired Companies survey of corporate social responsibility were mining companies (Tandulkar, 2006). It has also been suggested that employees are the primary target audience for sustainability reports and that companies that produce sustainability reports can potentially attract and retain high quality staff (Australian Government - Department of Environment and Heritage, 2005).²

Business organisations are engaging with sustainability in a number of ways, including appointing corporate sustainability officers, publishing sustainability reports and incorporating sustainability into their corporate communication strategies (Dyllick & Hockerts, 2002, p.131). To assist such organisations, several international bodies have developed guidelines for reporting on sustainability issues. Some of these bodies include the Global Reporting Initiative (GRI), the World Business Council for Sustainable Development (WBCSD), the United Nations Environment Program (UNEP), and the European Commission. Increasingly the GRI guidelines are considered the benchmark for sustainability reporting and are widely used by organisations worldwide.

Sustainability reporting guidelines such as the GRI have served as useful reference points for organisations that intend to report on their sustainability activities and impact. The decision on what gets reported by any organisation may be influenced by what the organisation aims to achieve and whether their response will satisfy the internal and/or external stakeholders to whom they are accountable. For example, van Marrewijk & Werre (2003, p.107) argue that an organisation's response to the sustainability challenge may be dependent upon "its own specific ambition and approach regarding corporate sustainability, matching the organization's aims and intentions and aligned with the organization's strategy, as an appropriate response to the circumstances in which it operates".

All the current models of sustainability reporting expect business organisations to provide the appropriate reports. However, in an unregulated environment of sustainability reporting, it is possible that an organisation will choose what to report and paint the best gloss while conveying the meaning of the reported data (Baker, 2006). Furthermore, in an unregulated environment, it becomes difficult for preparers to judge whether a sustainability report is reasonable in reflecting the organisation's sustainability

impact. It is also difficult for an organisation and its stakeholders to assess its level of commitment to sustainability reporting. Prior research into sustainability reporting practises has been unable to reach a general consensus in providing a defined manner in which an organisation's commitment towards sustainability can be gauged. Consequently, this paper promotes and attempts to analyse sustainability reports of organisations using a framework.

First we develop a set of assessment criteria based on the value levels contained in the ECSF. Secondly, we use these assessment criteria to analyse the sustainability reports prepared by two organisations in Australia (Anglo Coal Australia and VicSuper) using the GRI.³ The ultimate benefit of using a framework to assess an organisation's values in this context is to provide a greater insight into the usefulness and meaningfulness of sustainability reports. The ECSF framework is suitable as it was initially developed with the intention of aiding organisations in implementing and reporting corporate responsibility issues (Hardjono & de Klein, 2004).

We develop a content analysis of the sustainability reports of Anglo Coal Australia and VicSuper to understand their level of commitment to sustainability and the "value level" these organisations exhibit. We argue that our analysis of the sustainability reports of these organisations will enable stakeholders to assess their social and environmental impacts in a better way. This study also contributes to the literature by extending the use of the ECSF framework, in particular, by developing a set of indicators that organisations may use in assessing the level of their commitment towards sustainability, thereby gauging their value level towards reporting.

The business organisations in our case study have attempted to incorporate sustainability issues into their business practices. Our analysis, however, shows that information presented in sustainability reports must be interpreted with caution, as although certain value system may be widely

emphasised, it may not account for any significant portion of an organisation's sustainability actions and initiatives.⁴

The remainder of the paper is organized as follows. The next two sections provide an overview of sustainability reporting standards and the ECSF value levels. The fourth section outlines the method used in this study and the fifth section presents the two case studies. Finally, the paper offers implications and conclusions on how organisations can achieve higher value levels in sustainability reporting.

2. Overview of Sustainability Reporting Standards

There is no single approach to measure and report sustainable development, though all approaches share a common theme in recognizing the well-being of the current and future generations (Atkinson, 2000, p.236). The World Bank Group (2003) "Race to the Top" survey on senior executives from 107 multinational organisations revealed that respondents regarded the ISO 14000 standard on Environmental Management (47%), the GRI guidelines (38%), the World Business Council for Sustainable Development (37%), ILO Core Conventions (37%) and the Global Compact (32%) to be influential on their business operations. This indicates that organisations choose sustainability guidelines and initiatives that are suitable to their individual needs.

The various sustainability reporting guidelines differ to the extent in which they address the sustainability of communities, environment and individual businesses (Adams & Narayanan, 2007). While various guidelines focus on the needs of business and the inherent benefits of reporting, following them may result in reports which do not demonstrate accountability for material social and environmental impacts to key stakeholders. This would undermine trust between the organisation and its stakeholders which eventually may be detrimental to reporting organisations. Additionally, in guidelines which prescribe report content

rather than processes of reporting, there is no guarantee that reports will be complete.

In addition to the reporting guidelines, business organisations will consider their business and stakeholder needs, and turn to other sources to guide them in developing their sustainability reporting. These will include the criteria for sustainability reporting awards schemes, corporate social responsibility indices, the reports of competitors and "best practice" reporters, and industry association guidelines developed for their particular industry (Adams & Narayanan, 2007). Despite evidence that corporate social responsibility pays-off in bottom line benefits (Margolis & Walsh, 2003; Orlitzky, Schmidt & Rynes, 2003), without mandatory reporting guidelines focusing on processes of reporting and governance structures, organisations will continue to produce reports ignoring impacts which are material to key stakeholders (Adams, 2004).

3. European Corporate Sustainability Framework (ECSF) Value Levels

The ECSF has been developed by an international consortium, led by the Erasmus University and funded by the European Commission (van Marrewijk & Werre, 2003). The ECSF is:

"a set of models and theories brought together in order to address such complex issues as implementing social and societal responsive behaviour in the strive for sustainability; sustainability both in terms of striving for continuity for the organization and the continuity of the (social, ecological and economical) system which it is part of" (Hardjono & de Klein, 2004, p.101).

Hardjono & de Klein (2004) further point out that the ultimate aim of the ECSF is to support organisations in their implementation of corporate sustainability and corporate responsibility which consists of a management model and a set of related instruments. We acknowledge that the ECSF and the value level framework were intended to aid organisations in the implementation of

corporate sustainability issues into their business. However, we see the potential application of the value level framework in assessing ex-post the commitment of organisations towards sustainability issues and reporting.

This model is based on certain considerations and an organisation-level approach towards sustainability where organisations have to make a choice from four different value levels of “order”, “success”, “community” and “synergy” each encompassing their own basic drive of “compliance”, “profit”, “care” and “innovation” (Hardjono & de Klein, 2004, p.101). A value system is defined as “a way of conceptualising a reality and encompasses a consistent set of values, beliefs and corresponding behaviour, and can be found in individual persons, as well as in companies and societies” (Beck & Cowan, 1996; van Marrewijk & Werre, 2003, p.108). The four value levels that organisations can exhibit/pursue also reflect their chosen (perhaps intrinsic) stance and approach towards sustainability. Details of the four value levels are as follows:

- Order: this is a compliance driven approach and the main concern of the organisation is to satisfy the relevant authorities. The organisation views sustainability as an imposed obligation or duty.
- Success: this is a profit driven approach, where sustainability activities that have a desirable financial outcome are pursued. Sustainability activities are seen as reputation enhancing and risk-reducing. This can be viewed as the theoretical parallel of the business case for sustainability, or perhaps a pragmatic approach to sustainability.
- Community: a care-driven approach towards economic, social and ecological aspects of the community and environment. The organisation understands the need to build and maintain lasting relationships with employees as well as external stakeholders.

- Synergy: an innovation driven approach, where organisations proactively look for ways to improve the organisation’s performance and also take care of the natural environment in which it exists. Examples would include car manufacturers developing hybrid cars and organisations that conduct research into alternative sources of energy (Hardjono & de Klein, 2004).

As a general rule organisations must attain lower value levels of order and success before they can attain the higher levels of community and synergy. It is expected that there would be several factors that would influence an organisation to select its appropriate value level. The depth of sustainability reporting depends on numerous factors, including corporate commitment, the degree of public perception of sector-wide environmental issues, exposure to legal liability and government regulation (Nitkin & Brooks, 1998, p.1499).

It is expected that organisations that have an apparent impact on the environment are more likely to take sustainability reporting seriously than organisations that have an indirect impact. Thus the visibility of an organisation’s impact on society or the natural environment would be a factor that would determine the value level chosen by an organisation. However, it is also possible that a “visible organisation” would choose to negate pressure from stakeholder groups by adopting the value level of order, thereby keeping the authorities at bay with no intentions of fully accounting for their actions.

Theoretically, the higher-level values are not necessarily considered better than the lower value levels (van Marrewijk & Werre, 2003). When the challenges from the external environment are met by a particular value level, organisations may not try to achieve a higher value level. However, we argue that organisations may strive to achieve the synergy value level as this would be beneficial to both the organisation in terms of financial gain and to the long-term survival of people and the planet, thus satisfying the

three dimensions of the triple bottom line philosophy. We present two case studies to demonstrate how our framework for assessing value levels can be applied.

4. Method

Our method involved content analysis of the sustainability reports of two companies, Anglo Coal Australia (hereafter ACA) and VicSuper. These two companies were chosen from a list of companies in Australia that prepare sustainability reports in accordance with the GRI guidelines. There were just seven companies that prepared sustainability or corporate responsibility reports in accordance with the GRI as at December 2005. Of these companies, we intentionally chose a mining company ACA (as it is perceived to have a direct impact on sustainability issues) and a financial institution, VicSuper (with an apparent indirect impact on sustainability issues). Additionally, these companies were chosen as their reports contained the word “sustainability” in the title as opposed to other reports which included words such as “corporate social responsibility” and “environmental report”. Our aim is not to statistically generalise in relation to corporate value levels exhibited by organisations, but to use a framework to provide an insight into the value levels exhibited by companies that use the GRI guidelines. Hence, we limit our analyses to two companies.

ACA is a large privately owned mining company which is a fully owned subsidiary of Anglo American. ACA operates several mines including both open cut and underground mines, predominantly along the eastern coast of Australia. The ACA report analysed in this paper was prepared for the year 2004. Therefore, this study is based upon the GRI guidelines prior to the release of G3 in late 2006.

VicSuper is a large superannuation fund based in Melbourne and provides superannuation services to eligible individuals in Australia. It has assets of around \$3.2 billion and is a not-for-profit organisation working to benefit its members who hold superannuation plans. The

VicSuper report analysed was prepared for the year 2005. Both these companies have significant operations in Australia and their sustainability reports are prepared “in accordance” with the GRI guidelines.⁵ We expect that sustainability reports prepared in accordance with GRI guidelines reflect a more serious intention to report on sustainability issues in comparison to the other two categories, as the “in accordance” reports require a greater level of rigour in the preparation of the report. This therefore demonstrates that these organisations are committed to sustainability reporting, but our framework helps to identify their level of commitment based on the value level framework.

The content analysis of the GRI guidelines and company reports was carried out based on the assessment criteria that we developed for each of the four value levels (refer to Appendix 1 for a full list of codes). These assessment criteria were developed using the descriptions of the value levels provided by van Marrewijk & Were (2003) and Hardjono & de Klein (2004). For instance, the order value level can be observed in instances where the reporting organisation focuses on compliance with laws relating to sustainability issues, is concerned with cost of sustainability engagement and perceives sustainability as an obligation to the organisation. The organisation focuses on maintaining a responsible corporate citizen image through activities such as sponsorship and philanthropy. Similarly, assessment criteria were developed for the other three value levels. These criteria were used for coding the sustainability reports. The coding procedure involved the two researchers independently reading the reports and identifying sections of the text which related to the individual codes/criteria. A consensus was reached in terms of the coding categories by the researchers after the initial round of independent coding. These items of text were then grouped under each of the codes/criteria and the numbers of items for each of the value levels were then aggregated.

5. Results and Discussion

Sustainability reports produced by the ACA and VicSuper provide tentative evidence of the two companies attempting to engage in the sustainability discourse and taking steps to implement actions to mitigate their impact. Table 1 shows the number of items of text identified in each value level category from the annual reports of the two companies.

