

# The influence and impact of sustainability issues on capital investment decisions

Report prepared by:

Gillian Vesty PhD  
Department of Accounting  
Faculty of Business & Economics  
University of Melbourne



CPA Australia Ltd ('CPA Australia') is one of the world's largest accounting bodies representing more than 132,000 members of the financial, accounting and business profession in 111 countries.

For information about CPA Australia, visit our website [cpaustralia.com.au](http://cpaustralia.com.au)

First published  
CPA Australia Ltd  
ACN 008 392 452  
Level 20, 28 Freshwater Place  
Southbank Vic 3006  
Australia

ISBN 978-1-921742-18-7

**Legal notice**

Copyright CPA Australia Ltd (ABN 64 008 392 452) ("CPA Australia"), 2011. All rights reserved.

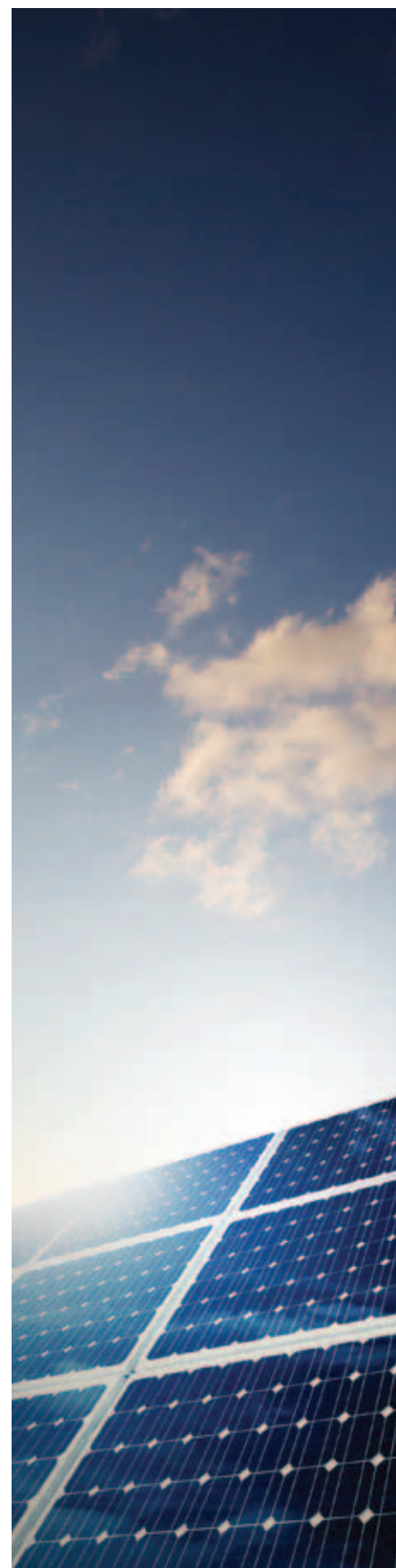
Save and except for third party content, all content in these materials is owned by or licensed to CPA Australia. All trade marks, service marks and trade names are proprietary to CPA Australia. For permission to reproduce any material, a request in writing is to be made to the Legal Business Unit, CPA Australia Ltd, Level 20, 28 Freshwater Place, Southbank, Victoria 3006.

CPA Australia has used reasonable care and skill in compiling the content of this material. However, CPA Australia and the editors make no warranty as to the accuracy or completeness of any information in these materials. No part of these materials are intended to be advice, whether legal or professional. Further, as laws change frequently, you are advised to undertake your own research or to seek professional advice to keep abreast of any reforms and developments in the law.

To the extent permitted by applicable law, CPA Australia, its employees, agents and consultants exclude all liability for any loss or damage claims and expenses including but not limited to legal costs, indirect special or consequential loss or damage (including but not limited to, negligence) arising out of the information in the materials. Where any law prohibits the exclusion of such liability, CPA Australia limits its liability to the re-supply of the information.

# Contents

<b>Foreword</b>	<b>2</b>
<b>Summary of key findings</b>	<b>3</b>
<b>Acknowledgements</b>	<b>4</b>
<b>Introduction</b>	<b>5</b>
<b>Project overview</b>	<b>6</b>
<b>Methodology</b>	<b>7</b>
<b>Findings</b>	<b>8</b>
Introduction	8
Factors that influence the decision to include sustainability impacts	8
– Corporate mission	8
– Shareholders, owners, consumers and the community	8
– Boards and lower-level employees	8
Emergent sustainability-related operational themes	9
– Carbon footprint and water accounting	9
– ‘Direct’ sustainability investment	9
– Employees and sustainability investment decisions	9
Capital investment appraisal practices	9
– Policy development	9
– Routine practices: quantitative and qualitative models	11
– Modification of traditional capital investment models for sustainability-related appraisals	13
– Project acceptance	13
<b>Conclusions: future research</b>	<b>16</b>
<b>References</b>	<b>17</b>



# Foreword

A significant body of information and development of methodology has arisen in relation to how market participants (superannuation funds etc.) allocate funds in relation to environmental and social risks and opportunities. There is a far lesser body of knowledge around how companies themselves allocate funds in response to these issues. Accountants perform critical roles within corporations in relation to the allocation of resources – financial, material and intellectual – and are the custodians of information which drives these decisions. For current practice to remain relevant, the profession must adapt to the dynamics of change – both internal and external. This study and its underlying methodology, we see as key steps in bringing practice into line with contemporary challenges and needs.

**Alex Malley**

CEO, CPA Australia

The University of Melbourne's Melbourne Sustainable Society Institute (MSSI) and Department of Accounting, in collaboration with CPA Australia and the International Federation of Accountants (IFAC) aim to advance the objectives of HRH The Prince of Wales' Accounting for Sustainability initiative.

This report titled *The influence and impact of sustainability issues on capital investment decisions* offers preliminary findings on current practices around the integration of sustainability issues in investment decisions. It aims to highlight key areas of concern for subsequent research.

This preliminary work has been made possible through the participation of the G100 secretariat and the researcher is grateful for the willing participation of Australian industry leaders. The results of this research will provide insightful market commentary to businesses on the contemporary practices of integrating sustainability in investment decisions. The aim of the broader research, which this project initiates, is to inform the revision of IFAC's Professional Accountants in Business Committee's International Good Practice Guidance on "Project Appraisal Using Discounted Cash Flow" and other related practice guidance.

