KPMG

AMP

Institute of Chartered Accountants in Australia

Environmental management accounting

A case study for AMP

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1 Executive Summary

Why an environment management accounting case study?

Although environmental costs are only one of the many costs incurred by businesses, they deserve management's attention. For companies in the service sector with office environments, better insight into environmental costs can lead to them being reduced while environmental performance is improved with costs being offset through the recycling or sale of waste and improved costing of services It will also help with the justification of environmental improvement initiatives, and support of a company's environmental policy, management system or data collection for public reporting.

Environmental management accounting can be used as a tool to reap these benefits, and refers to "the process of identifying, collecting and analysing information about the environmental costs and performance to help an organisation's decision making." In this study 'environmental costs' refer to the costs businesses have to pay for directly as they provide goods and services to their customers, such as electricity and waste.

The Institute of Chartered Accountants in Australia (ICAA) initiated this environmental accounting case study, with funding support from the Federal Government (Environment Australia) and the Environment Protection Authority (EPA) of Victoria, to encourage its members to adopt measures leading to improved environmental performance.

KPMG has, with information supplied by AMP, developed a case study on Services@AMP, the shared services division providing services to offices occupied by AMP in Australia ("AMP").

How does AMP currently account for the environmental impact of its offices?

Based on Services@AMP's activities, the most important environmental impacts identified in the study, either directly or through AMP, are the use of electricity, water and other resources, and the generation of solid waste (general waste, kitchen waste, waste paper) and wastewater.

The initial high-level analysis of the way in which environmental impacts are treated in the management accounting system (general ledger), indicated that:

- The system provides information on costs by vendor, but does not provide detailed information on the type or quantity of goods or services procured.
- Costs for many of the building services provided or paid for by Services@AMP are combined for each building and charged back to cost centres in the form of a Single Office Service Charge (SOSC) based on average costs per m2 occupied.
- In most instances, the building manager controls the cleaning contract, which includes waste collection and disposal, and pays for the wastewater bills. These costs are included in the rent paid by AMP, but are generally not specified separately in the rent.

How could the management accounting system be changed?

Based on the high level analysis, five changes to the management accounting system and processes were trialled, taking into account the project timeframe and practicality of trialling these options and potential cost savings.

These changes aim to improve the availability of information on the costs and quantities associated with AMP's main environmental impacts, which can be used as a catalyst to identify cost and environmental improvement measures. This is done by trying to draw this information from the accounting system and subsequently allocating costs to cost centres.

1 An additional field could be added to the accounting system coding to provide more detail about the types of goods and services provided by the vendor. This option was trialled by identifying vendors in the accounting system for electricity, water, office stationery and paper, newspapers, and paper recycling and shredding. Amounts paid for these goods and services were consolidated and showed that office stationery and paper account for 71% of the total costs associated with these activities. More detailed information could assist AMP in identifying cost reduction opportunities and would also be used as input for a public environmental report, in particular if combined with information on quantities used.

2 A new field could be inserted into the accounting system for quantities of goods and services provided. The change would enable AMP to monitor quantities of resources used and waste and wastewater generated and make comparisons between different buildings and cost centres. Combined with more detailed cost information this quantitative information will help AMP to identify where the greatest opportunities for cost and environmental savings lie. This option was trialled for stationery and paper use because of their relatively high costs and because AMP has one preferred supplier. Invoices, invoice processing systems and contracts were reviewed, with analysis indicating that AMP's preferred vendor provides monthly reports with the item numbers, description, quantities ordered, costs per unit and total costs. This means that AMP has access to quantitative information in relation to stationery and paper use that could be included in the accounting system.

3 Costs for waste collection and disposal and wastewater could be charged separately from the rent, so that AMP could track costs and quantities for these items. This would enable AMP to actively manage waste costs or determine the potential for waste reduction or recycling. The potential benefits of doing this were investigated by conducting a waste audit. The audit indicated that the volume of general waste could be reduced by up to 80% through recycling in an office with a paper recycling system. In addition, a recently completed waste audit by AMP for a different building with a co-mingled recycling system indicated a reduction potential of 33% in volume for general waste and potential savings of approximately $177,800 per year if the current amount of single-sided paper disposed of in bins had been copied or printed double-sided. Separating waste collection and disposal costs from the rent combined with a waste reduction program could thus have a direct impact on the bottom line.

4 Environmentally related costs could be separated from the SOSC. Ideally, cost centres should be charged based on the actual environmental cost (eg. use of electricity, water, generation of wastewater, and collection and disposal of waste). However, because the SOSC system was introduced to minimise the time and administrative labour costs, this option is not financially feasible. As an alternative, these costs could be highlighted for each building as a separate item in the SOSC when charged to cost centres. This change to the accounting system was simulated for electricity by combining the information on floor space and electricity costs for each building from the accounting system to calculate the electricity costs per m2 of office space for different buildings.

The analysis indicated that all suppliers provide the total quantity of energy used but apply different rates per MWh used. Based on the sample of invoices reviewed, the highest electricity costs (including all charges) per m2 was five times that of the lowest costs per m2 and almost twice as high as the average costs per m2. Separately highlighting electricity costs in the SOSC would therefore enable cost centres to monitor the average costs for their building, which should stimulate the identification of cost saving opportunities. The inclusion of usage as well as cost information in the accounting system would enable AMP to make more meaningful comparisons between buildings.

5 Reducing the number of vendors. One of the difficulties with identifying environmental costs in AMP is the number of vendors providing services associated with environmental impacts. For this case study an analysis showed that the number of vendors for electricity, newspapers, and food are high because contracts are currently determined on an individual location or building basis. For example, for the provision of paper recycling and shredding services, as at October 2001, there were more than 25 vendors, covering 94 agreements with varying rental and collection charges for almost 500 bins.