Table 1: Coding results

Value Level	Anglo Coal Australia	VicSuper	Total No. of Items
Order	15	5	20
Success	9	20	29
Community	17	15	32
Synergy	8	10	18

The results show that the most significant value level displayed through the sustainability reports is the community level, followed by success, order and synergy. The nature of the items found in each of the value levels is discussed below.

5.1 Order

This value level views sustainability from a compliance perspective. In this value level organisations are concerned with meeting legal requirements, maintaining standards accreditation, viewing sustainability as an obligation and denying their impact on the environment (see Appendix 1 for a full list of codes). Not surprisingly, a vast majority of items were identified in codes 1.1 (compliance with laws) and 1.2 (compliance with standards or maintaining accreditation). A total of 13 of the 20 items came from these two codes.

It is apparent from the items identified that both organisations were concerned with ensuring that they meet their statutory requirements and maintain their standards accreditation. ACA for instance had its operations certified as ISO 14001 and AS 4801 (an Australian Occupational Health and Safety standard) compliant. ACA appears to have devoted significant efforts in ensuring

that its operations obtained accreditation in 2004 and their future goals appear to be focused on ensuring that accreditation is maintained. ACA also mentioned in their report that their employees were hired in accordance with industrial regulation, including the principles of the International Labour Organisation and UN-UK Voluntary principles on Security and Human Rights. ACA also assert in their report that their sustainability policies such as their climate change policy is in line with the policies of Anglo American, their parent company. As shown in Table 1 ACA accounts for majority of the items identified under the order value level.

VicSuper does not feature heavily in this value level of disclosure, they merely state that their occupational health and safety standards are very high and that all employees are provided with the relevant training. Their report is audited in accordance with the AA1000 assurance standard. They also mention that they use proxy voting at the annual general meeting to persuade companies in which they invest to adopt good governance policies. Their proxy voting policy is driven by advice received from Corporate Governance International Pty Ltd, and the Australian Council for Superannuation Investors. That VicSuper does not feature heavily in this section is perhaps indicative of the fact that they have an indirect impact on sustainability and thus there are no direct sustainability related regulatory requirements placed on them.

It is interesting to note that no items were identified for codes 1.3 (statements of non-impact/denial, i.e. we do not have an effect on the environment) and 1.6 (sustainability as an obligation). Both organisations seem to recognise the importance of sustainability and appear to accept responsibilities for their actions.

5.2 Success

Organisations adopting this value level are concerned with sustainability with an

inherent view to improve their business performance at the same time. Organisations pursuing this value level push the business case for sustainability, view sustainability as a risk reducing strategy and use it as a reputation enhancing tool (see Appendix 1 for a full list of codes). As shown in Table 1 a high proportion of total items was identified under this value level (29/99 items). It appears from the items identified in this section that both organisations were pushing the business case for sustainability, arguing that it is good for business and also for the environment and society in general. VicSuper in particular made several motherhood comments in this section stating their views on the business case for sustainability. The following quote is indicative of the success value level for VicSuper.

“This view is changing with leading companies of all sizes around the world demonstrating that sustainability is good for business. We also believe that this holds true for superannuation and that an approach using sustainability principles is central to successfully managing a superannuation fund over the long term.” (p.3)

VicSuper’s extensive focus on the business case for sustainability in contrast to ACA is further evidenced by the fact that we identified just 9 items relating to the success value level for ACA in comparison to the 20 items identified for VicSuper. ACA seems to view its contribution to the general Australian society and local communities as its contribution to sustainability from a success point of view. For instance, ACA’s report presents the number of people employed, taxes paid, and amounts spent buying goods and services. No direct quotes relating to the business case for sustainability were found in the ACA report. Only one indirect reference is made in relation to ACA’s staff training program which they have designed in order to optimise:

“Business performance to deliver agreed business strategies and an increased

capacity to manage and influence the external environment.” (p.10)

Both organisations also appear to view sustainability as a plausible strategy for risk reduction. Again a majority of items identified were from the VicSuper report. VicSuper seems to use sustainability reporting to ensure that future returns for the company are sustainable and company returns are better than the market return. The following quotes are indicative of such an approach:

“We believe that over the long term, companies that address all of their environmental, social and economic risks and opportunities will provide better investment returns and a better outcome for the environment and society which is particularly relevant to VicSuper.” (p. 27)

“With proper attention to risk management and processes that respect the rights of stakeholders, organisations can prosper over the long term.” (p.27)

On the other hand, the risks that ACA was primarily concerned with related to occupational health and safety issues. They report that an important consequence of their safety initiatives has been the reduction in injury rates and lost time as a result of injuries. It is apparent that both companies have initiated several sustainability related initiatives with the main objective to reduce risk for the company.

The other codes that featured under the success value level were 2.4 (measurement of financial gain as a result of sustainability engagement), 2.5 (integration of sustainability into business operations only when it positively impacts on the bottom line) and 2.6 (participation in all promotion of market based sustainability incentives, such as emissions trading rights). While we found a few items in relation to the above three categories they were not a significant proportion of the items found for the success value level.

ACA for instance measures its financial gain in relation to the outsourced waste collection and disposal and was investigating

the possibility of using by-products of its production process as a domestic combustible fuel. VicSuper does not appear to measure any tangible financial gains but rather is concerned with ensuring that those who invest in them are able to generate cash flows in the long term. We only found two items that related to code 2.5; both of these were from the VicSuper report and are evidence of the profit motivation for some of their initiatives as evidenced by the following quote.

“Conserving natural resources is also good for our bottom line. For example, printing double-sided and conserving energy saves us money. These savings help us reduce our operating costs and maintain our low fee structure for members.” (p.57)

In relation to code 2.6, ACA engages with several government agencies about climate change and to identify alternative ways of controlling emissions. VicSuper has also entered into partnerships with:

“Professional associates to explore new opportunities for our stakeholders, understand existing and emerging issues, contribute to the learning and development of our staff, and provide information to the broader community about our initiatives.” (p.22)

A greater presence of VicSuper in this value level is perhaps not unexpected given that they are a superannuation company with the main goal of providing good returns to their members. Therefore it is plausible that they would pursue sustainability initiatives in so far as they produce good returns, particularly over the long term. In contrast, ACA being a mining company has to directly face the sustainability challenge and thus cannot place a great emphasis on the impact of sustainability initiatives on the bottom line. Overall, the evidence suggests that the success value level is an integral part of the operations of the two companies, where most emphasis is placed on the business case for sustainability and the potential of sustainability initiatives to reduce business risk.

5.3 Community

Organisations that exhibit traits of the community value level are concerned with trying to achieve a balance between social, economic and environmental issues, trying to engage with communities and other stakeholders, and focus on building long-term relationships with these groups. It is interesting to note that this value level is where most items were identified from the two sustainability reports examined. Furthermore, there appears to be little difference in the number of items identified for ACA and VicSuper (17 and 15 respectively). Both companies (particularly VicSuper) make several comments in relation to the need for achieving a balance between economic, social and environmental aspects of sustainability. Both companies tend to recognise the importance of various stakeholders including employees, non-government organisations, local communities and indigenous groups. For example, VicSuper argues:

“To be a sustainable company, we need to consider all risks. Not every issue has significant economic, environmental and social impacts, but we will still look at the potential impacts in all three areas.” (p.44)

“We believe that this investment approach will not only provide long-term financial benefits to our members, but will also contribute to building a sustainable superannuation fund with positive social, environmental and economic benefits to all stakeholders.” (p.22)

We also found some items that indicate a willingness of these companies to engage with sustainability issues over and above the business case. ACA for instance, took community complaints regarding dust and other such issues on board and trialed several initiatives to address these community concerns, even though dust pollution levels were legally acceptable (as per the Australian Environmental Protection Agency’s level). ACA is also part of a voluntary program run by the Australian government called the Australian

Government Greenhouse Challenge program aimed at monitoring and abating greenhouse gas emissions. ACA has also invested in rehabilitating mined land and they provide information on the area of land that has been rehabilitated. Only one item was identified from the VicSuper report in relation to code 3.2 (organisation promotes the need to engage with sustainability over and above the business case) and this relates to incorporating aspects of environmental sustainability principles into their office buildings.

A large number of items were identified in relation to codes 3.3 (focus on building long-term relationships with employees) and 3.4 (focus on building long-term relationships with stakeholders and/or local community). This is perhaps not surprising as most Australian companies consider their employees as the primary audience for their sustainability reports (Australian Government - Department of Environment and Heritage, 2005). ACA reports extensively on their safety training programs and describe the various consultative mechanisms that have been initiated at different mines. However, it is important to note that not all safety initiatives were present in all the mining sites. ACA also describes initiatives that have been undertaken to improve the health and fitness of employees. Again, these are ad-hoc and are not applied uniformly across all the mining sites.

Similarly, VicSuper appears to have invested in training employees and providing them a safe workplace. Several initiatives undertaken by VicSuper can be seen as indicators of the community value level as they go beyond complying with laws in providing their employees with a safe working environment. Both these companies (VicSuper in particular) acknowledge the importance of their employees to their long-term success.

Several items were identified in relation to code 3.4 which is concerned with building long-term relationships with stakeholders. Of the ten items identified under this code seven

came from the ACA report. ACA has developed what they call a Social-Economic Assessment Toolbox (SEAT), the strategy that would lead to post-mining benefits as outlined below.

“With a long term strategy, built on partnerships with our local communities to deliver more sustainable locally focussed post-mining benefits.” (p.13)

In addition to this, ACA has also engaged with local communities and assisted them with safety and environmental standards training programs. They also interact frequently with local communities to identify ways to assist them as the quote below illustrates.

“ACA aims to contribute to the communities near its operations. This is done by consulting and engaging with local stakeholders and implementing agreed actions that benefit the communities.” (p.14)

VicSuper also interacts with their stakeholders both for the purposes of producing its sustainability report and for sustainability issues in general. In relation to code 3.5 (statements about mutual dependency) no items from ACA were identified, all six items came from the VicSuper report. VicSuper seems to acknowledge that there is a high degree of interdependence between the operations of a business, the general society and the environment. The following quotes illustrate this point.

“Sustainability is a way of operating and investing that recognizes the dependence of the overall health of the economy on the long-term availability of natural resources, a healthy environment, a productive workforce and cohesive societies.” (p.1)

“Put simply, without a healthy environment and a healthy society, a healthy economy cannot be sustained.” (p.5)

“An organisation that fails due to poor governance affects not only its immediate stakeholders but also the broader community through a range of factors,

such as financial losses, loss of employment, and loss of confidence.” (p.42)

“Organisations cannot operate in isolation. The effectiveness of VicSuper’s partnerships will impact on the wellbeing of our partners, our other stakeholders and, ultimately, the broader community.” (p.8)

While VicSuper seems to recognise the interdependence between their actions, the environment and the community the report does not provide any indications of how this is measured. Additionally, it does not provide any evidence of initiatives that have been undertaken to benefit the wider society and the environment. In other words, while VicSuper is exhibiting several traits of the community value level, they have yet to put in place any initiatives that reflect this value level. This brings to the fore the argument that value levels in isolation are rhetoric, unless they are supported by tangible initiatives that are adequately monitored, measured and subsequently reported.

5.4 Synergy

Organisations that exhibit the traits of the synergy value level are proactive in developing new ways to address issues of sustainability. Organisations accept responsibility for their actions and subscribe to the notion that “humans cannot control the environment”. Relative to the other three value levels we did not identify many indicators of this value level. We found just one item in relation to code 4.1 (organisation attempts to search for functional solutions, increasing commercial and intellectual wealth for the long-term) for each company. VicSuper invests 10% of its private equity funds in “early stage and expansion stage” companies that produce products or services that make better use of scarce resources in a manner that reduces the ecological impact of economic development. ACA is exploring new ways in which carbon emissions from its operations can be disposed of (by use of a method known as carbon capture). These initiatives of the two companies can be seen

as innovative and progressive towards improving sustainability.