**Professor Margaret Abernethy**

Sidney Myer Chair of Commerce  
Dean – Faculty of Business and Economics  
University of Melbourne

# Summary of key findings

The preliminary findings on current practices around the integration of sustainability issues in investment decisions uncovered the following key findings:

- This project found evidence of sustainability awareness in capital investment appraisals.
- A major contributing factor to the influence and impact of sustainability issues on capital investment decisions was the desire to enhance corporate “reputation”. Capital investment appraisals considered “sustainability risk”, “competitive advantage”, “community impacts” as well as actions that contribute to “employee engagement”.
- Fifty-five per cent of CFO respondents claimed they did not downplay qualitative data in favour of quantitative analysis.
- The preference for qualitative data was more evident with social than environmental factors.
- Carbon and water accounting were the dominant sustainability themes that motivated financial capital appraisal experimentation.
- Forty per cent of CFO respondents claimed they would not necessarily reject projects with negative net present values where sustainability benefits were identified.
- Sustainability managers are taking a lead role in capital investment appraisals. In general, they contribute with individual sustainability reports – a separated component of the appraisal process.
- When the CFO and sustainability manager worked together on appraisal decisions, this was largely on projects that involved “direct” investment in sustainable projects that frequently required different appraisal techniques.
- While sustainability impacts are being addressed in capital investment decisions, sustainability is not yet part of mainstream business. The researcher found only 25 per cent of total investment appraisals considered sustainability impacts, contributing to evidence of a segregation of sustainability factors and duties.
- The report provides a preliminary descriptive platform for more detailed empirical investigation.

# Acknowledgements

The researcher would like to thank CPA Australia for the opportunity to conduct this project. This research is the preliminary phase of a larger study supported by IFAC and the G100 as part of the Accounting Bodies Network. The author is affiliated with the Department of Accounting, Faculty of Business & Economics, University of Melbourne and would like to thank Ting Lin, honours student, for her research assistance as well as the Melbourne Sustainable Society Institute for their administrative oversight. In particular, the author would like to thank the willing academic and industry contributors for their helpful views and comments on the development of this study.

# Introduction

Global warming, climate change and debated contributions from ecological economic theory are increasingly impacting traditional accounting practices (TEEB, 2008).

There is a growing belief that “professional accountants can influence the way organizations integrate sustainability into their mission, goals and objectives, strategies, management and operations, definitions of success, and stakeholder communications” (IFAC, 2011, p.6). Accordingly, this call to better “account for sustainability” is giving rise to new approaches and knowledge requirements. Professional accountants are now expected to play a role in:

- “challenging conventional assumptions of doing business, identifying risks, and seizing opportunities;
- integrating sustainability issues into strategy, operations, and reporting;
- redefining success in the context of achieving sustainable value creation;
- establishing appropriate performance goals and targets;
- encouraging and rewarding the right behaviors; and
- ensuring that the necessary information, analysis, and insights are available to support decision making” (IFAC, 2011, p.6).

Corporate commitment to sustainability is increasingly evident in publicly disclosed performance standards such as those offered by the Global Reporting Initiative (GRI); in more recent integrated reporting frameworks (IIRC, 2011); disclosure of corporate sustainability practices through commitment to sustainability indexes (Dow Jones Sustainability Index) and assurance of international standards organisation (ISO 14001; ISO 26000) practices. While these high-level performance models have contributed considerably to corporate sustainability awareness, less is known of the internal sustainability accounting developments that are oriented towards improving management decisions (Bebbington, et al. 2007; Hopwood et al, 2010; Burritt & Schaltegger, 2010).

Of particular interest for this study is to better understand the extent to which traditional investment appraisals and capital budgeting techniques are impacted by sustainability-related impacts. In general, the tools and techniques to account for sustainability accounting are designed to consider social, environmental and economic criteria in unison. International good practice guidance has generally recommended capital investment project appraisals be managed with discounted cash flow (DCF) analysis and calculation of net present value (IFAC, 2008); however, there are growing concerns that traditionally accepted analytic design functions will not favour sustainability-related investments over their less sustainable alternatives (Hopwood, 2009). There are several

reasons why traditional accounting methods might punish sustainable alternatives. Firstly, certain benefits and synergies relating to improved social and environmental performance might be penalised by DCFs, particularly with larger outlay and longer payback periods. When comparing sustainable options versus their less sustainable alternatives, DCF analysis presumes that the “do not invest” scenario equals a continuation of current cash flow stream. In a competitive sustainability-related environment fraught with potential legislative impacts and continual strategic innovation, maintenance of status quo becomes increasingly difficult to justify. What might be initially considered a favourable alternative could eventuate in a declining cash flow stream and an overstated net present value (NPV). Secondly, financial appraisal techniques using discounted cash flow data might not necessarily capture the important qualitative factors relating to the risk-related nature of sustainability investments. Uncertainty (social and /or environmental sustainable risk) requires more detailed analysis, particularly as potential investments that address this risk may reflect a significant departure from existing operations. This departure likewise calls for enhanced accounting controls. Thirdly, and connected to the earlier points, sustainability costs / benefits might be difficult to isolate and quantify. Finally, issues such as sustainability-related timeframes and financial valuations become problematic with conventionally accepted capital investment appraisal techniques (Nordhaus, 2007). The notion of short-term calculation holds little meaning for investments that are seen to erode nature’s irreplaceable capital (Stern, 2006). There is an argument that any discount rate above zero implies a decline in value of future biodiversity and ecosystems benefit (TEEB, 2008). For example, The Economics of Ecosystems and Biodiversity interim report notes “that a 4 per cent discount rate means that we value a natural service to our own grandchildren (50 years hence) at one-seventh the utility we derive from it, a difficult standpoint to defend.”(2008, p.5)

The varying alternatives to traditional DCF analysis include sustainability-related tools and appraisal techniques such as cost benefit analysis (CBA), multi-criteria decision-making (MCDM), life-cycle analysis (LCA) and full cost accounting (FCA). These broad approaches are argued to provide a way to overcome some of the subjectivity relating to sustainability-related calculation (Bebbington et al., 2007). They are not unlike methodologies typically considered suitable for public and not-for-profit sector application (IFAC, 2008, p.10). In reviewing good practice guidance, there are gaps that exist between the traditionally accepted capital investment appraisal techniques and emerging issues associated with accounting for sustainability. This provides both challenges and opportunities for professional accountants as they are called to bring multidisciplinary expert knowledge from outside the accounting domain into their accounting system designs.