A rationalisation of vendors would enhance the transparency of the accounting system and therefore supplement the insertion of additional fields in the accounting system and the separation of electricity costs from the SOSC (as discussed above). AMP conducted a major vendor spend analysis exercise in 2001, and selected preferred suppliers for a number of goods and services. As part of this study, results of this vendor review were analysed and additional analysis was undertaken where necessary. This analysis showed that vendor rationalisation in these areas represents a significant opportunity for operational efficiency and cost reduction.

What can other companies learn from this case study?

The most important lessons from this case study for service-focussed companies, such as AMP, are:

- This case study could be widely applied to similar companies, for example, financial institutions, professional service firms and government departments. Benefits achieved will depend on the size and the actions companies have already taken to reduce their costs of resources and waste.
- For environmental accounting to be successfully applied in a large office-based organisation, the minimum skills needed include accounting, environmental, IT and an understanding of the business processes and the broader organisation.
- Environmental costs are relatively low compared to other costs, in particular labour, IT and tenancy costs. Other company drivers, such as reputation, management or legal compliance, can assist in building the business case for environmental accounting.
- Environmental costs are one of the many costs incurred by businesses, and reducing these costs is more likely to succeed if they are evaluated as part of a broader cost analysis or change in business processes or systems.
- Environmental accounting can serve as a good starting point to enhance a company's environmental performance through the identification of "green office" options to reduce costs, resources and wastes, and through the gathering of quantitative data for a green office program, environmental management system or a public environmental report.

2 Introduction

This document is an environmental management accounting case study undertaken by KPMG on the shared services division of AMP, known as Services@AMP.

2.1 What is environmental management accounting?

Environmental management accounting refers to "the process of identifying, collecting and analysing information about environmental costs and performance to help an organisation's decision making".[1]

In this case study 'environmental costs' refer to the costs businesses have to pay for directly as they provide goods and services to their customers, such as electricity and waste. It excludes the associated costs, for example, the value of the resource that is disposed of as waste and the time required for waste collection and disposal. It also excludes costs to the society or the environment for which the organisation is not financially accountable, such as loss in biodiversity.

Although environmental costs are only one of the many costs to businesses, they deserve management's attention. For companies in the service sector with office environments, better insight into environmental costs can lead to the following benefits[1]:

- Environmental costs may be obscured in overhead accounts or otherwise overlooked, such as electricity costs being included in building rent. Increasing the transparency of these costs can lead to the reduction or elimination of environmental costs as a result of better informed business decisions, in particular where these costs provide no added value to a product or service.
- Offset of environmental costs by generating revenues through recycling or the sale of a waste, for example printer cartridges.
- Improved environmental performance through better management of environmental costs, which in turn will enhance a company's reputation and provide competitive advantage with customers.
- Promotion of more accurate costing and pricing of products or services, or assistance in the design of more environmentally friendly products or services. For example, if the amount of paper or stationery used to conduct a market analysis for a client were known, this could be costed into the pricing of the service.
- Justification of investments in initiatives to reduce waste and emissions by showing the potential for cost reduction. For example, installing sensors on lights would be more easily justified if current electricity costs and potential savings could be identified.
- Support of a company's development of an environmental policy or management system and form the starting point of data collection for a public environmental report.

[1] Based on: United States Environment Protection Agency (1995), *An Introduction to Environmental Accounting as a Business Management Tool: Key Concepts and Terms*

2.2 Why this case study?

The Institute of Chartered Accountants in Australia (ICAA) is encouraging its members to adopt measures leading to improved environmental performance and sustainability.

With funding support from the Federal Government (Environment Australia) and the Environment Protection Authority (EPA) of Victoria, the ICAA engaged four organisations, including KPMG, to conduct case studies of four Australian companies, with the following objectives:

- Document how improved practices and reform in management accounting techniques can assist individual businesses to improve profitability by reducing costs and/or identifying revenue opportunities whilst achieving better environmental outcomes.
- Increase business' understanding and appreciation of the environmental cost and revenue implications of its operations.
- Highlight how management accounting systems used within the business can be reformed to encompass environmental costs and potential revenues.

KPMG has, with information supplied by AMP, developed a case study on the shared services division of AMP, known as Services@AMP.

2.3 Why AMP participated in this case study

AMP appreciated the opportunity to participate in this study and is now looking to make changes to its operating environment and accounting systems on the basis of the opportunities highlighted in this study, which may contribute to reducing the impact AMP has on the environment.

In a wider sense, AMP is committed to investigating and adopting practices to responsibly manage its impact on the environment and the communities in which it operates. AMP has developed an environmental policy, which will apply across the AMP Group internationally. The policy aims to improve environmental performance by involving all employees in progressively integrating environmental considerations into business decisions and actions.

The policy applies to all AMP's activities, including the offices occupied by AMP staff to which this case study applies.

For AMP, the environmental accounting project could therefore serve as a good starting point for the further development of its environmental management practices.

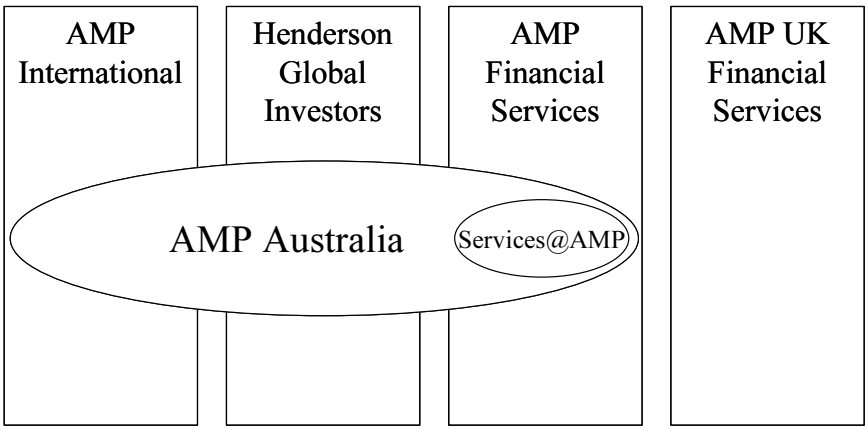
3 AMP Case Study

3.1 Who are Services@AMP?

AMP Ltd is a financial services organisation operating in a number of countries around the world including Australia, New Zealand and the United Kingdom. AMP has approximately 14,500 employees, 5,000 of whom work in Australia across the AMP International, Henderson Global Investors and AMP Financial Services businesses.