Encouragingly, we found some items in relation to code 4.2 (organisation exhibits responsibility for its actions). However, some of these statements were quasi-admissions of responsibility and were not supported with actions to deal with the issues. ACA for instance, takes community complaints regarding its operations seriously and deals with them swiftly. We also identified an example in the ACA report where the company had voluntarily reported information to the Queensland Environmental Protection Agency and had to take remedial action as a result. ACA has also engaged in biodiversity and conservation programs at some of its mining sites.

By contrast, VicSuper’s report consisted only of general statements in relation to the impact of its actions on the environment. The following quotes are exemplars of this view.

“The energy we use to run our three advice centres and the transport that our staff use, means that VicSuper contributes significantly to the amount of greenhouse gas emissions our society produces.” (p.61)

“The impact of our operations does not end with us. If our partners are also committed to sustainability, we can be confident that they are looking after their staff, minimising their ecological footprint, and ensuring their business is financially sound – while making sure their partners are doing the same. This can lead to substantial flow-on benefits to society, the economy and the environment.” (p.64)

“While we cannot underestimate the environmental impact of our internal operations, our greatest impact on the environment is through the more than \$3 billion we have invested in companies and other assets globally and the impact that they have on the environment through their operations, products and services.” (p.57)

While VicSuper outlines its impact on sustainability through its investments, not all

of its investments are based on sustainability criteria. Only a small proportion of their investments are screened against sustainability criteria. Thus while the above statements reflect VicSuper's view that their actions can have ramifications for sustainability outcomes, they do not appear to report any significant initiatives that can remedy the consequences of their investment choices. Again, this can perhaps be attributed to the indirect nature of VicSuper's involvement in sustainability which makes them less prominent in the public domain than ACA – a mining company.

A few items were identified for code 4.3 (organisation looks for new ways in which to engage with sustainability). ACA has initiatives to reduce water usage in their production processes and they report on their performance in relation to their water targets. According to their report, ACA is also in the process of broadening its project selection/investment criteria to take sustainability issues into consideration. Both of these initiatives can be seen as attempts to look for innovative and synergistic ways to engage with sustainability.

The remainder of the items identified under code 4.3 relates to VicSuper. VicSuper is one of the founding members of the Investor Group on Climate Change and outlines its ability to push the sustainability agenda through its investments.

“This means that we have the opportunity to influence both the companies and assets we invest in and other superannuation funds to consider sustainability issues in their operations and investments. As you will read in this report, we have started to do this through a number of avenues in addition to investments, such as being a founding member of the Investor Group on Climate Change.” (p.3)

Additionally, VicSuper liaises with other property fund managers to ensure that sustainability issues are considered in management and development of property. The property portfolios owned by VicSuper are subsequently assessed against sustainability criteria. VicSuper also intends

to increase its investments in sustainable businesses and work towards a better understanding of the sustainability consequences of their investments. Thus VicSuper appears to be making in-roads to become a sustainable superannuation fund.

In relation to code 4.4 (the use of technical and technological advances to improve sustainability outcomes) we identified just two items, one each from the two companies. VicSuper has been highly proactive in sourcing all their office power needs from renewable sources of energy such as wind, solar and hydro. ACA is currently investigating the possibility of using methane (a by-product of their production process) as a source of fuel. No items were identified in code 4.5 (organisation exhibits the philosophy of humans cannot control the environment). Overall, we identified a relatively small proportion of the total items under this value level. However, the initiatives taken by these companies do appear to be a step towards achieving better sustainability outcomes.

6. Conclusions and implications

In recent times there has been an increasing pressure on business organisations to be accountable and transparent in their activities. Stakeholders are becoming more vocal in their demands for information not only on financial performance but also on the ways in which businesses are aligning their activities with the principles of sustainable development (Rondinelli & Berry, 1999; Keeble, Topiol & Berkeley, 2003). Consequently, a number of business organisations are engaging with issues of sustainability in various forms and some produce promising sustainability reports.

We used the ECSF value level framework to develop a set of assessment criteria to critically evaluate the sustainability reporting practices of VicSuper and ACA. The analyses of the sustainability reports show that these organisations were primarily concerned with engaging with sustainability in so far as it was profitable for the business. For example, these organizations ensured that

they complied with relevant legislation and maintained professional accreditation. Therefore, the important aspects of sustainable reporting practices of the two entities were primarily related to their internal environmental management practices (order and success). External interactions with stakeholders and communities (community and synergy), although heavily articulated, do not account for any significant portion of their sustainability related actions/initiatives. Therefore, it appears that organisations will integrate sustainability management practices into their overall business strategies only where this leads to “win-win” results (more efficient and cost-effective business operations as well as sustainable environmental outcomes) (Rondinelli & Berry, 1999, p.30).

While we identified several items relating to the “community value level” it was evident that the two case organisations, particularly VicSuper were engaging in rhetoric rather than in any concrete action. For example, several initiatives that were undertaken by these organisations under the “community value level” were relatively small impact initiatives with a lack of any follow-up action or reporting of outcomes. Therefore, while these companies are producing sustainability reports, overall evidence suggests that these organisations are yet to be fully convinced of the advantages of the inclusion of sustainability in their strategic and operating plans, and for day-to-day decision making on a highly organized basis (Nitkin & Brooks, 1998, p.1506).

Furthermore, while comparing the sustainability reports of the two companies, it is apparent that the level of “public visibility” of the company also has an impact on what is reported. ACA for instance reported extensively on their compliance with relevant laws and regulations. VicSuper on the other hand, was able to make more general statements about their role in the society and their views on sustainability. VicSuper’s impact on the social and environmental issues is also relatively indirect and this has enabled them to be more philosophical in

their report while ACA had to be more specific about their impacts.

Overall, both the organisations can be commended for some of the initiatives that they have embarked upon under the synergy value level. However, our analysis has shown that information presented in the sustainability reports, especially statements without reference to any follow-up action or reporting of outcomes must be interpreted with caution. While a certain value system is dominant in an organisation and is widely emphasised, it does not necessarily mean that the related value system is functioning (van Marrewijk & Were, 2003, p.109).

While the assessment criteria developed in this paper could be useful in providing a greater insight into the usefulness and meaningfulness of sustainability reports, it does not specify how organisations can move from one value level to another. Future field-based research could be used to examine the value levels exhibited by other organisations and gain insights into the motivations for sustainability oriented decision making. Future longitudinal studies with a larger sample size could also be used to examine the value levels exhibited in sustainability reports of organisations over a period of time. Such research would enhance our understanding of how organisations could better contribute towards sustainable development which is increasingly becoming a desirable objective for the society.

Some limitations of our study need to be recognised. We have used a content analysis to evaluate the sustainability reports of the two organisations. There were no follow-up interviews conducted. Therefore, there may be instances where the organisations have specific mechanisms to measure certain aspects of their environmental influences but we were not able to detect those while reading the reports.

Endnotes

1. For example, in a content analysis of 38 multinational enterprises (MNCs) Rondinelli & Berry (1999) found that a

number of MNCs were engaging in sustainability issues. “In 1997, for example, ABB spent more than \$35 million on staffing its Environmental Affairs Network of 600 people, \$29 million for implementation of ISO 14001 certifications, and \$1 million for the development of its lifecycle assessment. SmithKlein Beecham spent more than \$40 million on environmental operations and an additional \$23 million on environmental capital improvement projects. Between 1993 and 1996, Eastman Kodak spent more than \$478 million for pollution prevention and waste treatment at its manufacturing sites. Dow Chemical’s expenditures over 10 years on energy use reduction alone exceeded \$200 million.” (p.28)

2. The Department of the Environment and Heritage was renamed the Department of the Environment and Water Resources in 2007.
3. We have chosen the GRI guidelines as the reporting standard as it is a widely used and accepted guideline for preparing sustainability reports. For example, in Australia the Department of the Environment and Heritage promotes the use of the GRI guidelines for organisations that intend to report their sustainability activities. Additionally, in 2005 there was a 21% increase in the number of organisations that chose to use the GRI guidelines to prepare their sustainability report in Australia (Australian Government - Department of Environment and Heritage, 2005).
4. The use of these two organisations’ sustainability reports is merely to provide an example of how the assessment criteria can be applied to sustainability reports. We do not intent these two reports to be representative of good or bad quality reporting nor do we purport that the findings in relation to the value levels found in the two reports can be generalised to the broader population.
5. Organisations can fall under three categories while reporting using GRI

2002 guidelines. Reports can be prepared either (a) in accordance with the guidelines or (b) containing a content index or (c) with reference to the guidelines.

References

- Adams, C.A. (2004). “The Ethical, Social and Environmental Reporting-Performance Portrayal Gap”. *Accounting, Auditing and Accountability Journal* 17(5), 731–757.
- Adams, C.A. & Narayanan, V. (2007). The Standardization of Sustainability Reporting in J. Unerman., B. O'Dwyer and J. Bebbington (eds). *Sustainability Accounting and Accountability*. Routledge, London.
- Atkinson, G. (2000). “Measuring Corporate Sustainability”. *Journal of Environmental Planning and Management* 43(2), 235–252.
- Australian Government - Department of Environment and Heritage. (2005). *The State of Sustainability Reporting in Australia*. Canberra.
- Baker, M. (2006). *The Global Reporting Initiative-Leap Forward or Last Gasp?* Ethical Corporation (9th March), Available on internet: http://www.mallenbaker.net/csr/CSRfiles/page.php?Story_ID=1561.
- Beck, D. & Cowan, C. (1996). *Spiral Dynamics*. Blackwell Publishers, Cambridge, MA.
- Dentchev, N.A. (2004). “Corporate Social Performance as a Business Strategy”. *Journal of Business Ethics* 55, 397–412.
- Dyllick, T. & Hockerts, K. (2002). “Beyond the Business Case for Corporate Sustainability”. *Business Strategy and the Environment* 11, 130–141.
- Hardjono, T. & de Klein, P. (2004). “Introduction on the European Corporate Sustainability Framework”. *Journal of Business Ethics* 55, 99–113.
- Keeble, J.J., Topiol, S. & Berkeley, S. (2003). “Using indicators to Measure Sustainability Performance at a Corporate and Project Level”. *Journal of Business Ethics* 44, 149–158.

- KPMG. (2005). *International Survey of Corporate Responsibility Reporting*. KPMG Global Sustainability Services.
- KPMG. (2007). *Sustainability reporting in Australia*. KPMG Sustainability Advisory Services.
- Margolis, J.D. & Walsh, J.P. (2003). "Misery loves Companies: Rethinking Social Initiatives by Business". *Administrative Science Quarterly* 48, 268–305.
- Nitkin, D., & Brooks, L.J. (1998). "Sustainability Auditing and Reporting: The Canadian Experience". *Journal of Business Ethics* 17, 1499–1507.
- Norris, G., & O'Dwyer, B. (2004). "Motivating Socially Responsive Decision Making: The Operation of Management Controls in a Socially Responsive Organisation". *British Accounting Review* 36(2), 173–196.
- Orlitzky, M., Schmidt, F.L. & Rynes, S.L. (2003). "Corporate Social and Financial Performance: A Meta-Analysis". *Organizational Studies* 24, 403–441.
- Rondinelli, D.A. & Berry, M.A. (1999). *Environmental Citizenship in Multinational Corporations: Social Responsibility and Sustainability Development*. 1999 Greening of Industry Network Conference, Best Practice Proceedings, 1–36.
- Tandulkar, A. (2006). "Careful by Necessity". *Business Review Weekly*, July 13-19, 38–40.
- The World Bank Group. (2003). *Corporate Social Responsibility Practice. Race to the Top: Attracting and Enabling Global Sustainability Business*. Business Survey Report.
- van Marrewijk, M. & Were, M. (2003). "Multiple Levels of Corporate Sustainability". *Journal of Business Ethics* 44, 107–119.
- van Marrewijk, M. & Were, M. (2004). "European Corporate Sustainability Framework for Managing Complexity and Corporate Transformation". *Journal of Business Ethics* 44, 107–119.
- Weaver, G.R., Trevino, L.K. & Cochran, P.L. (1999). "Integrated and Decoupled Corporate Social Performance: Management Commitments, External Pressures and Corporate Ethics Practices". *Academy of Management Journal* 42(5), 539–552.