# Project overview

This research seeks to better understand the approaches taken to embed sustainability in capital investment appraisal decisions by addressing the following questions:

- Are sustainability-related appraisal techniques (multidisciplinary expert views and design tools) used in corporate capital investment decisions?
- What role do traditionally accepted DCF and associated NPV calculations play in sustainability-related investment decisions?

Sustainability-related investment decisions can be recognised as “direct” investments or “indirect” investments.<sup>1</sup> Direct sustainability investment is a deliberate choice made by companies to invest in sustainability assets (i.e. “direct” investments in projects like green-star buildings; wind farms; targeted sustainability product and process investments, etc).

Indirect sustainability investment is where the sustainability impacts of routine capital budgeting projects are understood as “indirect” to the investment proposal but can be isolated in analysis. For example, the increase or reduction in total carbon emissions, or societal impacts, could be estimated when evaluating competing assets.

This project is a first stage approach directed towards gathering a general understanding of the nature of a corporate sustainability control culture in *all* capital investment appraisal practices, regardless of the investment type. As such the following research objectives were proposed:

- Provide empirical evidence of the use of capital investment appraisal techniques for sustainability-related capital investments.
- Provide a preliminary descriptive platform for further detailed empirical investigation.
- Work towards providing a general best practice framework for professional accountants to better understand and manage sustainability impacts in capital investment appraisals.

---

<sup>1</sup> Equally important and potentially more risky for the organisation could be the decision not to invest at all.

# Methodology

To gather a general understanding of current practices associated with integrating sustainability issues in capital investment decisions, the following organisational variables were identified and further explored:

- the extent of interdependence between accounting and sustainability experts and techniques
- knowledge of the capital investment appraisal process (i.e. use of DCF models and sustainability-related decision models for all capital investment appraisals)

This first stage project was designed as an Australian pilot to be later developed into a larger global survey. The project comprised:

- a survey of chief financial officers (CFOs) from selected G100 companies (i.e. top 100 Australian companies) to explore their accounting approaches to sustainability-related investment appraisals
- detailed interviews with corporate sustainability managers to explore the corporate sustainability culture and the links between traditional accounting techniques (DCFs and NPVs) and sustainability-tailored decision models
- focus group discussions with CFOs to relay preliminary survey findings and discuss implications of these in practice

The reason for the Australian setting was twofold. Firstly, Australia has a strong mining and resource sector, with practices that initially might appear to be at odds with emerging views on climate change economics. However, this sector has a long history of investing (and innovating) to mitigate social and environmental impacts and can therefore provide important insights into emerging best practice investment appraisal techniques. Secondly, Australia has not been immune to the impacts of climate change, prompting intense debates and further legislation relating to water resource management and carbon accounting. Per capita, Australia's greenhouse gas emissions are one of the highest in the world, contributing to calls to better address corporate externalities. There is a growing societal awareness about the role accounting systems can play in identifying and controlling unsustainable practices.

Data was collected from top-tier corporate settings to obtain a broad overview of emerging best practice in capital investment appraisal practices. It was assumed these larger organisations would be leaders in sustainability issues, with related best practice policies, procedures and operational practices, particularly given the corporate commitment to sustainability by these target firms (as evidenced in

their reporting practices and disclosures). It was likewise assumed that CFOs would play a significant role in integrating sustainability issues in their accounting models. Table 1 below provides an overview of the respondent settings and data collection techniques.

**Table 1**

Research methods	Industry respondents / participants
<b>Survey data sources</b>	G100 Australian listed companies (15% response rate)
<b>Sustainability managers interviews</b>	Banking; mining; industrial; water board
<b>Focus group discussions</b>	CFOs from top and middle tier companies; strong mining representation

There is minimal empirical evidence to date on the extent to which sustainability issues are embedded in capital investment appraisals. This survey was therefore largely exploratory in nature. The interviews with sustainability managers were designed to further elicit details on the potential level and form of interdependence between accounting and sustainability manager appraisal techniques. The interviews were held through the survey development and delivery process. The focus group discussions were designed to generate further conversation and discussion of the preliminary survey findings.

# Findings

Overall, the researcher found evidence that sustainability issues were being prioritised in strategic planning and decision-making. Ninety-four per cent of respondent organisations employed sustainability managers, yet sustainability impacts were only considered in approximately 25 per cent of investment appraisals. These findings provided a broad descriptive platform of understanding while highlighting areas for further detailed analysis to determine the extent to which sustainability matters are part of mainstream business.

## Introduction

The project was commenced with the investigation of factors that influence the decision to include sustainability impacts in capital investment appraisals. To elicit information about emergent environmental and social (legislative versus voluntary) themes this research explored the general sustainability-related operational and record-keeping practices within an organisation. This phase of the research was concerned with questions about capital investment appraisal processes and the focus on “indirect” sustainability investments.

### Factors that influence the decision to include sustainability impacts

#### Corporate mission

CFOs reported that their sustainability-related accounting activities were consistent with their corporate mission. The respondent CFOs suggested they include sustainability-related impacts in their capital investment appraisals for risk management purposes as well as to obtain a competitive advantage.

#### Shareholders, owners, consumers and the community

The stakeholders that significantly influenced the decision to include sustainability impacts in capital investment appraisals were shareholders, owners, consumers and the community – to a lesser extent were expectations of market analysts and lending institutions.

It was also pointed out by several CFOs that large organisations ought to be showing governments that they are good “self-regulators” rather than merely complying with regulation. These CFOs rigorously sought continued and improving recognition by volunteer programs such as Dow Jones Sustainability Index (DJSI) to demonstrate this point.

The DJSI program, in particular, recognises the broad nature of corporate sustainability and requires organisations to address many issues including:

- formal board oversight and transparency – accountability of issues relating to corporate social responsibility, corporate citizenship and sustainable development
- comprehensive management of risk – including strategic risks, market / business environment risks, operational risks and compliance risks
- stakeholder perception analysis – consumers, governments, NGOs, investors and other
- environmental reporting and policies relating to impacts of products and services (including those of suppliers and service providers)
- eco-efficiency – measurement and management of greenhouse gas emissions, energy, water and waste generation
- social reporting and policies around labour practices, human capital commitment, health and safety, public commitment
- corporate citizenship and philanthropy<sup>2</sup>

Given G100 CFO respondents were largely committed to programs, such as the DJSI, it was made clear that their investment appraisal practices were directly or indirectly aligned with the above philosophy.