This case study focuses on the Services@AMP division which provides a number of shared services to AMP in Australia (further references to AMP in this case study refer to AMP in Australia), including human resource and employee services, facilities management, administration services, procurement and contract management. The Services@AMP division is functionally part of AMP Financial Services as illustrated below.

AMP in Australia has about 70 divisions, and about 350 departments (cost centres) within these divisions that are located in more than 70 buildings throughout Australia.



3.2 What are Services@AMP's environmental impacts?

Based on Services@AMP's activities, the most important environmental impacts identified in the study, either directly or through AMP, are the use of electricity, water and other resources, and the generation of solid waste (general waste, kitchen waste, waste paper), wastewater and emissions (see figure 1).

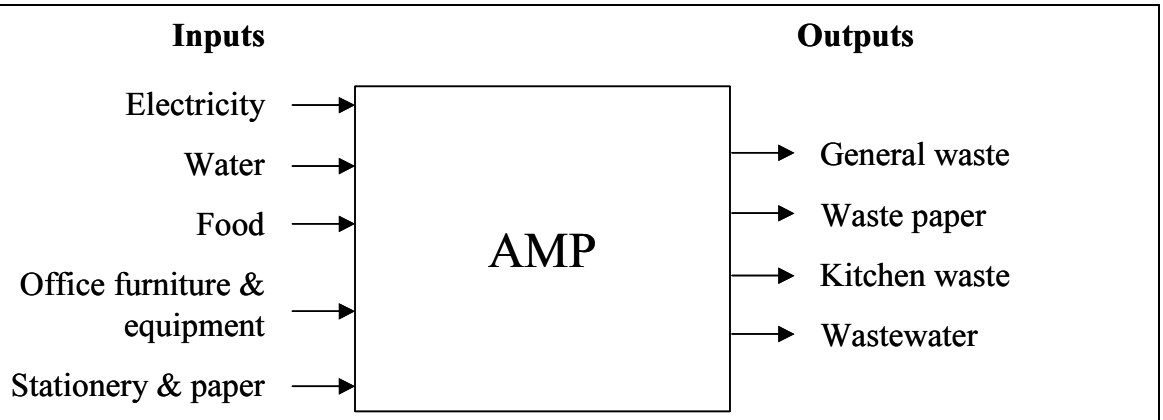


Figure 1. Main environmental impacts as they relate to the inputs and outputs of Services@AMP and AMP.

3.3 How are environmental impacts dealt with in the management accounting system?

AMP produces management accounts on a divisional basis derived from a PeopleSoft general ledger system and various other product systems. These are submitted to the Corporate Office for consolidation.

The initial high-level analysis of the management accounting system (general ledger) and processes, as they relate to activities undertaken within Services@AMP, indicated the following:

- The accounts in the general ledger are broadly categorised by type of spend (e.g. building services, wages) and are further broken down by vendor.
- The system provides information on costs by vendor, but does not provide information on the type or quantity of goods or services procured (e.g. electricity).
- Costs for many of the building services provided or paid for by Services@AMP are combined for each building and charged back to cost centres in the form of a Single Office Service Charge (SOSC). This is based on the office space occupied, rather than actual consumption (see figure 2 and table 1). This charging system includes rent, maintenance, signage, cleaning, electricity, water, wastewater and waste within individual buildings.
- Services@AMP pays invoices for paper, office stationery, publications and marketing materials, office furniture and equipment and food, ordered or leased by cost centres. Costs are subsequently charged back to the cost centres on an order basis (see figure 2 and table 1).
- Services@AMP generally purchases electricity, water and resources for AMP. However, for certain buildings the building manager conducts the procurement (see figure 2 and table 1). The building manager may be AMP Henderson Global Investors or a third party.
- In most instances, the building manager controls the cleaning contract, which includes waste collection and disposal, and pays for the wastewater bills. These costs are included in the rent paid by AMP, but are generally not specified as separate cost items.

- Electricity, water, paper recycling and shredding are included in a current review of building services to reduce the number of vendors in each state. In addition, the processing of invoices will be outsourced, which will impact the current accounting system.

The general ledger does not allow the automatic generation of total costs for specific goods or services (for example, electricity), nor does it allow determination of, for instance, the quantity of resources purchased or waste outputs produced (e.g. recycling bins collected). The main reason for this is that there has been no prior focus on the need for environmental input and output information and the increased cost associated with increasing data storage and processing. This consequently obstructs the management of environmental performance and costs and for this reason this environmental accounting case study was undertaken.