Appendix 1

Assessment criteria - Indicators of value levels

1. Order

Code items relating to:

- 1.1. Compliance with laws
- 1.2. Compliance with standards or maintaining accreditation
- 1.3 Statements of non-impact/denial, i.e. we don't have an effect on the environment
- 1.4 Basic measurement of environmental performance with no follow-up action
- 1.5 A highly cost-oriented approach towards sustainability
- 1.6 Sustainability as an obligation
- 1.7 Sponsorship, philanthropy, charity work, etc.

2. Success

Code items relating to:

- 2.1 The business case for sustainability
- 2.2 Sustainability as a strategy for risk reduction
- 2.3 Sustainability is a strategy for improving reputation
- 2.4 Measurement of financial gain as a result of sustainability engagement
- 2.5 Integration of sustainability into business operations only when it impacts on the bottom-line
- 2.6 Participation in all promotion of market-based sustainability incentives, such as emissions trading rights, etc.

3. Community

Code items relating to:

- 3.1 Statements about a balance between economic, social and environmental issues
- 3.2 Organisation promotes need to engage with sustainability, over and above the business case
- 3.3 Focus on building long-term relationships with employees
- 3.4 Focus on building long-term relationships with stakeholders and/or local community
- 3.5 Statements about mutual dependency, i.e. the organisation benefits when the stakeholders and/or the environment benefits.

4. Synergy

Code items relating to:

- 4.1 Organisation attempts to search for functional solutions, increasing commercial and intellectual wealth for the long-term, both for itself and for stakeholders
- 4.2 Organisation exhibits responsibility for its actions
- 4.3 Organisation looks for new ways in which to engage with sustainability
- 4.4 The use of technical and technological advances to improve sustainability outcomes
- 4.5 Organisation exhibits the philosophy of "humans cannot control the environment".

SUSTAINABLE PACKAGING AND SUSTAINABILITY ACCOUNTING: EXPLORING LINKS AND SYNERGIES

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Abstract

In this paper the Australian National Packaging Covenant (the Covenant) is used to explore the developing links between design of sustainable packaging for products and sustainability accounting. First, sustainability of packaging as a concept is reviewed and the potential role of sustainability accounting outlined. The two notions are brought together by examining their implications for the Australian packaging industry and, in particular, ongoing development of the NPC, which was revised for a second five year period in 2005. A set of sustainability packaging indicators and the development of a quick evaluation tool are discussed as integral parts of the new product development process. The history of the Covenant reveals a growing recognition of the need to emphasise target setting and reporting against key performance indicators and, associated with this, an induced demand for sustainability accounting, as a necessary tool for systematically revealing environmental and social impacts of product packaging.

Key Words:

Sustainable packaging; sustainability accounting; National Packaging Covenant.

1. Introduction

The Covenant is a voluntary initiative introduced by government and industry in Australia, to reduce the environmental effects of packaging on the environment. It is designed to minimise environmental impacts arising from the disposal of used packaging, to conserve resources through better design and production processes and to facilitate the re-use and recycling of used packaging materials (NPCC 2005). The Covenant has been criticised for not providing necessary quantitative evidence about the indirect objectives of increasing product stewardship and improving kerbside recycling (Nolan ITU et al. 2004, p iv).

Section 2 of the paper provides background to the main sustainability issues associated with packaging, provision of a workable definition of sustainable packaging, and discussion of the potential role of sustainability accounting. Section 3 details the Australian National Packaging Covenant and the potential role of sustainability accounting within the set of tools available to help overcome criticism of its ineffectiveness in improving performance. In the final Section concluding comments are made drawing attention to the need for a tool that facilitates assessment of trade offs in sustainability packaging design decisions as well as integrating the various dimensions of sustainability as the basis for improved decision making.

2. Background

The following sections highlight the definition of sustainable packaging; the need to minimize product life cycle impacts of packaging, the considerations of sustainable packaging

2.1. What is sustainable packaging?

No generally agreed international definition of sustainable packaging exists. The US Sustainable Packaging Coalition (SPC) published a detailed definition of sustainable packaging suggesting that sustainable packaging is:

- beneficial, safe and healthy for individuals and communities throughout its life cycle;
- sourced, manufactured, transported, and recycled using renewable energy;
- manufactured using clean production technologies and best practices;
- made from materials healthy in all probable end-of-life scenarios;
- physically designed to optimize materials and energy;
- effectively recovered and utilized in biological and/or industrial cradle to cradle cycles, and
- maximizes the use of renewable or recycled source materials while meeting market criteria for performance and cost (SPC 2005).

However this generic notion of sustainable packaging is less that helpful to practitioners. The SPC is now developing a series of indicators and metrics based on the definition to provide members with a practical tool to measure and track performance (SPC 2005; SPC 2007). The tool is not expected to be available before mid 2009.

In Australia the Sustainable Packaging Alliance (SPA) was formed in 2002 to provide a focal point for strategic research, technology transfer and education to underpin and facilitate the development and commercialisation of sustainable packaging systems. Foundation members are the Centre for Design at RMIT University, The Packaging and Polymer Research Group at Victoria University and Birubi Innovation. SPA is supported by Sustainability Victoria, a state government organisation.

The Sustainable Packaging Alliance itself only has developed a draft definition of sustainable packaging based on the following four principles (see Figure 1) (James et al.

2005; Lewis et al. 2007, p 3-5; Verghese 2008):

- Packaging of products needs to be effective, i.e. it should aim to add social and economic value. Packaging exists to contain and protect products as they move through the supply chain. In the process of doing this it can also improve people's lives, for example by providing food and beverage products in a more convenient form. It must do this in a cost-effective way for all of those involved in the supply chain, including consumers, and it must provide a satisfactory return on investment for manufacturers.
- Packaging needs to be efficient, i.e. it should aim to minimise consumption of materials, energy and water throughout its life cycle. This helps to conserve resources and reduce waste, while reducing costs to companies in the packaging supply chain. Eco-efficiency has been identified as essential to sustainability (see for example von Weizsacker et al. 1997; Hawkens et al. 1999; WBCSD 2005). The term Eco-Efficiency was made popular by the World Business Council for Sustainable Development (WBCSD) in 1992. The WBCSD (2000) defines eco-efficiency as being achieved by the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle, to a level at least in line with the Earth's estimated carrying capacity.
- Packaging needs to be cyclical, i.e. it should aim to eliminate waste by cycling materials through natural or industrial metabolisms for optimal recovery (McDonough and Braungart 2002). This is consistent with the 'closed loop' material cycles that exist in natural ecosystems.

- Packaging needs to be safe, i.e. it should aim to avoid generating wastes or emissions that pose any threat to the health of humans or other living organisms; and it must not contribute to environmental problems such as global warming, or degradation of land and waterways.

As a minimum, for the assessment of sustainability, information needs to be available about effectiveness, efficiency, waste flows, safety and cleanliness of packaging. It is here that the potential for sustainability accounting becomes apparent.

2.2. Regulation of packaging

The notion of product stewardship is growing in importance in the context of sustainable packaging (Lewis 2006). Product stewardship is based on the principle that all organisations involved in a product supply chain share responsibility for minimising the product's life cycle impacts. It can be encouraged in a number of ways, including:

- non intervention (business as usual);
- voluntary industry initiatives;
- voluntary industry / government agreements;
- co-regulatory approaches (government and industry combined); and
- fully regulated schemes (EPHC 2004, p. 4).

Most product stewardship policies for packaging are either co-regulatory or fully regulated schemes (Lewis 2006). Voluntary programs include, for example, the Australian Code of Practice for the Management of Plastics Bags, where particular concerns are packaging waste and the social nuisance of litter (EPHC 2008). Costs identified with addressing these concerns include: staff training; equipment modification; administrative record keeping; increased transaction times; and in-store education of customers (EPHC 2008, p.62). In contrast, the Covenant, considered further in this study, is a co-regulatory model. Both of these programs provide companies with the option of signing a voluntary agreement

with government, or being subject to regulated requirements or penalties.

No matter which type of regulatory scheme is in place, there is a need to measure, monitor and manage changes in the packaging system over time to enable managers, policy makers and other stakeholders to evaluate environmental impacts and associated costs and to amend or refine policy instruments. This is where sustainability accounting could be effectively operationalised to collect and monitor data at company and, possibly, sector, national and/or regional levels for decisions and policy formulation about sustainable packaging design.

2.3. Sustainability of packaging

Operationalisation of the concept of sustainability is a key problem for practitioners (Schaltegger and Burritt 2005). How can products, such as packaging, be considered sustainable? Considerations include the need for information about:

- economic drivers of packaging systems;
- environmental impacts of specific functions associated with packaging;
- the needs, interests and values of different stakeholder groups in relation to packaging including the businesses, their employees, consumers and non-government organisations; and
- the relative power of different stakeholders and their ability to influence outcomes in relation to sustainable packaging.

Each of these is outlined below.

2.3.1 Economic. The multiple functions of packaging include protection, containment, convenience and communication. All have to be considered when defining sustainable packaging and identifying its economic drivers. The need is to meet increasing consumer expectations for convenience, shelf life and safety while ensuring reduced environmental impact of packaging materials, all with the minimum economic cost. Cost considerations need to acknowledge the life cycle of packaging

design, innovation, technology, capital, operation of equipment, and the ‘systems’ installed.

2.3.2 Environmental. Packaging has had a relatively high public profile in environmental debates since the 1960s, when the introduction of single use beverage packaging raised concerns about waste and litter, even though it is also a vehicle for preventing damage or waste in parts of the supply chain (e.g. food waste) (James et al. 2005). As with any other manufactured product, packaging has environmental impacts that are not sustainable in the long term, including (James et al. 2005, p. 374):

- consumption of non-renewable resources (e.g. materials and energy);
- generation of air emissions in production, transport and use that contribute, for example, to air pollution, ozone layer depletion and global warming;
- generation of waterborne emissions that contribute to pollution of waterways; and

- production of solid waste requiring disposal in landfill.

Life Cycle Assessment (LCA) is often used to evaluate the environmental impacts of packaging, either to identify critical impacts or to compare similar products, such as plastic and paper bags. These studies are useful in identifying impacts throughout the product life cycle, such as resource and energy consumption and generation of emissions, but the method relies too much on poor quality data from various parts of the life cycle chain (Schaltegger and Burritt 2000), is inadequate for dealing with complex ecological issues such as biodiversity loss, and fails to account for social issues such as litter potential.

Consumption of packaging is continuing to increase, for example 63.5 million tonnes of packaging was supplied to the European market in 2002 compared with 62.5 million tonnes in 2000 (ASSURE 2005, p 3). While recycling rates for most packaging materials

Table 1 Packaging recycling rates (%)

Country	Glass	Paper	Plastics	Metals	Wood	Total
Australia	30	74	21	Steel 44 Aluminium 63	NA	51
Austria	86	80	30	67	16	66
Belgium	93	78	29	86	55	70
Denmark	90	61	16	44	NA	57
Finland	49	61	15	50	NA	49
France	52	64	15	53	19	45
Germany	86	88	49	80	41	74
Italy	53	58	23	54	60	51
Luxembourg	83	60	28	79	NA	57
Netherlands	79	69	16	80	29	57
New Zealand	49	72	21	Steel 31 Aluminium 61	NA	52
Spain	36	60	20	39	NA	44
Sweden	88	70	20	68	NA	65
United Kingdom	34	59	19	39	55	44
United States	25	50	Soft drinks 34 Milk bottles 29	Steel 62 Aluminium 45	NA	NA

Source: European data is for 2002 from ASSURE (2005). Australian data is for 2003 from MS2 and NRS (2005). U.S. data is for 2005 from the US EPA (2006, 12 December). New Zealand figures are for 2005 from Packaging Council of New Zealand (2006, 6 September).

are also increasing, they remain low in many countries for particular materials such as plastics (see Table 1). There is still no economically feasible technology for recycling the new generation of multi-material and flexible plastic packaging and the increasingly popular biodegradable materials.