#### Boards and lower-level employees

Within an organisation, management attitudes certainly influenced the sustainability-focused accounting culture. There was a strong direction from the Board that the company has a capital budgeting policy that integrates issues of sustainability in investment decisions. Most organisations reported that it was important for the investment to be seen to be ethical, or doing the right thing. In particular, there was a strong emphasis on social commitment to occupational health and safety as well as the desire to communicate the importance of safety and good corporate citizenship to lower-level employees. It was found that if there was a strong sustainability cultural tone at the top, this was reflected in improved employee relations and engagement. Employee engagement appeared to be a powerful motivation factor.

<sup>2</sup> Refer to SAM Research Corporate Sustainability Assessment Questionnaire, DJSI Test 2010. [www.sam-group.comquestionnaire@sam-group.com](mailto:www.sam-group.comquestionnaire@sam-group.com)

## Emergent sustainability-related operational themes

### Carbon footprint and water accounting

Carbon footprint accounting is one theme that has generated experimental work. Both survey and management interviews indicated an effort to reduce carbon emissions through operational activities (lean accounting techniques to minimise waste) as well as considering carbon mitigating contributions from their organisations' own natural assets, such as plantations and water bodies.

Questions were asked about sustainability record-keeping and whether organisations kept records (inventory) of natural resources and environmental assets (including land and water owned by the organisation, and the pollution or other environmental impacts for which it is responsible). Seventy-three per cent of survey respondents acknowledged that they were conducting some form of inventory analysis. Our discussions with CFOs and sustainability managers confirmed this finding and explained how eco-efficiency measures were integrated into their investment appraisal decisions.

### 'Direct' sustainability investment

CFOs were asked about the percentage of their total capital expenditure in "direct" sustainability investments. Eighty-six per cent had acknowledged a deliberate decision to target their investments towards sustainability-related projects with the median total capital expenditure being around 10 per cent of total investment expenditure. During interview discussions a CFO claimed sustainability benefits are far easier to account for (and sell to stakeholders) when proposing new capital investment projects (like green-star buildings) rather than justifying large capital expenditure to alter existing processes.

Some firms were "proactive" in sustainability investments, while others were deliberately "selective" in investment (such as innovative sustainability-related products to complement the existing range). A CFO and sustainability manager from a large beverage organisation commented on the efforts to isolate the sustainability impacts so they could market a new, unique product as a low carbon footprint product. The company developed a method for isolating and capturing the individual production process, total costs and revenues for this single product. Thus the accounting system design was unique for this product and quite different to their routine capital investment appraisal methodology.

## Employees and sustainability investment decisions

As indicated earlier, employees played a significant role in capital investment decisions. In our discussions, it was explained how employee-related occupational health and safety (OH&S) decisions were given high priority. Several CFOs explained their proactive investment approaches to OH&S rather than merely complying with legislation in this area. Safety investments are frequently made without detailed financial cash flow analyses (similar to other legislative investment requirements). In addition, it was important for many managers that their employees recognised that the organisation was proactive in mitigating social and environmental impacts. Several CFOs suggested this contributed highly to employee engagement and employee / employer satisfaction ratings, of which they paid considerable attention. Respondents explained how their employees, in employer satisfaction surveys, frequently ranked OH&S and sustainable contributions as most important.

Respondents were asked about the extent to which they have invested in both management systems and controls or people skills to help integrate sustainability considerations into capital investment decisions. In general, the survey findings suggested organisations are more than likely to invest in people over systems to help integrate sustainability in their investment decisions. Examples of situations where capital investment committees or senior managers required the sustainability manager to become involved in appraisal projects were provided in interview discussions. These were generally in direct sustainability investments, or investments where there were readily identifiable environmental or social impacts, requiring detailed feasibility studies to be included in the appraisal process.

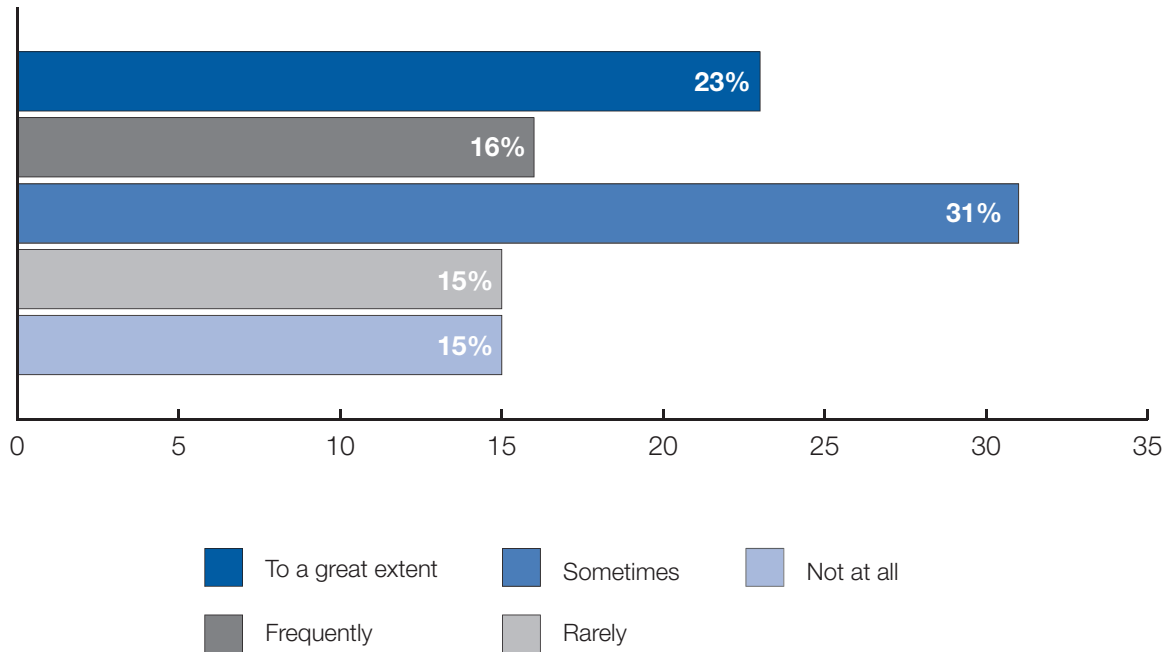
## Capital investment appraisal practices