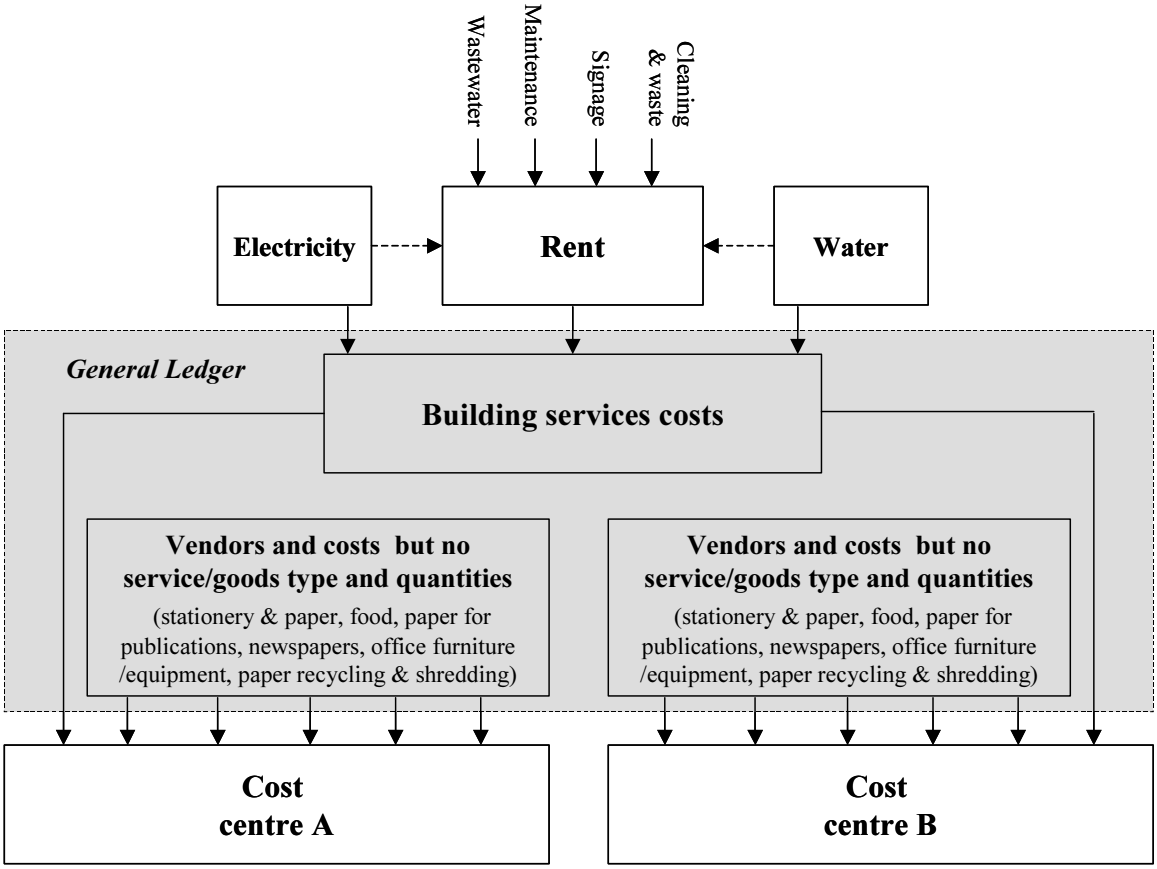


Figure 2. Current treatment of environmental costs in AMP's accounting system (general ledger)

Table 1. Accounting for environmental inputs and outputs of services by Services@AMP provided to AMP

Environmental impact	Contract held and invoices paid by	Basis of charge to AMP	Basis of charge to AMP cost centres
Electricity	Building manager or Services@AMP	Actual use or included in rent	SOSC*
Water	Building manager or Services@AMP	Actual use or included in rent	SOSC*
Office stationery and paper	Services@AMP	Quantity ordered by cost centres	Quantity ordered by cost centres
Paper – publications / marketing	Services@AMP	Quantity ordered by cost centres	Quantity ordered cost centres
Newspapers	Services@AMP	Quantity ordered by cost centres	Quantity ordered by cost centres
Food – cafeterias in main centres	Services@AMP (subsidy), staff pay for food at subsidised rates	Cafeteria subsidy based on consumption	Number of staff
Food – kitchens/ catering/ functions	Services@AMP	Quantity ordered by cost centres	Quantity ordered by cost centres
Office furniture	Services@AMP	Quantity ordered by cost centres	SOSC*
Office equipment	Services@AMP	Lease per copier / fax / printer	SOSC*
Paper recycling and confidential shredding	Cost centres (contracts), Services@AMP (invoiced)	Bin rental and collection (number of bins)	Bin rental and collection (number of bins)
Waste	Building manager (in cleaning contracts)	Included in rent	SOSC*
Waste water	Building manager	Included in rent	SOSC*

* Single Office Service Charge (SOSC) – collective costs for each building AMP occupies are charged to individual cost centres based on m2 office space occupied, rather than actual use.

3.4 How could the management accounting system be changed?

Based on the high level analysis, it was identified that the key opportunities for changing the management accounting system relate to improving the availability of information on the costs and quantities associated with AMP's main environmental impacts. This would allow AMP to identify potential opportunities for cost savings and environmental impact improvements. This is done by trying to draw this information from the accounting system and subsequently allocating costs to cost centres.

The key changes that would ideally be made, and how these were trialled in practice are described below. The study considered the staff time required, the possibility of trialling options within the project timeframe, the required involvement of building managers, vendors or contractors, and the potential for cost savings in selecting options for trial.

The impact of these options, if implemented, on the way environmental costs are treated in the management accounting system is shown in figure 3.