2.3.3 Stakeholders. A survey of ‘expert’ stakeholders with an interest in packaging, including representatives from Australian companies, industry associations, government authorities, academia, and environment organisations, was undertaken in Australia in 2003 (Lewis 2005). It found that most respondents believe that current packaging systems are unsustainable, with the most frequently mentioned environmental problems being litter and its impacts on wildlife and visual amenity; the amount of waste to landfill and the impacts of landfill (e.g. leachate); and excessive or inefficient use of resources (Lewis 2005). While consumers could drive change through preferential purchasing of products with lower impact packaging, there is evidence in New South Wales of a disconnect between the concerns expressed by consumers about the environmental impacts of packaging, and their actual purchasing behaviour (TRC 2004). The survey reveals:

- little consideration of packaging at point of sale;
- little association between disposal and environmental aspects of packaging with overall likes and dislikes of packaging; and
- practically no connection between attitudes to recycling, waste or the environment, and purchasing behaviour.

These stakeholder-based observations highlight the limited capacity of demand-side policies to achieve significant change in the sustainability of packaging and draw attention to the perceived importance of suppliers of packaging as change agents.

2.3.4 Power relationships. These perspectives about the environmental impacts of the packaging supply business are mediated and resolved through political

processes (Schaltegger et al. 2003). In the Australian packaging industry, business interests have been represented through a small number of influential associations, including the Packaging Council of Australia (PCA) and the Australian Food and Grocery Council (AFGC). These and other associations were largely responsible for negotiating the NPC with federal, state and local government organisations. The original NPC Council was made up of representatives from these groups.

In addition, public concerns about packaging have been expressed and promoted by environmental organisations such as the Australian Conservation Foundation, Environment Victoria and the Total Environment Centre. Until recently these groups did not have a strong national voice and had little input to NPC negotiations. A dramatic change occurred with the emergence of a new lobby group when the Covenant was renegotiated in 2004 and 2005. The Boomerang Alliance, representing a number of environmental organisations and local government associations in NSW, demanded increased industry responsibility for waste management and improved accountability and transparency (Boomerang Alliance 2004).

These considerations derived from surveys of stakeholder views lie behind attempts to provide a working definition of sustainable packaging.

2.4 Potential role for sustainability accounting

Sustainability accounting, popularised through the notion of triple bottom line accounting (Elkington 1998), has been defined as ‘the generation, analysis and use of monetarised environmental and socially related information in order to improve corporate environmental, social and economic performance’ (Sigma 2003, p 7).

This focus on monetarised information presents a quite narrow picture of sustainability accounting that can be referred to as sustainability financial accounting (Sigma 2003). A broader definition accepts

the importance of physical information as well as financial information for assessing performance. In combination, the integration of physical and financial information allows calculation of eco-efficiency and eco-effectiveness for planning, control and decision making. Hence, the Forum for the Future (2005) recognizes that sustainability accounting tries to provide information in three different areas: location of impact - internal or external; type of impact - environmental, social or economic; and timing of impact. As no generally accepted definition of sustainability accounting exists its development is considered further below.

The main precursor to sustainability accounting is environmental accounting, which provides information about environmental and economic performance.

Environmental accounting places emphasis upon the gathering, recording, analysis and reporting of environmental impacts of and on particular institutions, using monetary and physical measures, as appropriate for the purposes of the particular recipient (Burritt et al. 2002). It relies upon the need for purposeful data related to established objectives as well as the measurement of expected and actual performance through key performance indicators (KPIs) as a basis for management of environmental impacts (Burritt 2005a), particularly through voluntary means (Schaltegger and Burritt 2005). From this pragmatic perspective, the use of indicators (e.g. Callens and Tyteca 1999) and the links between environmental and economic performance, through the notion of eco-efficiency have dominated environmental accounting in practice at the level of the corporation.

One stimulus to environmental accounting has been the development of environmental management systems, such as ISO 14001 and EMAS which require the monitoring of environmental policy, plans and actions (see extensive literature review in Schaltegger and Burritt 2000, p 375-381).

Corporate sustainability is broader than environmental accounting. It is a notion that has received considerable attention in recent

years (Schaltegger and Burritt 2005) and is related to the type of issues facing proponents of sustainable packaging. However, because of the vagueness of the term considerable confusion exists for those keen to operationalise the concept, including policy makers and corporate managers (Schaltegger and Burritt 2005). Attempts have been made to capture the notion of corporate sustainability using a single metric, e.g., Figge and Hahn (2002). However, from a pragmatic point of view the use of several indicators of environmental, social, and economic performance (e.g. Callens and Tyteca 1999) and consideration of the links between environmental and economic goals and social and economic goals, are necessary for its operationalisation.

In a review of empirical literature on the links between economic, environmental and social performance of corporations it was noted that, given the problems of operationalising social performance (Wagner et al. 2001), it is not surprising that most research focuses on links between environmental and economic performance measures and the concept of environmental accounting rather than the notion of sustainability accounting with its complex problems of integration.

Environmental accounting recently reached its zenith when the International Federation of Accountants (IFAC 2005) in their document '*International Guidelines on Environmental Management Accounting*', provided the first international practical guide in this area for accountants. The aim of the Guidelines is to provide a pro forma for the identification of environmental costs which can then be better integrated into business accounting systems. Environmental management accounting provides the basic information for management decision making as well as for external reporting to stakeholders by organisations (Burritt 2005b). It forms a critical component of sustainability accounting and, by requiring a detailed data collection process such as that associated with non-product material flows, assists in the identification of potential ways

to improve environmental performance (Wagner 2005). The challenge is that, at present, consistency in environmental performance measurement, use of key performance indicators (KPIs) and environmental reporting is rare (Wagner 2005) and insufficiently linked to other tools for improving environmental performance such as a life cycle approach to environmental performance. Furthermore, for businesses the links between improved environmental performance, as encouraged by sustainability and environmental accounting and reporting, and improved economic performance, are yet to be established in empirical terms (see Schaltegger and Burritt 2005).

A similar situation exists in relation to packaging, where, as noted above, environmental impacts of packaging have been very much to the fore in debates about movements towards sustainable packaging (Burritt et al. 2005). Developments in sustainability accounting extend conventional accounting by specifically addressing problems associated with environmental and social impacts of organisations and their interactions. The importance of sustainability accounting is that it provides information for decision making which highlights a range of considerations (Burritt 2004, p. 25):

- the interaction between elements of economic, environmental and social impacts of organisations and potential trade offs between them (see 'Beyond win-win' in Burritt 2004, p. 23);
- the need to move beyond concern for efficiency towards the recognition of the importance of objectives and their effective achievement (Dyllick and Hockerts 2002);
- the organisational development process associated with moving towards sustainability (Schaltegger and Burritt 2005);
- a focus on performance measurement, indicators and management through incentives that encourage development towards sustainability (Burritt 2004, p. 26); and

- recognition of the different spheres of influence determining use of information for decision making and policy making (Schaltegger et al. 2003; Burritt 2004).

With these considerations in mind, an attempt can be made to make operational the complementary emerging notions of sustainable packaging and sustainable accounting. Sustainability accounting is designed to provide necessary information for sustainable packaging decisions which consider economic, environmental and social impacts, with a focus on efficiency and effectiveness while providing information for performance management through measurement (Schaltegger, Bennett and Burritt 2006, p.8). Accounting is a powerful tool which has conventionally been used to optimise the economic performance of organisations (Unerman, Bebbington and O'Dwyer 2007, p.3), whereas sustainability accounting includes social and environmental impacts in the calculus. The following example related to development of the National Packaging Covenant in Australia examines this complementarity.

3. Accounting for sustainability in the Australian packaging industry

3.1 The National Packaging Covenant

The NPC is a co-regulatory framework between government and companies in the packaging supply chain to manage the environmental impacts of packaging in Australia (NPCC 2005). It was introduced in 1999 as a 5-year program (NPC Mark I), and was extended for another 5-year period in 2005. A mid term review is currently underway in 2008 (NPC Mark II – 2005-2010). The NPC requires signatories such as companies in the packaging supply chain (raw material suppliers, manufacturers, brand-owners, retailers) as well as other stakeholders (industry associations, local, state and federal government) to submit an Action Plan every 3 years setting out the actions that will be undertaken to reduce the environmental impacts of packaging. Annual reports are required to monitor performance

against activities related to design, production, distribution, disposal, research, market development, education, labelling, retailing and recycling and reprocessing. The NPC is underpinned by a regulatory framework, the National Environment Protection Measure (NEPM) for Used Packaging Materials, which is implemented by each State or Territory Government in Australia, and is designed to deal with non-signatories and non-compliant signatories.

An evaluation of NPC action plans and annual reports in late 2003 found that significant improvements were required because: there was an almost universal lack of measurable targets; no indication was available of how data was being collected; and many organisations failed to report against actions listed in the original plan (Lewis and James 2003). These issues are at the very heart of sustainability accounting. Evaluations of the Covenant for the NPC Council (Nolan ITU et al. 2004), the Australian Local Government Association (Meinhardt 2004) and the NSW Nature Conservation Council (White et al. 2004) all identified gaps and key areas for improvement. These included the need to (NPCC 2004, p. 5):

- ‘deliver measurable outcomes in managing the environmental impact of consumer packaging’; as well as
- ‘requir[e] signatory action plans and reports to contain detailed actions, outcomes, timelines and quantifiable performance measures’.

Application of “effectiveness analysis”, which emphasises thirty three different aspects of effectiveness of voluntary environmental agreements, (Burritt et al. 2005, p 302) found the most critical areas that needed to be addressed in the NPC Mark I were:

- “The need for clearer objectives and targets, supported by a comprehensive accounting/data collection system to measure and report progress; and
- An increased focus on positive business drivers such as technical support and public recognition.”

It was recommended that an appropriate accounting system for data collection be established so that signatories could collect data for industry benchmarking and quantitative reporting against actions and targets, as well as provide information for decision making, accountability and transparency in reporting to internal and external stakeholders.

In early 2005 the National Packaging Covenant Industry Association (NPCIA) commissioned a study to identify and document gaps and inconsistencies in the collection, storage and analysis of packaging materials flow data. The report found that fundamental changes needed to be made with respect to the accuracy and verification of data to be used to determine the progress against the new NPC Mark II targets and KPIs (MS2 and NRS 2005).

In July 2005 the revised NPC (NPC Mark II) (NPCC 2005) was approved. This new Covenant addressed stakeholder concerns about the lack of clear direction and performance indicators in the previous Covenant and introduced a stronger framework for program evaluation and reporting. NPC Mark II includes an overarching objective, four performance goals, an extensive list of KPIs for measuring progress towards these goals and tighter requirements regarding preparation of action plans and annual reports and feedback against these. The vague objective of ‘effective life cycle management of packaging’ has been strengthened through the introduction of ambitious, specific and measurable targets. Companies are now required to collect baseline data and to report annually against a standard list of KPIs. A comparison between key aspects of the old and new Covenant is included in Appendix I.

3.2 Product design in the NPC

One of the performance goals of the NPC is the ‘optimisation’ of packaging ‘to integrate considerations about resource efficiency, maximum resource re-utilisation, product protection, safety and hygiene’(NPCC 2005, p 30). The packaging design process is

therefore critical to achieving this objective. The voluntary Environmental Code of Practice for Packaging (ECoPP), which is integrated within NPC Mark II as Schedule 5, is intended to provide companies with a set of principles and guidelines for eco-design of packaging, but does not address social issues. KPIs have been developed to measure progress towards the goal of ‘packaging optimisation’, once again without any particular emphasis on the social impacts which sustainable packaging would require. Required KPIs for companies include (NPCC 2005, p 18):

- Total weight of consumer packaging (domestic and imported) sold per annum into the Australian market and the total weight of products packaged;
- Resources (energy and water) used to produce packaging;
- Improvements in design, manufacture, marketing and distribution to minimise the environmental impacts of packaging;
- Changes to protection, safety, hygiene, shelf-life, or supply chain considerations affecting amount and type of packaging;
- Average % per annum, of post-consumer recycled content in packaging manufactured;
- Total weight, by type, of “non-recyclable” packaging sold per annum into the Australian market; and
- Adoption of the ECoPP and the development of systems for its implementation.