### Policy development

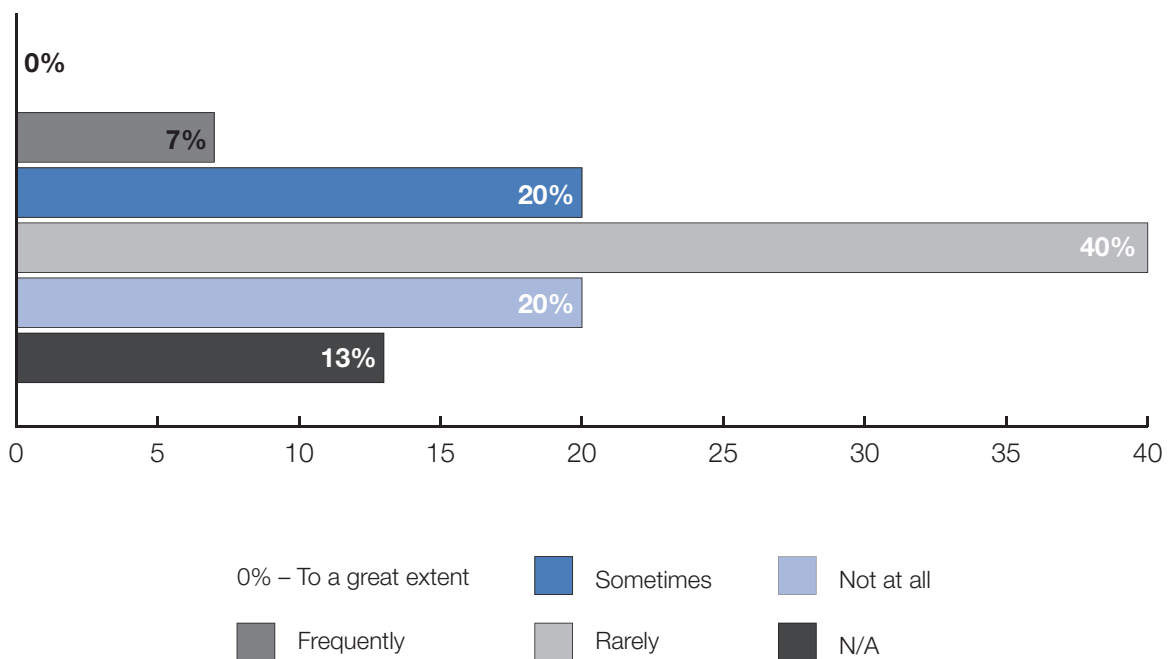
In policy development decisions, 80 per cent of respondents stated that the CFO/CEO largely made decisions on organisational capital investment appraisal policies and procedures, even where sustainability issues are identified.

The majority of respondent organisations identified that they had some form of sustainability manager or committee involved in providing data for capital investment appraisals. However, their involvement was largely required only in "direct" sustainability investments and other "indirect" capital investment appraisals only where sustainability issues were identified. In addition, most companies suggest they have not, to any great extent, invested in management systems and controls to integrate sustainability considerations into capital investment appraisal.

**The sustainability manager is involved in investments only where sustainability issues are identified**



**The sustainability manager is involved in all investments**



In talking with CFOs and sustainability managers, we were provided with varying ways sustainability issues are flagged and brought to the sustainability manager's attention. In some settings, people rather than system controls ensure material sustainability issues are embedded in capital investment appraisal methodology. Managers explained how their capital appraisal committees or managers generally call for additional sustainability-related data input rather than routine accounting system flags or tick box exercises. In some large organisations, the need for input from a sustainability manager is flagged at varying stages during the project appraisal, rather than being routinely flagged in every appraisal decision or through accounting system designs. In discussions with sustainability managers it appears the nature of flagging mechanisms and the reasons why they might occur at varying times and stages of the project appraisal is varied and requires more detailed investigation. While some CFOs appeared to rely heavily on the sustainability manager's input, it appeared that the sustainability data was largely conducted as a separate analysis and then added to the final capital appraisal report. The sustainability manager and CFO were only involved in collective appraisals and decision process where significant sustainability impacts were identified.

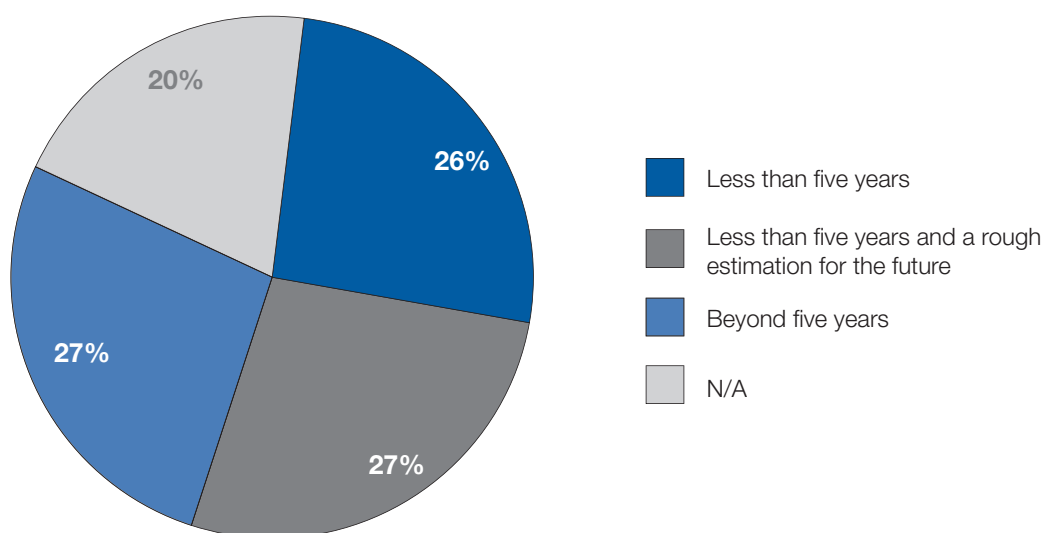
Further research is required to better understand the interdependencies of people (sustainability managers and CFOs) as well as the accounting system control over the life cycle of all capital investments.

**Routine practices: quantitative and qualitative models**

Only 26 per cent of companies reported that they routinely include sustainability impacts in their capital investment decisions.