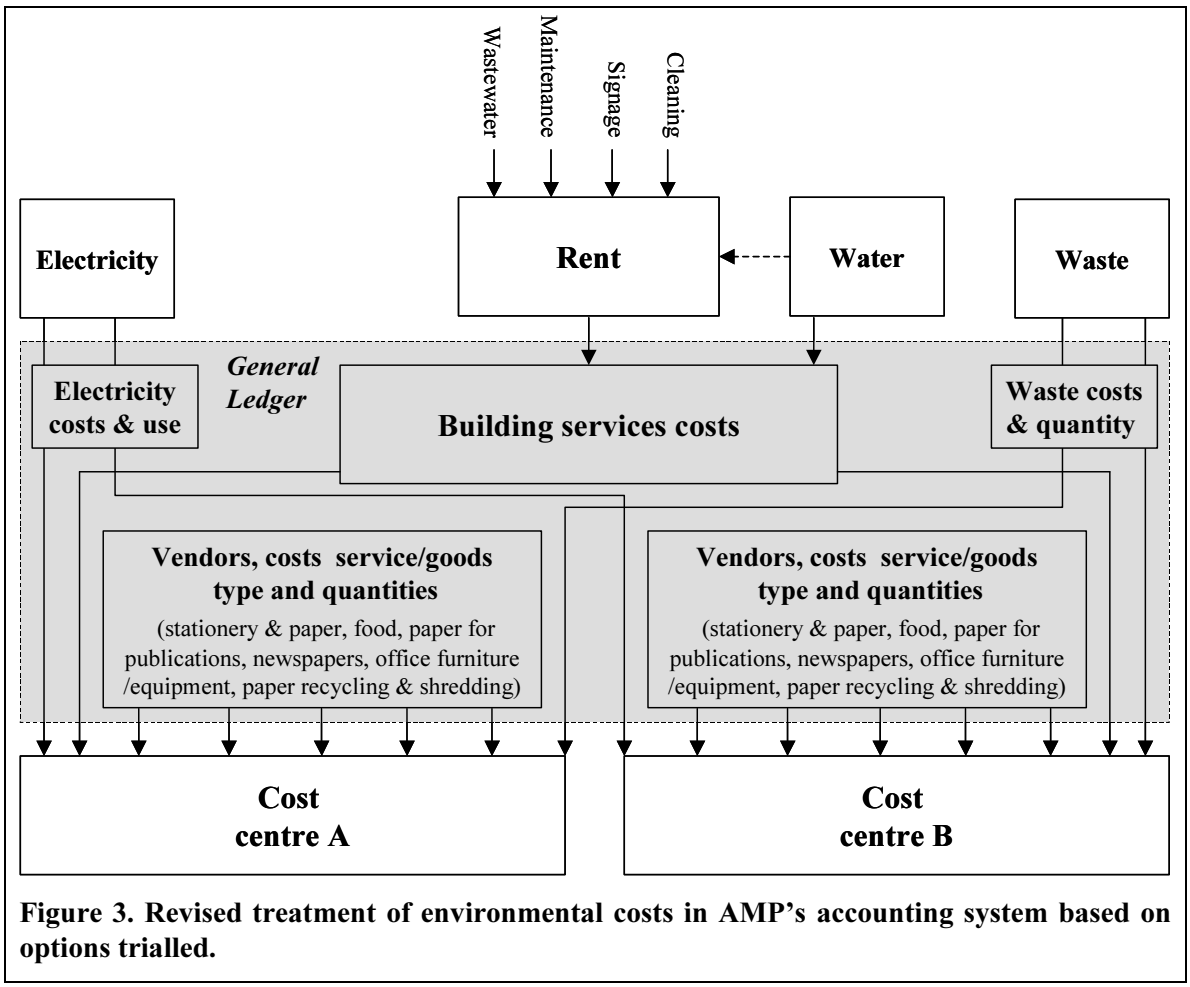


Figure 3. Revised treatment of environmental costs in AMP's accounting system based on options trialled.

3.4.1 Additional field in the accounting system for types of goods and services

An additional field could be added in the accounting system coding for the types of goods and services provided by the vendor or using a unique identifier. This would enable the classification of goods and services provided with more detail and group costs associated with environmental inputs and outputs.

The feasibility of this option was assessed by conducting a vendor review, which involved:

- An analysis of the accounts payable system to identify vendors used for environmental inputs and outputs.
- A consolidation of this data was performed to determine the total amounts paid over the period to the identified vendors.

It was possible to identify costs through the accounts payable system for all environmental impacts identified in Table 1, except for wastewater and waste collection and disposal. The cost for the latter, and in some instances for water and electricity are paid for by the building manager and included in the rent.

3.4.2 Additional field in the accounting system for quantities of goods and services

Similarly, an additional field could be included in the accounting system coding for quantitative information in relation to goods and services with environmental impacts. This information can be used to supplement cost information, and is particularly useful where costs for items do not directly correlate with quantities used or are different between buildings. For example, different electricity rates can apply to different buildings or vary over a 24-hour period between day and night.

The change would enable AMP to monitor quantities of resources used and waste and wastewater generated and make comparisons between buildings, divisions and cost centres. This in turn would enable AMP to identify where the greatest opportunities for cost and environmental savings lie.

Due to the purchasing power of AMP, it is highly likely that vendors will be willing to break down invoices into a format requested by AMP. For this study invoices, invoice processing systems and contracts were reviewed in relation to stationery and paper purchases to determine what quantitative information could be incorporated in the accounting system. Stationery and paper were selected for this trial because these items represent the highest environmental cost for AMP and because AMP has one preferred supplier with a separate ordering and billing system.

3.4.3 Identifying environmental inputs and outputs separately from the rent in the accounting system

In many cases costs for waste collection and disposal, wastewater, and sometimes water and electricity are included in the rent paid for buildings. For example, waste collection is generally included in cleaning contracts that are managed by the building manager. All of the costs included with the building rent are charged to the cost centres through the SOSC system.

Ideally, these costs should be charged separately from the rent, so that AMP can track costs and quantities for these items as suggested in 3.4.1 and 3.4.2. Because these costs are included in the rent AMP currently cannot actively manage these costs, especially waste costs, and determine the potential for waste reduction or recycling.