The reporting system now delivers this KPI information, which is a step in the direction of sustainability accounting and budgeting - the projection of accounting data forward as a basis for planning and control of operations in the organisation.

3.3 Improvements and deficiencies in NPC Mark II

The NPC Mark II overcomes many of the problems identified with the first Covenant, such as the lack of clear objectives, KPIs and targets. Its objectives are explicit, although obscure language such as ‘optimisation of packaging’ remains a barrier to clear

communication of objectives. Fortunately the use of vague terminology is more than compensated for by the introduction of clear targets. However, social issues surrounding packaging are not addressed, and this is an important part of sustainability considerations.

A number of gaps or missed opportunities in relation to the objectives and strategies of, as well as data collection for, packaging design remain. These include, for example, the absence of a link between the principles of product design and strategies included in the ECoPP, and the KPIs produced by the accounting system against which signatories are required to report.

Several complementary tools are available to overcome these deficiencies including:

- environmental and sustainability accounting;
- product orientated environmental management systems; and
- design for environment decision-making tools.

In the light of the recent developments outlined above, the potential application of sustainability accounting to the sustainable packaging industry is considered further below, with comment being made on work being undertaken by the Sustainable Packaging Alliance.

3.4 Sustainable packaging and sustainability accounting

While the definition of sustainable packaging and sustainability accounting will continue to be debated companies are seeking immediate guidance on the implementation of sustainable development principles in product packaging development. One development has been sustainable packaging indicators (SPIs) to support the definition (Section 3.4.1), complemented by a Packaging Impact Quick Evaluation Tool (PIQET©) to assist companies in calculating the environmental impacts of packaging system designs (Section 3.4.2).

Companies in the packaging supply chain are now required to report to the NPC Council on a number of KPIs designed to

measure compliance. For many companies, particularly small to medium sized firms, this requires the gathering of new data. For example, most companies do not normally collect data on weight of packaging used (only its dollar value), its recyclability or recycled content. Apart from the larger companies, most would not have any accessible data on water and energy consumed in the manufacture of packaging materials. All of these are core considerations in a sustainability accounting system.

Companies must also demonstrate the adoption of the ECoPP and that systems are in place for its implementation. Once again, if companies are to pay more than lip service to this KPI, they will be required to make significant changes to their existing product development systems. The widespread adoption and use of the ECoPP and related management systems within companies will be critical to the achievement of the NPC objective of 'optimized packaging', as well as the targets for packaging design, i.e. increased recycling and a reduction in non-recyclable packaging.

The requirements of the NPC are forcing many companies to implement their first attempt at sustainability accounting systems. While some of the data will provide the foundation for external reporting on NPC compliance (e.g. progress in implementing Action Plan initiatives), much of it can serve a dual purpose. For example:

- Data collected on materials consumed by weight, recycled content and recyclability can be used to identify the environmental impacts of different packaging types and to identify opportunities for redesign;
- An evaluation of packaging can help to identify components of the packaging system which add little or no commercial value, and can therefore be eliminated or reduced, with benefits in reducing costs;
- An evaluation of packaging based on the sustainability accounting information can

also help to identify opportunities to gain market share through development of environmentally and socially improved packaging supported by marketing and communication (e.g. eco-labelling); and

- The design process often involves looking at the product from a new and different perspective, which may help to identify opportunities for innovation and strategic development of the business.

The data collected by companies through sustainability accounting can therefore have multiple benefits. Awareness would be created of the potential for companies in the packaging supply chain to implement more holistic, integrated sustainability accounting systems which address economic, social and environmental impacts of packaging over the total product life cycle, for example to address the problems for civil society caused by litter.

3.4.1 Sustainable packaging indicators

A set of draft sustainable packaging indicators were developed as part of an industrial packaging supply chain demonstration project (James et al. 2005) completed in 2005 and were further refined at the seventh SPA Roundtable (SPA 2005) held in June 2005.

The draft indicators are presented in Table 2. They are expressed in terms that imply continuous improvement, i.e. any new packaging must be more sustainable than previous or comparable packaging. However, the emphasis of the NPC Mark II continues to be about data on environmental impacts rather than social and economic impacts, and does not fully encourage the development of measures of eco-effectiveness and socio-effectiveness, eco-efficiency and socio-efficiency (Dyllick and Hockerts, 2002), which provide relative measures of comparisons between different dimensions of sustainable packaging.

Table 2 Draft sustainable packaging indicators

Principles	KPIs
<p><u>Effective: social and economic benefit</u> The packaging system adds real value to society by effectively containing and protecting products as they move through the supply chain and by supporting informed and responsible consumption.</p>	Functionality of each component of the packaging system (list). Social and economic benefits of the packaging system as a whole (list). Product-packaging ratio by weight (tonnes of product divided by tonnes of packaging).
	Supply chain costs (\$ per unit of product)
	Specific, relevant, accurate and verifiable environmental claims consistent with ISO 14021.
	Recycling logos and advice on recyclable packaging. Plastics identification code correctly used on plastics packaging (PACIA guidelines). Instructions NOT to recycle on containers used for hazardous products.
<p><u>Efficient: doing more with less</u> The packaging system is designed to use materials and energy efficiently throughout the product life cycle. Efficiency can be defined through reference to world's best practice at each stage of the packaging life cycle.</p>	Total weight of material used in the packaging system (breakdown between sub-retail, retail, merchandising and traded unit levels). Product-packaging ratio by weight (tonnes of product divided by tonnes of packaging).
	Percentage of product which becomes waste before it reaches the consumer (e.g. is damaged in transit). Percentage of product remaining in retail unit packaging (once consumer has dispensed product).
	Energy consumed over the packaging lifecycle (MJ per tonne of packaging). Water consumed over the packaging lifecycle (kL per tonne of packaging).
	Pallet configuration and efficiency - cube utilisation (%).
<p><u>Cyclic: optimising recovery</u> Packaging materials used in the system are cycled continuously through natural or industrial systems, with minimal material degradation. Recovery rates should be optimised to ensure that they achieve energy and greenhouse gas savings.</p>	Collection and reprocessing systems for the packaging (list).
	Reusability (national recovery rate for the product through company / industry schemes).
	Recyclability (national recovery rate for the material through recycling systems). Percentage of the packaging (by weight) which can be recovered through available recycling processes. Average % of recycled material (post consumer). Average % of recycled material (total).
	Compostability (national recovery rate for the product through composting systems).
	Percentage of packaging material which is from a renewable source.
	Percentage of stationary energy use which is from a renewable source.
	Percentage of transport energy which is from a renewable source.
<p><u>Safe: non-polluting and non-toxic</u> Packaging components used in the system, including materials, finishes, inks, pigments and other additives do not pose any risks to humans or ecosystems. When in doubt the precautionary principle applies.</p>	Cleaner product policies and procedures (list). Use of heavy metal-based additives (list) and concentration (ppm). Health or environmental risks associated with the package (list). Transport distances at each stage of the packaging life cycle (km). Mode of transport used for each stage of the packaging life cycle (km). Fuel type used for each stage of the packaging life cycle (list).

Source: (Lewis et al. 2007, p 16)

3.4.2 Packaging impact quick evaluation tool (PIQET©)

The costs and complexity of LCA, data gaps with respect to the environmental impacts of materials and processes and limited access to available in-house environmental assessment

tools, are barriers for decision makers engaged in packaging. Many decisions need to be made such as cost, shelf appeal, consumer usability, material functionality, manufacturing and logistic requirements along with considering the environmental

impact of material selection and end of life management. In response to this demand a packaging impact quick evaluation tool (PIQET©) has been developed by SPA so that packaging decision makers can evaluate the environmental performance of their designs and systems and to support their NPC Action Plans and implementation of the ECoPP (Horne et al. 2005; Verghese et al. forthcoming). The tool aims to facilitate a company wide understanding of the approach to environmental issues related to packaging, but will also provide contextual solutions, as no single solution can be applied in all circumstances. PIQET is a web-based tool based on the internationally accepted life cycle assessment principles and allows rapid comparative assessments of packaging system designs at all stages of the design process. By using PIQET companies can easily identify, review and prioritise actions to reduce the environmental impact of packaging and integrate environmental decisions into day to day business processes.

4 Conclusions

It has been argued that sustainability accounting is a potentially important tool for corporate decision making and reporting in the context of moves toward sustainable packaging. Sustainability accounting draws the attention of corporate managers to the importance of information about environmental, social and economic impacts, and the need for addressing them in an integrated way. Many of the concerns expressed about the NPC Mark I in Australia related to the lack of specific and measurable targets and performance indicators, which meant that the responsibilities of organisations were not easy to 'pin point' and that there was insufficient data to measure the effectiveness and efficiency of individual firm performance or of the industry as a whole. With the redesigned National Packaging Covenant (NPC Mark II), the synergies between standards for sustainable packaging and sustainability accounting are set for development. Both sustainable packaging and sustainability accounting are

concerned with the achievement of objectives such as reducing environmental impacts, improving efficiency in the use of resources and improving the social outcomes of corporations. They also seek to expose waste and how it should be reduced and aim to reveal the potential trade-offs between the different dimensions of sustainability.

Although considered in NPC Mark II, issues relating to product design and product-based accounting are still inadequately addressed. The design of 'optimized' packaging which integrates considerations of resource efficiency, maximum resource re-utilisation, product protection, safety and hygiene, requires a system for collection and analysis of physical and monetary data on product life cycle impacts, one which sustainability accounting can fulfil. It also requires a method for evaluating trade-offs, for example between cost or convenience and recyclability, resource conservation and recyclability, or between consumer safety and the impact of litter on society. One tool briefly examined here, the PIQET tool for packaging technologists and designers developed by the Sustainable Packaging Alliance, does provides partial support for such evaluation while at the same time incorporating aspects of sustainability accounting. However, its emphasis on environmental to the exclusion of social impacts, on technical efficiency and its measurement to the exclusion of financial efficiency, and on a narrow notion of effectiveness, means that further development of the NPC, is required if a comprehensive basis for sustainability accounting is to be operationalised in this context.

Appendix 1: Comparison of the NPC Mark I and Mark II

	NPC Mark I, 1999 – 2005	NPC Mark II 2005 – 2010
Overarching goal	No specific goal – only objectives	To reduce environmental degradation arising from the disposal of used packaging and conserve resources through: <ul style="list-style-type: none"> • better product design; • increased reduction, reuse and recycling of used packaging materials; • reduced use of non-recyclable materials; • reduced amount of used packaging materials going to landfill; and • reduced incidence of packaging being littered.
Performance objectives / goals	<ol style="list-style-type: none"> 1. Establish a framework based on the principle of shared responsibility for the effective life cycle management of packaging and paper products including their recovery and utilization. 2. Establish a collaborative approach to ensure that the management of packaging and paper throughout its lifecycle and the implementation of collection systems including kerbside recycling schemes that produce real and sustainable environmental benefits in a cost effective manner. 3. Establish a forum for regular consultation and discussion of issues and problems affecting the recovery, utilization and disposal of used packaging and paper, including costs. 	<ol style="list-style-type: none"> 1. Packaging optimized to integrate considerations about resource efficiency, maximum resource re-utilisation, product protection, safety and hygiene. 2. Efficient resource recovery systems for consumer packaging and paper. 3. Consumers able to make informed decisions about consumption, use and disposal of packaging of products. 4. Supply chain members and other signatories able to demonstrate how their actions contribute to goals (1) – (3) above). 5. All signatories demonstrate continuous improvement in their management of packaging through their individual Action Plans and Annual reports.
Targets	No targets	<ol style="list-style-type: none"> 1. Increased recycling of post consumer packaging, from its current rate of 48% (2003) to 65% by 2010. 2. Reduction in non-recyclable packaging (plastics coded 4-7, non-recyclable paper and cardboard) – recycling of these materials is to increase from its current rate of 10% (2003) to 25% by 2010. A recycling target will also be developed for composite packaging. 3. No increase in the amount of packaging disposed to landfill (2003 benchmark).
Reporting requirements	Annual reporting against Covenant undertakings and Action Plans.	<ul style="list-style-type: none"> • Establishment of baseline performance data. • Annual reporting against Action Plan, including specific actions and KPIs listed in Schedule 2 of the Covenant.