As highlighted in the graph below, when sustainability impacts are calculated, the timeframes used to calculate the costs / benefits of sustainability impacts are varied. Twenty-seven per cent have attempted to try to calculate sustainability impacts beyond five years (reported timeframes of 10-15 years). The nature of these longer-term calculations was further discussed in the interviews and focus group meetings. Our general discussions held that the timeframe depends on the type of investment and the nature of the industry. For example, mining-related capital infrastructure investments would generally be calculated over the longer-term. The shorter timeframes were largely related to the uncertainty of the cash flows when stretched beyond five years.

**Excluding compliance or OH&S investments, over what timeframe do you calculate the costs/benefits of sustainability impacts in your financial investment appraisal model?**

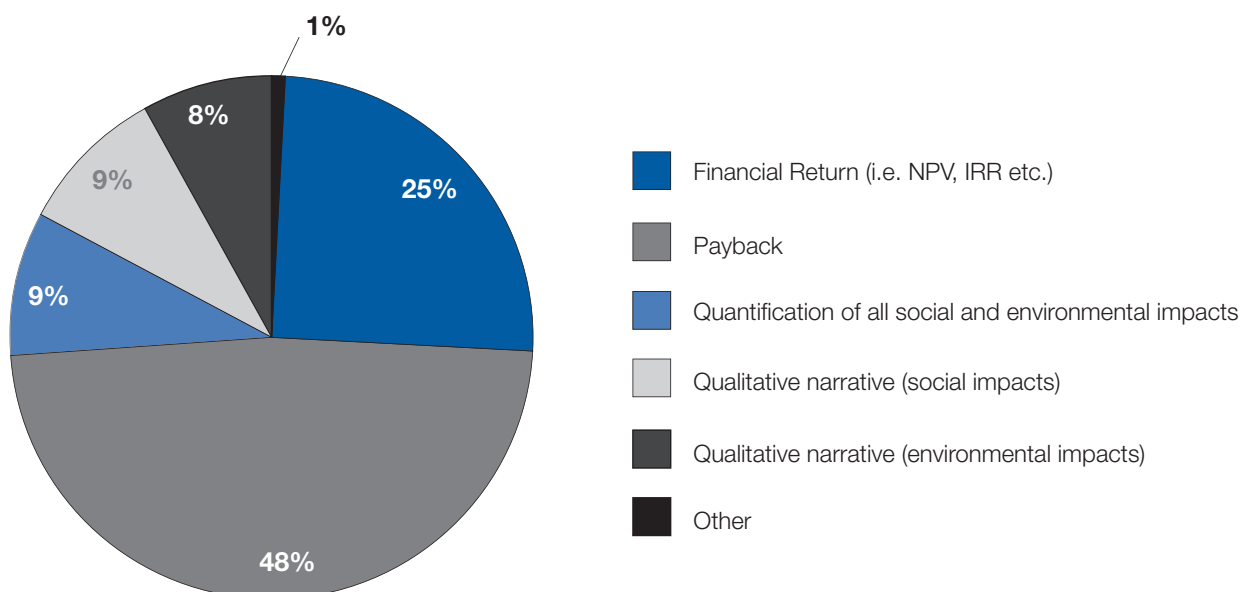


CFOs were asked to comment on statements that represent their company's current practice. Eighty-seven per cent of respondents suggested that discounted cash flows represent the best decision aid for all capital projects. All CFOs suggested they use NPV to a great extent; followed by internal rate of return (IRR) and payback method. Some 25 per cent of CFOs indicated they use "other" quantitative methods but did not provide enough detail on types in use (i.e. the use of life cycle assessment (LCA), full cost accounting (FCA), true cost accounting (TCA), International Organization for Standardization (ISO) protocols, DJSI, or carbon footprint accounting techniques that might not be included in traditional appraisal analysis). This issue was later discussed in interviews with focus group members. While several sustainability managers supplied sustainability-related accounting results from tools, such as full cost accounting and the use of "marginal abatement curves" to CFOs, the CFOs themselves seemed less likely to use and apply these tools in their routine appraisal practices. Experimentation with carbon costs was another role

performed by the sustainability manager. Some companies had begun to place a price on carbon and included carbon in their cash flows. One company kept it as a separate line item in their capital appraisal models, so they could consider the NPV before and after the impact of a price on carbon (they also explained this as a way of deciding whether to pay a premium for green power so they do not have to consider further carbon accounting in their models).

In weighting the importance of these financial models in conjunction with other appraisal criteria including sustainability issues either quantified or provided as qualitative narrative, financial returns (NPV/IRR) were weighted as 48 per cent in importance; payback 25 per cent; quantification of social and environmental issues 10 per cent; qualitative narrative social 9 per cent followed by qualitative narrative environmental at 8 per cent (as highlighted in the chart following). Comments addressing the "other" appraisal criteria included the use of risk and market perception.

**In practice, what relative importance would you place on the following appraisal criteria for capital investments (other than regulatory or OH&S)?**



Fifty-five per cent of CFO respondents indicated that they *did not* downplay qualitative data in favour of quantitative analysis. The majority of respondents used qualitative data to address the difficult to quantify social and environmental impacts. In general, the preference for qualitative data was more evident with social, than environmental factors. This included the monitoring of outsourced value chain activities.

Most suggested quantitative data was suitable for assessing *anticipated* sustainability impacts such as: waste, emissions, materials, energy, remediation, recycling and OH&S. The majority of respondents were more concerned with quantifying environmental fines and provisions for clean-up, energy and water consumption and less concerned with organisational waste, impacts from other value chain participants or the potential to earn environmental revenues. The preference for qualitative data appears to increase as uncertainty and timing increases. However, respondents from mining and industrial sectors also required forms of quantitative assessment of potential risks associated with medium- to long-term external social impacts from outsourced activities.

Further exploration is required to evaluate both the impact of other factors on the short-term focus (such as tenure and remuneration policies) and the continued popular use of traditional DCF models. While individual corporate approaches to project appraisals were detailed in interview

discussions further survey and field research will assist with generalising best practice methodology. The extent to which CFOs perceive sustainability-related data is “material” to their setting is one area to extend. Another relates to the extent to which this data can be reliably collected and included in cash flows or other appraisal techniques.