Because waste costs are currently included in the rent and often represent a large cost item for companies, whereas costs for water and wastewater are relatively low, waste was selected for this part of the trial.

A waste audit conducted for one of AMP's offices was reviewed to obtain an insight into the feasibility for AMP to request that building managers identify waste costs as a separate item in the rent. An additional waste audit was conducted for the building in which Services@AMP resides. This information was analysed to identify opportunities for potential cost savings associated with waste reduction and recycling.

3.4.4 Separating environmentally related costs from the SOSC

The single office service charge (SOSC) is the charging method for collective building service (including rent, electricity, water, maintenance, cleaning, signage, wastewater and waste) between AMP cost centres, which is based on the office space (m2) occupied in that building.

Ideally, cost centres should be charged based on their actual use of electricity, water, generation of wastewater, and collection and disposal of waste. This would allow cost centres to monitor these environmental impacts and stimulate improved environmental behaviour. In addition, AMP could compare different buildings and cost centres to identify if and where opportunities to reduce electricity costs and consumption may exist. This information would also be useful to AMP in the negotiation process when contracts are established or renewed for preferred electricity suppliers.

However, the SOSC system was introduced to minimise the time and administrative labour costs associated with charging individual cost centres for building associated costs. Consequently a change to the management accounting system to charge cost centres the actual costs for their office space is administratively burdensome and therefore not financially feasible.

As an alternative, electricity and water costs could be highlighted as a separate item in the SOSC when charged to cost centres, whilst these charges would still be based on the average costs per m2 for the building. This would still achieve the benefits outlined above at a building level (rather than at cost centre level).

This change to the accounting system was simulated for electricity by combining the information on floor space and electricity costs from the accounting system to calculate the electricity costs per m2 of office space for different buildings. Water was not included in the trial because of its relative low costs.

This electricity cost initiative was trialled in the case study with an extract of electricity costs being taken from the accounting system for seven large buildings in Sydney for which Services@AMP pays the electricity bills. In addition, electricity invoices for these buildings were reviewed to determine if pricing structures and rates were comparable, and the nature of quantitative information on electricity use provided by suppliers.

The timing of this trial is relevant as it coincides with the transfer to the outsourced invoice processing system and the rationalisation process for electricity suppliers mentioned previously.

3.4.5 Vendor rationalisation

A rationalisation of vendors would supplement the insertion of additional fields in the accounting system and the separation of electricity costs from the SOSC. A limited number of preferred vendors for different goods and services could further enhance the transparency of the accounting system and facilitate obtaining information on costs and quantities used.

AMP conducted a major vendor spend analysis exercise, which involved an analysis of payments over a 6-month period to identify the type of purchases and number of vendors involved. Goods and services were given priority based on the size of spend and available

opportunity. For major spend areas preferred suppliers were selected through a tender process based on staff needs, costs and service quality.

Electricity, water, paper recycling and shredding are included in a current review of building services to reduce the number of vendors in each state. In addition, the processing of invoices in relation to building services will be outsourced.

As part of this environmental case study, a similar review of vendors and payments was conducted for electricity, stationery and paper, paper recycling and shredding, newspapers, office equipment and food. Waste and wastewater were excluded, as these costs are generally included in the building rent.

The process involved an investigation of the vendor review already undertaken by AMP in relation to electricity, paper recycling and shredding, and stationery and paper.

3.5 Outcomes of trialled changes to the accounting system

The results of the trialled changes to the accounting system are described below. For commercial confidentiality reasons, results in most cases are expressed as percentages rather than absolute figures.

3.5.1 Additional field for the type of goods or services provided by the vendor

Vendors were identified in the accounting system for electricity, water, office stationery and paper, newspapers, office furniture and equipment, food/catering, publication and marketing materials, and paper recycling and shredding. Amounts paid for these goods and services were consolidated and compared.

Figure 4 illustrates the cost breakdown for those items identified as having an environmental impact, with the highest costs being for office stationery, paper and electricity. A further review of the approximately 1,250 stationery items purchased over a 5-month period showed paper and toner cartridges account for approximately one third of stationery costs.

Costs of office equipment, food/catering, and publication and marketing materials include a large service component, for example, the costs of producing a marketing brochure involves mainly labour. Investigating and reducing environmental costs and impacts associated with these services were therefore not included in this case study.

The study acknowledges the cost of these inputs and wastes are relatively low compared to many other costs incurred by AMP, for example, they are less than 2% of operating expenses.

This type of information could be automatically generated if the accounting system coding contained an additional field for the type of goods and services. It could assist AMP in identifying costs reduction opportunities but would also be used as input for a public environmental report, in particular if combined with information on quantities used.

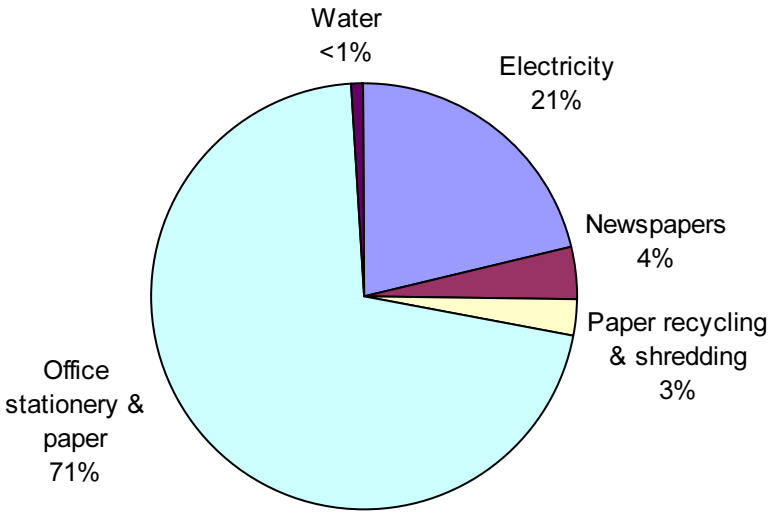


Figure 4. Relative costs for selected environmental inputs and outputs for AMP

3.5.2 Additional field in the accounting system for quantities of goods and services

The addition of a new field for quantities of goods and services provided was trialled for stationery and paper use by reviewing invoices, invoice processing systems and contracts.