Source: (ANZECC 2000; NPCC 2005)

5. References

- Ammenberg, J. and E. Sundin (2005). "Products in environmental management systems: drivers, barriers and experiences." *Journal of Cleaner Production* 13(4): 405-415.
- ANZECC. (2000). "National Packaging Covenant." Retrieved 15 January 2002, from www.packcoun.com.au/NPC.htm.
- ASSURE. (2005). "Packaging and Packaging Waste Statistics 2002." Retrieved August 2005, from <http://www.assure.org/downloads/archive/bb63a048-e44e-43b0-abde-0ef9954138fe.pdf>.
- Boomerang Alliance. (2004). "Say no to the waste club." Retrieved 20 August 2007, from http://www.boomerangalliance.org/000_files/5_Say_No_to_the_Waste_Club.pdf.
- Burritt, R., H. Lewis and K. James (2005). Analysing the Effectiveness of an Environmental Voluntary Agreement: The Case of the Australia National Packaging Covenant. In *The Handbook of Environmental Voluntary Agreements. Design, Implementation and Evaluation Issues*. E. Croci, (editor). Dordrecht, The Netherlands, Springer.
- Burritt, R. L. (2004). "Environmental Management Accounting: roadblocks on the way to the green and pleasant land." *Business Strategy and the Environment*, 13(1): 13-32.
- Burritt, R. L. (2005a). *Challenges for Environmental Management Accounting Implementing Environmental Management Accounting: Status and Challenges*. P. Rikhardsson, M. Bennett, S. Schaltegger and J. J. Bouma. Boston, Dordrecht and London, Kluwer Academic Publishers: 19-44.
- Burritt, R. L. (2005b). Environmental risk management and environmental management accounting - developing linkages. In *Implementing Environmental Management Accounting: Status and Challenges* P. Rikhardsson, M. Bennett, S. Schaltegger and J. J. Bouma. Boston, Dordrecht and London, Kluwer Academic Publishers: 123-141.
- Burritt, R. L., T. Hahn and S. Schaltegger (2002). "Towards a Comprehensive Framework for Environmental Management Accounting - Links Between Business Actors and EMA Tools." *Australian Accounting Review* 12(2, July): 39-50.
- Callens, I. and D. Tyteca (1999). "Towards Indicators of Sustainable Development for Firms: A Productive Efficiency Perspective." *Ecological Economics* 28: 41-53.
- Dyllick, T. and K. Hockerts (2002). "Beyond the Business Case for Corporate Sustainability." *Business Strategy and the Environment* 11(4): 130-141.
- EPHC (2004). *Industry Discussion Paper on Co-regulatory Frameworks for Product Stewardship*. Adelaide, Environment Protection and Heritage Council.
- EPHC (2008). *Decision Regulatory Impact Statement. Investigation of options to reduce the impacts of plastic bags*. Adelaide, Environment Protection and Heritage Council.
- Figge, F. and T. Hahn (2002). *Sustainable Value Added. Measuring Corporate Sustainable Performance Beyond Eco-Efficiency*. Research paper. Lueneburg, Germany, Center for Sustainability Management, University of Lueneburg.
- Forum for the Future. (2005). "What do we mean by sustainability accounting?" Retrieved 12 December 2005, from http://www.forumforthefuture.org.uk/about/SustainabilityAccounting_page1352.aspx
- Hawkins, P., A. Lovins and L. H. Lovins (1999). *Natural Capitalism*. Boston, Litter Brown and Company.
- Horne, R., L. Fitzpatrick, K. James, R. Jordan and K. Sonneveld (2005). Developing PIQET - A credible evaluation tool to enable sustainable packaging development. Presented at the 6th Asia Pacific Roundtable on Sustainable Consumption and Production, Melbourne Convention Centre, 10-12 October.

- IFAC (2005). *International Guidance Document: Environmental Management Accounting*. New York, International Federation of Accountants: 87.
- James, K., L. Fitzpatrick, H. Lewis and K. Sonneveld (2005). *Sustainable Packaging System Development. Handbook of Sustainability Research*. W. Leal Filho, (editor). Frankfurt, Peter Lang Scientific Publishing.
- James, K., H. Lewis, R. Jordan, L. Fitzpatrick and K. Sonneveld (2005). *Industrial Packaging Supply Chains. Creating Links and Achieving Change*. Melbourne, Sustainable Packaging Alliance.
- Lewis, H. (2005). "Defining product stewardship and sustainability in the Australian packaging industry." *Environmental Science and Policy* 8: 45-55.
- Lewis, H. and K. L. James (2003). Appendix F: Action Plan and Annual Report Review. Report on the National Packaging Covenant Action Plans and Annual Reports from NPC Signatories (November 2003). *Evaluation of the National Packaging Covenant*. Melbourne, Centre for Design, RMIT University.
- Lewis, H. (2006). *Packaging and Product Stewardship*. Sustainable Packaging Alliance, Melbourne.
- Lewis, H., L. Fitzpatrick, K. Verghese, K. Sonneveld and R. Jordan (2007). *Sustainable packaging redefined* (draft). Melbourne, Sustainable Packaging Alliance.
- McDonough, W. and M. Braungart (2002). *Cradle to Cradle: Remaking the Way we Make Things*. New York, USA, North Point Press.
- Meinhardt (2004). *An independent local government evaluation of the National Packaging Covenant, Report to the Local Government Association of Queensland*, Australian Local Government Association and Municipal Association of Victoria. Melbourne, Meinhardt.
- MS2 and NRS (2005). *Final Report. National Packaging Covenant Gap Analysis*. Prepared for the National Packaging Covenant Industry Association.
- Nolan ITU, H. Lewis, K. L. James, B. Robinson and B. Watts (2004). *Evaluation of the Covenant*. Report to the National Packaging Covenant Council. East Kew, Victoria Australia, Nolan ITU Pty Ltd.
- NPCC (2004). *Consultation Proposal for Strengthening the National Packaging Covenant*. Melbourne, National Packaging Covenant Council.
- NPCC (2005). *The National Packaging Covenant. A Commitment to the Sustainable Manufacture, Use and Recovery of Packaging*. 15 July 2005 to 30 June 2010. . Canberra, National Packaging Covenant Council.
- Packaging Council of New Zealand. (2006, 6 September). "Mass balance - consumption / collection." Retrieved 12 January, 2007, from http://www.packaging.org.nz/packaging_info/packaging_consum.php.
- Schaltegger, S. and R. Burritt (2000). *Contemporary Environmental Accounting: Issues, Concepts and Practice*. Sheffield, UK, Greenleaf Publishing.
- Schaltegger, S. and R. L. Burritt (2005). *Corporate Sustainability The International Yearbook of Environmental and Resource Economics 2005/2006* T. Tietenberg and H. Folmer. Northampton, Mass, Edward Elgar Publishing. 8: 185-222.
- Schaltegger, S., Bennett, M. and Burritt, R. (2006) 'Sustainability Accounting and Reporting: Development, Linkages and Reflection' in Schaltegger, S., Bennett, M., and Burritt, R.L. (eds) *Sustainability Accounting and Reporting* Springer, Dordrecht, Netherlands.
- Schaltegger, S., R. Burritt and H. Petersen (2003). *An Introduction to Corporate Environmental Management: Striving for Sustainability*. Sheffield, Greenleaf Publishing.
- Sigma (2003). *The Sigma Guidelines Toolkit. Sustainability Accounting Guide*. London, The Sigma Project.
- SPA (2005). Round Table Number 7 Report "Technology, Innovation and Sustainable

- Packaging" Friday 24th June. Melbourne, Sustainable Packaging Alliance.
- SPC. (2005). "Definition of sustainable packaging, version 1.0." Retrieved 19 October 2007, from http://www.sustainablepackaging.org/about_sustainable_packaging.asp.
- SPC. (2007). "Current projects." Retrieved 3 June 2008, from <http://www.sustainablepackaging.org/projects.asp>.
- TRC (2004). *Consumer Demand for Environmental Packaging*. A report from a survey of NSW residents regarding the purchasing, use and disposal of packaging conducted in November-December 2003. Prepared for the NSW Jurisdictional Recycling Group. Surry Hills, NSW, Taverner Research Company, Market Research and Management Information Services.
- Unerman, J., Bebbington, J. and O'Dwyer, B. (2007) Introduction to Sustainability Accounting and Accountability in Unerman, J., Bebbington, J. and O'Dwyer, B. (eds) *Sustainability Accounting and Accountability*, Routledge, London and New York.
- US EPA. (2006, 12 December). "Municipal solid waste: Basic facts " Retrieved 9 January, 2007, from <http://www.epa.gov/msw/facts.htm>.
- Verghese, K. (2008). *Defining sustainable packaging. Climate of Change - Towards a sustainable packaging industry*. 2008 AIP National Conference. Luna Park, Sydney, Australian Institute of Packaging.
- Verghese, K., R. Horne and A. Carre (forthcoming). "The design and development of an online 'quick' LCA tool for sustainable packaging design decision support." *International Journal of Life Cycle Assessment*.
- von Weizsacker, E., A. Lovins and H. Lovins (1997). *Factor 4: Doubling Wealth - Halving Resource Use*. Sydney, Allen & Unwin.
- Wagner, M. (2005). Environmental Performance and the quality of corporate environmental reports: the role of environmental management accounting. *Implementing Environmental Management Accounting: Status and Challenges*. P. Rikhardsson, M. Bennett, S. Schaltegger and J. J. Bouma. Boston, Dordrecht and London, Kluwer Academic Publishers: 105-122.
- Wagner, M., S. Schaltegger and W. Wehrmeyer (2001). "The Relationship between the Environmental and Economic Performance of Firms." *Greener Management International* 34: 95-108.
- WBCSD. (2005). "Eco-efficiency." Retrieved 19th October 2005 from [efficiency.http://www.wbcd.ch/templates/TemplateWBCSD1/layout.asp?type=p&MenuId=MzI4&doOpen=1&ClickMenu=LeftMenu](http://www.wbcd.ch/templates/TemplateWBCSD1/layout.asp?type=p&MenuId=MzI4&doOpen=1&ClickMenu=LeftMenu)
- White, S., D. Cordell, N. Lansbury and N. Nheu (2004). *Review of the National Packaging Covenant*. Sydney, Report by the Institute for Sustainable Futures for the Nature Conservation Council of NSW.

ENVIRONMENT EXTRA!

The benefits of assuring carbon emission disclosures

July 2008

The Institute of Chartered Accountants in Australia has published a document addressing '*The benefits of assuring carbon emission disclosures*' authored by Professor Roger Simnett from the University of New South Wales, Sydney. It provides up to date information about recent happenings in Australia, a country which has belatedly signed the Kyoto Protocol this year and which is in a flurry of political activity designed to introduce a national emissions cap and trade scheme by 2010.

The document comments: "The world recognises and is responding to the challenges presented by climate change. There is an increase in the public disclosures of carbon emissions. Reasons for this include the requirement by regulatory bodies to obtain information related to initiatives such as carbon taxes and emissions trading schemes and for businesses to demonstrate that they are being good corporate citizens.

The Institute's leadership paper, *The Benefits of Assuring Carbon Emissions Disclosures*, outlines the case for a global assurance standard and describes the benefits of having these disclosures assured by an independent expert.

The Report outlines the main types of carbon emissions disclosures that can be assured: the inventory of carbon emissions; the extent of carbon offsets and clean development mechanisms; and the financial impact of carbon trading schemes.

Current accounting requirements

There is currently no accounting standard for carbon emissions disclosures issued by the accounting profession. Although evolving, a review of current disclosure requirements and reporting practices show that there is general agreement on many of the major issues with regards carbon emissions disclosures.

Current assurance standards

Current assurance standards for carbon emissions disclosures, including those developed within (including *ISAE 3000*, and *U.S SoP 03-2*) and outside (including *ISO 14064-3* and *AA1000 AS*) the auditing and assurance profession are reviewed.