### Modification of traditional capital investment models for sustainability-related appraisals

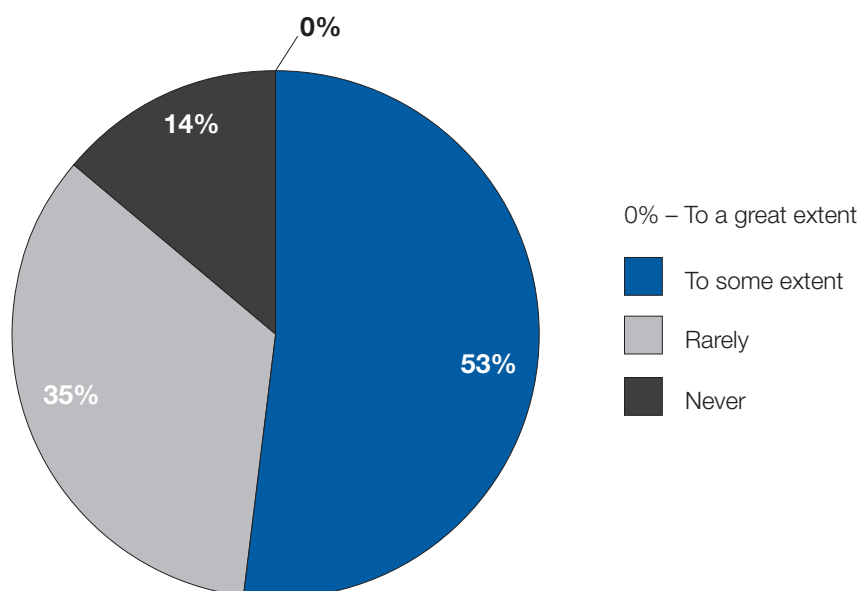
When asking whether CFOs adjust their traditional capital investment model for sustainability-related decisions, the majority of respondents suggest they *do not* modify to any great extent for: carbon costs (85 per cent), social impacts that are not OH&S or regulated (85 per cent), short- to medium-term environmental impacts (80 per cent) or other long-term impacts (95 per cent).

A third of respondents did, to some extent, try to isolate the sustainability impacts in analysis (i.e. calculate returns before or after sustainability effects). As highlighted in the section following, sustainable decisions were sometimes made on investments that offered lower than expected returns.

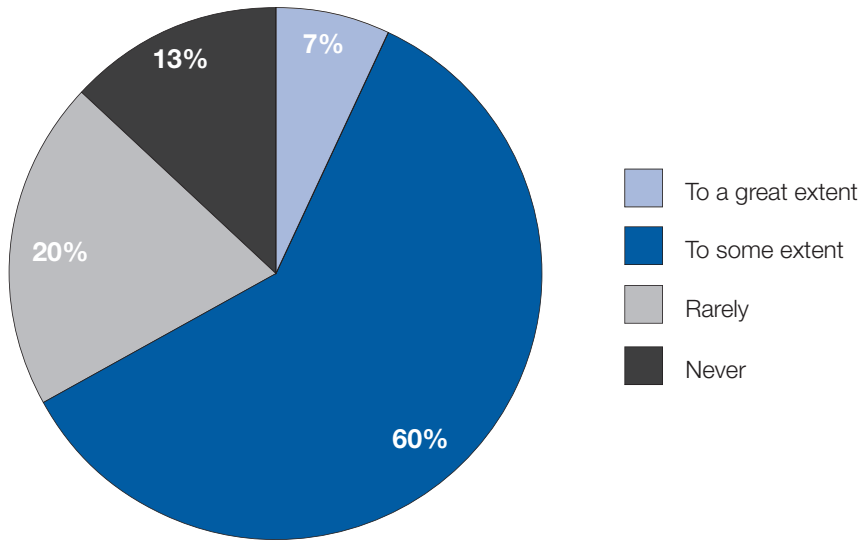
### Project acceptance

Respondents were asked to draw on their organisations’ routine practice to consider the extent to which they would accept zero or negative NPVs when positive social and environmental benefits were likely to occur.

**For our non-regulatory investment we accept zero or negative NPV where there are significant positive social impacts**



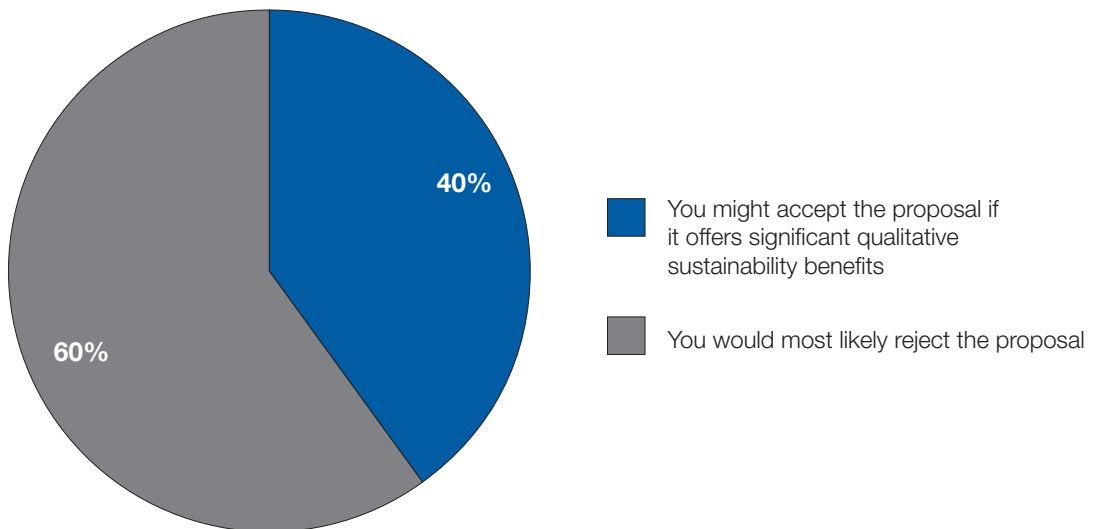
**For our non-regulatory investment we accept zero or negative NPV where there are significant positive environmental impacts**



Hypotheticals were posed as highlighted in the chart below. When faced with “indirect” sustainability benefits that are difficult to quantify, 40 per cent of respondents agreed they would not necessarily reject projects with negative NPVs. This interesting survey finding was largely confirmed by the CFO group discussions.