The trial found that AMP has access to quantitative information in relation to stationery and paper that could be included in the accounting system in an additional field. This information is gathered through the online process for ordering and billing, which is summarised in the preferred vendor's monthly reports, and includes item numbers, description, quantities ordered, costs per unit and total costs.

This information would enable AMP to obtain a further breakdown of the office and stationery costs (and quantities) in figure 4. An analysis of the top 50 stationery items ordered by Services@AMP cost centres over a 5-month period, showed that

- A few items dominate stationery purchases as illustrated in figure 5.
- Stationery costs can vary due to irregular purchases such as staff incentives and other one off purchases. It is noted that paper comprises a smaller proportion of stationery costs for Services@AMP cost centres compared to other AMP cost centres because of irregular purchases.
- Costs per item vary significantly between items. For example, stickers cost a couple of cents and a ream of paper about five dollars. For this reason, quantitative information in addition to costs is required to determine potential environmental savings.

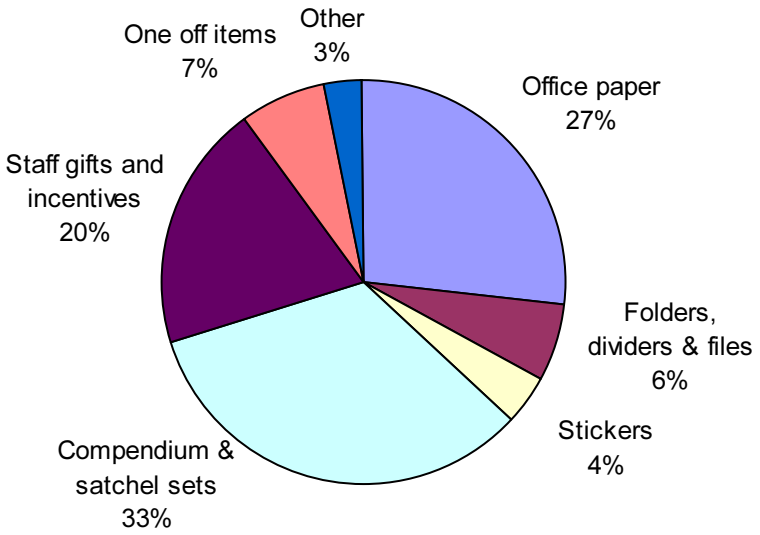


Figure 5. Breakdown of costs for the top 50 items ordered by AMP cost centres for a 6-month period

The current accounting and contract management process is directed towards minimising costs associated with stationery. However, additional opportunities to reduce costs and environmental impact may include:

- Establishment of a baseline for resource use and waste generation and monitor deviations against the baseline.
- Inclusion of environmental key performance indicators in the monthly management report (e.g. number of paper reams and toner cartridges ordered).
- Determination, communication and application of relevant environmental criteria in the compilation of the preferred items list (e.g. recycled material content of stationery items).
- Use of the vendor's monthly reports to compare stationery use between cost centres and locations and determine trends, to identify areas for potential reduction in costs and consumption.

None of these activities are currently undertaken, however an analysis of the contract suggests Services@AMP can take action to address these issues with little or no additional costs.

3.5.3 Identifying environmental inputs and outputs separately from the rent in the accounting system

The possible benefit from separation of costs for environmental inputs and outputs from the rent was trialled for waste by conducting a waste audit and reviewing an existing waste audit.

The waste audit conducted for the floors occupied by Services@AMP showed that (figure 6):

- General waste can be reduced by up to 80% in volume through recycling.
- Kitchen waste can be reduced by up to 65% in volume through recycling.

- Waste paper recycling is currently limited to office paper, and paper recycling bins were, based on volume, 48% contaminated with other recyclables and other waste, and less than 5% of office paper is used on a double-sided basis.

It was also noted that on one floor where desks were provided with individual recycling boxes, the general waste bins contained only 5% of A4 paper compared with the 30% average for all floors.

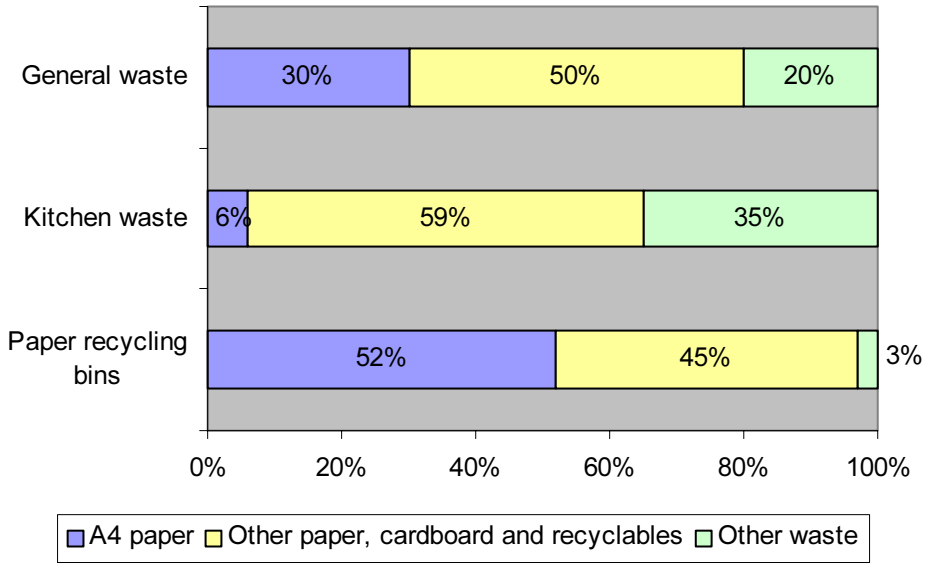


Figure 6. Composition of waste by volume for Services@AMP offices

An audit of waste and recycling streams at a one of AMP's main Sydney offices found:[2]