The international auditing standards

During 2008 / 2009 the International Auditing and Assurance Standards Board are currently undertaking the task of reviewing assurance engagements on carbon emissions disclosures. Specific issues identified as requiring further guidance for this type of assurance engagement include suitability of criteria, level of assurance, evidence gathering procedures, using the work of an expert, and the form and content of the assurance report.

The role of the auditor

There are advantages of having members of the profession performing this service of assuring carbon emission disclosures, including their training and expertise in evidence collection. Other benefits of the profession include registration and disciplinary processes and detailed and enforced standards on ethics and quality control. It recognises that knowledge of the subject matter is a requirement before such engagements can be accepted.

Developments in Australia

The report discusses developments in Australian regarding the disclosure and verification of carbon emissions under the *National Greenhouse and Energy Reporting System* (NGERS). The paper outlines what is required to be reported, what assurance is required, who can be the auditor and the expertise and qualifications required for external auditors.

Source of the publication on the ICAA site

<https://www.charteredaccountants.com.au/files/documents/AuditonCarbonEmissionsPaper.pdf>

Carbon pollution reduction scheme in Australia

July 2008

The Australian government has released a green paper on its carbon pollution reduction scheme. The paper sets out alternatives and identifies the government's preferred positions on emissions trading and the support proposed to help households and businesses who would otherwise suffer as prices of energy, etc. rise.

A cap and trade system has been proposed with a gradual tightening over time. Agriculture is excluded from the initial scheme until 2015 at the earliest, and coal based electricity generation will have its pollution rights grandfathered. The aim is to reduce Australia's greenhouse gas emissions by 60 per cent below 2000 levels by 2050. About 1000 companies will be directly affected, where their emissions exceeding 25,000 tonnes of CO₂-e per annum. The proposed industries covered include stationary energy (electricity generation), transport, fugitive emissions (oil and gas extraction and processing), industrial processes and waste.

Chapter 11 of the paper addresses tax and accounting issues. The government says they have written to the International Accounting Standards Board indicating the desirability to have appropriate accounting guidance in place prior to the commencement of the scheme in 2010 and consideration may need to be given to the issuance of an interim Australian specific guidance by the Australian Accounting Standards Board.

Source: Australian Government, Department of Climate Change
<http://www.greenhouse.gov.au/greenpaper/report/index.html>

**Anti-money Laundering Groups
Recognise Hong Kong Efforts**

21 July 2008

Hong Kong's efforts against money laundering and counter financing of terrorism regimes have been recognised in a mutual evaluation report published by the Financial Action Task Force on Money Laundering (FATF) and the Asia/Pacific Group on Money Laundering (APG).

The FATF is the international standard-setter on anti-money laundering and counter financing of terrorism (AML/CFT). The report was endorsed at an FATF Plenary meeting in June and the APG annual meeting in July.

In overall terms, the report recognised the strengths of Hong Kong's AML/CFT regimes. The assessment team welcomed the setting up of the Central Co-ordinating Committee on Anti-Money Laundering and Counter Financing of Terrorism chaired by the Financial Secretary and said it was a development in the right direction.

The report commended Hong Kong for its good legal structure with a satisfactory conviction rate for money laundering offences, clear and broad obligations for reporting suspicious transactions, and strong law enforcement efforts.

The report found the supervisory regime over the banking, securities and insurance sectors effective with comprehensive obligations and a fairly broad range of sanctions.

The report acknowledged the prompt provision of a wide range of international co-operation, and proactive and effective outreach to the private sector in raising its awareness. The report also commended Hong Kong's Joint Financial Intelligence Unit as proactive and effective.

The report has identified a few areas requiring improvement. It noted that while many preventive measures had been implemented by the financial sectors through effective enforceable means and by some of the designated non-financial sectors (i.e. lawyers, accountants, estate agents, trust and company services providers, and dealers in precious stones and metals) through

guidelines, legislation had yet to be put in place.

In response, a government spokesman said the Government would formulate necessary legislative proposals in due course having considered carefully the comments in the report.

The report noted that the authorities had been taking a robust line in dealing with the remittance agents and money changers in law enforcement aspects, but recommended an enhancement in the AML/CFT regulation over the industry.

In this connection, the spokesman said, "The Government will take positive steps in addressing this issue and will consult the industry on the concrete proposal when ready."

On some limitations in the legislation against the financing of terrorism that were noted in the report, the spokesman said the Government would expedite the completion of the necessary subsidiary legislation in this regard as soon as possible.

The Narcotics Division of Security Bureau led the Hong Kong delegation to the FATF Plenary meeting and the APG annual meeting with representatives from the Financial Services and the Treasury Bureau, Hong Kong Monetary Authority, Securities and Futures Commission, Office of the Commissioner of Insurance, Department of Justice, Hong Kong Police Force, Customs and Excise Department, and Companies Registry.

As a member of the FATF, Hong Kong is obliged to adopt the 40 Recommendations for fighting money laundering and the nine Special Recommendations for combating financing of terrorism (known collectively as "40+9 Recommendations") as far as practicable.

Hong Kong was evaluated for the first time since the FATF "40+9" Recommendations were revised in 2003.

The joint mutual evaluation was conducted by an assessment team comprising experts from both FATF and APG members. Through mutual evaluation, FATF and APG members assess each other's compliance with

the 40+9 Recommendations and help identify areas for improvements.

Hong Kong has been a FATF member since 1991 and a founding member of APG since 1997.

The report can be obtained from the FATF website at www.fatf-gafi.org or APG website at www.apgml.org.

Source: AIA Accountancy E News 22 July 2008

The onset of offsets

Ensuring Offset Quality, the Offset Quality Initiative published in July 2008 provides policy makers with practical recommendations about the integration of greenhouse gas offsets into emerging regulatory systems. Offsets are there to control the costs associated with regulating and reducing greenhouse gas emissions and in driving the transformation of technology in sectors not mandated to reduce their greenhouse gas emissions. The quality and effectiveness of offsets has been challenged, and the Offset Quality Initiative provides the consensus views of its members which include *The Climate Trust* and the *Pew Centre on Global Climate Change*.

The full publication and summary available at: <http://www.offsetqualityinitiative.org>
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ICAA and carbon trading

The Institute of Chartered Accountants in Australia has published its summary of the recent Australian Government publications on the proposed Carbon Pollution Reduction Scheme and how the proposed cap and trade scheme will work.

Information is available on the ICAA web site at:
http://www.charteredaccountants.com.au/A121617586?z_u=29188&z_d=1brp

Water accounting on the mind

Mindful that Australia is the driest continent *The Institute of Chartered Accountants in Australia* has hosted a 'Water Accounting Focus Group' where participants reviewed and provided input to a conceptual framework for water accounting. The workshop was facilitated by Professor Keryn Chalmers from Monash University and Bradley Potter from the University of Melbourne. Water accounting development is one of eight areas of major water reform identified under the National Water Initiative. Both in Australia and internationally, water accounting is in its embryonic stage. To progress water accounting in Australia a Water Accounting Development Committee was established in February 2007 under the auspices of the Murray Darling Basin Commission.

The development of a conceptual framework will ensure that a sound theoretical foundation underpins the delivery

of items identified in paragraph 80 of the National Water initiative, as follows:

'The parties agreed that the outcome of water resources accounting is to ensure that adequate measurement, monitoring of reporting systems are in place in all jurisdictions, to support public and investor confidence in the amount of water being traded, extracted for consumptive use, and recovered and managed for environmental and other public benefit outcomes'.

The benefits of a conceptual framework for water accounting are said to include:

(i) assisting the Committee in the development of water accounting standards; and (ii) the development of standardised general purpose water accounting reports to provide relevant and reliable information to external users to enhance decision making regarding the allocation of scarce resources.

Source: *ICAA Accounting and Assurance News Today*, Issue 32.

COMPLETED PHD – SUSI SARUMPAET

Environmental Disclosures and Earnings Management by Environmentally Visible Indonesian Corporations.

Susi Sarumpaet was recently awarded PhD from the School of Accounting and Business Information Systems, Australian National University. Her thesis was titled Environmental Disclosures and Earnings Management by Environmentally Visible Indonesian Corporations.

Her thesis examines: (1) the association between environmental visibility and environmental disclosure; and (2) whether firms with poor environmental ratings will manage earnings downward to avoid political costs associated with environmental externalities. A conceptual framework that explains the above propositions is developed under two theoretical perspectives of environmental disclosure that are used widely in the literature—the social and economic perspectives. Under this framework I argue that environmentally visible firms have the incentive to disclose environmental information and to engage in earnings management related to environmental performance.

Using a sample of Indonesian companies listed on the Jakarta Stock Exchange from 2001 to 2005, environmental disclosures were measured using an index adopted and modified from Clarkson et al. (2006), whereas earnings management was measured using discretionary accruals according to Jones's (1991) model. Proxies used for a firm's environmental visibility are its size, industry type, environmental performance ratings, cross-listing status, profitability and performance. Environmental ratings are those issued by the Indonesian government's environmental ratings program, PROPER (Pollution Control and Performance Evaluation and Rating). The program uses five colour ratings to grade the environmental performance of different facilities and releases the results to the public.

This study finds that the level of environmental disclosures by Indonesian corporations is still very low and that environmental reporting by Indonesian companies is still dominated by soft, rather than hard disclosures items. However, the trends show increasing levels of environmental disclosures, both in the number of items disclosed and in the number of companies reporting the items. A pre- and post-evaluation of the effectiveness of the PROPER program reveals that environmental disclosures increased more significantly one year after the implementation of the program in 2002.

Using a series of ordinary least squares regressions, environmental disclosure levels are regressed on the various proxies for environmental visibility, while controlling for auditor choice, firm age and leverage. Environmental disclosure levels are positively associated with multiple proxies for environmental visibility: firm size and the environmental sensitivity of the firm's industry; inclusion in the environmental ratings program; and cross-listing on foreign stock markets. It also appears that environmental disclosures are associated with the choice of auditor. However, there is no evidence to show that environmental disclosure is affected by firm age or its leverage.

Using the subset of PROPER-rated firms, the discretionary accruals estimates are regressed against receipt of a negative rating, while controlling for firm size, ownership structure, and auditor choice. Consistent with the political cost hypothesis, the firms receiving poor environmental ratings appear to use income-reducing discretionary accruals. Earnings management is also associated with firm size and inside ownership.

Overall, the results of this study are consistent with the predictions based on political cost and legitimacy theories in relation to environmental visibility. Both

conceptually and empirically, it identifies a clear link between environmental visibility and environmental disclosure, and between

environmental performance and earnings management.

CALL FOR PAPERS

7th Australian Conference on Social and Environmental Accounting Research (A-CSEAR)

7-9 December, 2008.

University of South Australia, Adelaide.

Submissions by 30 September 2008.

Details at <http://csear.econ.usyd.edu.au/2008>

3rd GECAMB Conference on Environmental Management and Accounting – The Portuguese CSEAR Conference. 16-17 October 2008.

GECAMB 2008 is the Portuguese CSEAR (Centre for Social and Environmental Accounting Research) conference. It is similar to the CSEAR UK annual conference (Summer School), particularly in its spirit and objectives. GECAMB 2008 will be an informal meeting of researchers, teachers, students, and practitioners from both governmental and non-governmental organizations. The conference is for all those that are concerned with social, environmental and sustainability issues, as they challenge management and accountancy, theory and practice.

One of the main objectives of the conference is to share the knowledge about new instruments, policies and strategies aiming at sustainable development, from the interdisciplinary domains of accounting, economics, and environmental planning and management. Another important objective is to create a constructive and informal environment that encourages a critical reflection and discussion about these matters. This year, GECAMB 2008 will include a new session where PhD and Masters Projects in this subject area will be discussed. The objective is to allow young investigators to

present their research projects and/or first results of their work to be analysed and discussed. Every project discussion will be led by a discussant.

Confirmed speakers at plenary sessions and project discussants includes:

- David Owen - Nottingham University, UK
- Ian Thomson - Strathclyde University, UK
- Manuel Castelo Branco – Faculdade de Economia da Universidade do Porto - Portugal
- Carlos Larrinaga - Burgos University, Spain

Details at

<http://ww2.estg.ipleiria.pt/~gecamb2008/gecamb2008/>