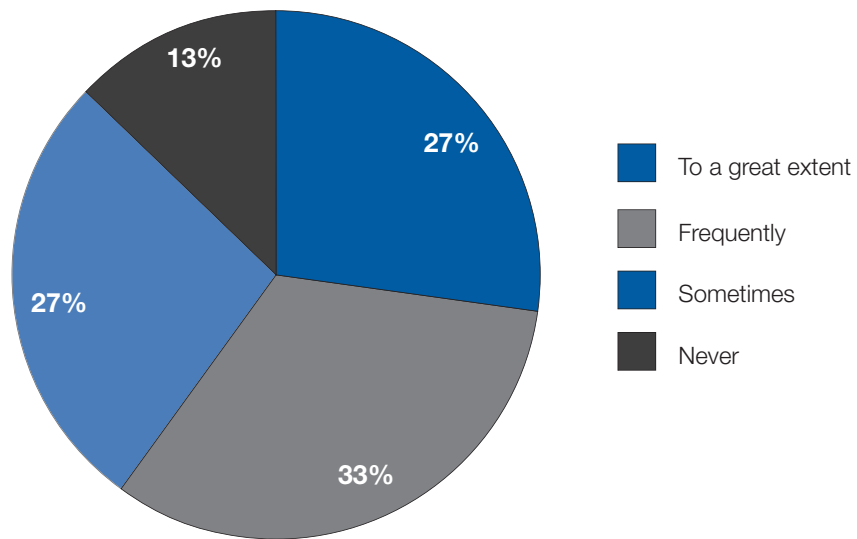
**Hypothetically, you are faced with making a decision about a potential capital investment (not compliance or OH&S related) that has “indirect” sustainability benefits that are difficult to quantify.**

**What decision would you take if the NPV was negative?**



Respondents were also asked to comment on the extent to which they would reject a project if qualitative criteria identified significant negative environmental or social impacts that cannot be mitigated.

**If qualitative criteria identifies significant negative environmental or social impacts that cannot be mitigated, to what extent does this lead to a project being rejected?**



# Conclusions: future research

This survey and associated discussion groups provided some initial valuable insights to direct future research. With this sample of Australian top-tier company respondents (backed up by views from sustainability managers and CFO focus group discussions) an overall desire to embed sustainability in practice was found. While there was a mix of appraisal practices, which drew on sustainability-related data, there was a continued use of traditional capital investment appraisal models. While DCF and NPV models continue to be the accepted capital appraisal methodology, further investigation of the extent to which CFOs rely on DCF models would be useful. Do CFOs believe traditional DCF models can adequately capture significant sustainability-related impacts and to what extent do other sustainability-related models or non-financial data help with their capital investment appraisals and associated decision-making? The sustainability culture, relationship between managers, employees and accounting system design are other areas that require further investigation.

Further research is also recommended on the interdependencies between the CFO and sustainability manager. While the research found there are interdependencies, this is only where sustainability impacts are readily identified. Sustainability accounting still appears to be a separate function; however, there was evidence to indicate carbon emissions accounting was being devolved to a line manager responsibility. Data on the collection, reliability and trade-offs made between quantitative and qualitative data in “indirect” investments decisions is required. Further questioning, directed at sustainability managers, might elicit more detail on the development and acceptance of sustainability accounting tools in everyday practice.

Likewise it would be useful to discover the extent to which specific qualitative data is weighted (equally or otherwise) alongside the adjusted / unadjusted DCF models. What are CFO decisions about future uncertainties? Given 40 per cent of G100 CFOs would accept projects with negative NPV, how important is qualitative data, as a conceptual tool, in assisting this decision? How do the emerging models enable the evaluation of certain material sustainability impacts, those not necessarily captured by conventional timelines, discount rates and cash flows?

In conclusion, it was raised in CFO group discussions that the practice of continually isolating sustainability from routine business operations contributes to maintaining a distinction between the two. One CFO suggested that as sustainable best practice becomes embedded in routines, they are no longer recognised as “sustainability-related” impacts. Discussion is welcomed on the potential avenues for future capital investment appraisal research as well as the extent to which we should acknowledge this comment and continue to draw respondent attention to the notion of sustainability in academic research. Similarly if / as sustainability impacts become embedded more deeply in every day accounting activities, they increasingly become a challenge for researchers to identify / isolate with survey research. This report finds companies actively (and proactively) include legislative and other sustainability-related efficiency factors (such as OH&S, energy, carbon emissions and waste) in their routine cash flows and direct investment decisions. However, the strategic and risk-related nature of sustainability investment appraisal still requires further investigation. This is particularly so when G100 CFOs are demonstrating they acknowledge other factors not readily captured in their traditional financial analysis. Exemplar case studies will help to expose the variety of practices and plethora of sustainability issues faced by organisations. In subsequent stages of this project, efforts will be focused on extending the areas of research interest proposed in this paper. The aim of this paper is to highlight emerging capital investment decision model designs and begin to inform the development of best practice guidelines for practicing accountants.

# References

- Bebbington, J., Brown, J., & Frame, B. (2007). Accounting technologies and sustainability assessment models. *Ecological Economics*, 224-236.
- Burritt, R.L. & Schaltegger, S. (2010). "Sustainability Accounting and Reporting. Fad or Trend?", *Accounting, Auditing & Accountability Journal*, 23[7], 829-846.
- Hopwood, A. (2009). "Exploring the interface between accounting and finance", *Accounting, Organizations and Society*, 34 (5): 549-550.
- Hopwood, A., Unerman, J., and Fries, J. (eds) (2010). *Accounting for Sustainability: Practical Insights*. Earthscan, London, Washington, DC.
- International Federation of Accountants (IFAC) (2008). "International Good Practice Guidance: Project Appraisal Using Discounted Cash Flow, Professional Accountants in Business Committee" (June 2008).
- International Federation of Accountants (IFAC) (2011). "Sustainability Framework 2.0: Professional Accountants as Integrators" (March 2011).
- International Integrated Reporting Committee (IIRC) (2011). "Towards Integrated Reporting: Communicating Value in the 21st Century", Discussion Paper, accessed at [www.theiirc.org](http://www.theiirc.org).
- Nordhaus, W. (2007). *The Stern Review on the Economics of Climate Change*, Yale University.
- Stern, N. (2006). *The Stern Review on the Economics of Climate Change*, Cambridge University Press.
- The Economics of Ecosystems and Biodiversity (TEEB) Interim Report (2008). European Communities, Cambridge, UK.