- A reduction potential of 33% for general waste, with potential savings of thousands of dollars. It should be noted that a co-mingled recycling system had been introduced in the surveyed office, which explains the lower reduction potential compared to the office occupied by Services@AMP.
- If tenants were to print or copy double-sided (e.g. by setting print option defaults to double-sided) or reuse single-sided paper, approximately $177,800 could be saved per year based on the current amount of single-sided paper disposed of in bins.

The above findings have potential for direct impact on the bottom line. A logical next step would be to investigate if waste costs can be highlighted separately in invoices from building managers. This would preferably be combined with the separation of waste costs from the SOSC and charging waste costs as a separate item to cost centres (this option is further explored for electricity in section 3.5.4). These options would encourage changes in behaviour in relation to recycling and waste reduction because cost reductions would be passed on to AMP and the cost centres rather than the building manager.

[2] Resource NSW, *Extract from Waste Audit Report*, 2002

An alternative option is to design a reporting system for building managers to collect information on waste collected and the cost of waste collection.

A review of tenancy contracts may then be undertaken, to determine if reductions in waste costs could result from reduced waste generation and improved recycling. This information could be included in the system as part of outsourced processing of invoices for building services.

3.5.4 Separating environmentally related costs from the SOSC

The separation of environmentally related costs from the SOSC at a building level was trialled for electricity.

Based on the extracts from the accounting system, the highest electricity costs (including all charges) per m2 was five times that of the lowest costs per m2 and almost twice as high as the average costs per m2.

These findings suggest if the average were to be taken as a benchmark, the electricity bill could be reduced by up to 50% for certain buildings via a combination of vendor rationalisation, contract negotiations and/or energy reduction options. It should be noted the age of the building and/or equipment used also impact on the usage and would need to be considered in a further review.

The study's analysis of a sample of electricity invoices further supports these findings. The price structure and rates vary between suppliers and off-peak, shoulder and peak rates for electricity use are often applied. As a result of this complexity, analysis of costs alone is not enough to evaluate the reasons for trends in energy use, or the way offices are charged for electricity.

Therefore AMP may benefit from inserting quantities of energy used (in MWh and daily average use for the invoice period and for the year to date) as a new field in the accounts payable system for update into the system and further analysis and monitoring. Electricity retailers can also provide a wide range of information in their invoices in addition to total costs. These include:

- The breakdown of charges into energy, regulated, meter and distributor charges.
- Quantity of electricity used, unit price and total costs.
- Daily use, average daily use and comparison with the last bill, the same period last year or per two-month period for the past year.
- Greenhouse gas emitted to produce the energy used in kg CO2.
- Regulated charges.

Although not all suppliers provide the same information, all invoices reviewed included the total quantity of energy used.

The nature of specific information required may be further evaluated as part of the transfer to outsourced processing of invoices for building services. An alternative option is to design a reporting system for suppliers to capture information on electricity usage. This option could

also be applied to water and to waste if waste were to be separated from cleaning costs and highlighted as a separate item under rent.

3.5.5 Vendor rationalisation

The analysis of vendors (table 2) illustrated the number of vendors for electricity, water, newspapers, and food were significant, as contracts are determined on an individual location or building basis.

Services@AMP has a preferred vendor for stationery and paper following the vendor rationalisation process. However, although use of this vendor is strongly encouraged it is not mandatory therefore cost centres still use other suppliers for smaller orders or specific products. An alternative system for stationery is a "pay-as-you-use" system for stationery and paper where the vendor manages the stock of the bulk of stationery and paper items (e.g. notepads, pens, post it notes) in a centralised locked cupboard in the office, and one-off items are ordered separately (e.g. staplers, scissors). This is combined with a recycling cupboard for surplus stationery items. Stationery use and costs are reduced because people will search for stationery items in the recycling cupboard and the office, prior to obtaining new items from the locked cupboard or ordering new items.

More than 25 vendors are currently providing paper recycling and confidential shredding services to AMP. The main reason is paper recycling and shredding were introduced by individual cost centres over several years, rather than across AMP at one point in time and were not included in the recent rationalisation.

An analysis of paper recycling and shredding services conducted on behalf of AMP in October 2001 found for the Sydney area, this service is covered by 94 agreements with varying rental and collection charges for almost 500 bins. This represents a significant opportunity for operational efficiency and cost reduction.

Table 2. Review of vendors for services provided by Services@AMP to AMP

Environmental input / output	Number of vendors (approximately)	Comments
Electricity	>10	Different vendors based on buildings
Stationery and paper	>100	More than 95% of costs were attributed to the top two vendors
Paper – publications / marketing	10	Preferred vendors for different locations and with different specialisations
Newspapers	100	Different vendors based on location
Food – cafeterias in main centres	1	One vendor per cafeteria
Food – kitchens/ catering/ functions	65	Different vendors based on buildings and cost centres
Office equipment	5	Preferred vendors covering copiers, printers, computers, fax machines
Paper recycling and shredding	25	Different vendors based on location, with contracts held by cost centres

Based on the results, the study found that reducing the number of vendors, would provide a better insight into costs and cost reduction opportunities and lead to a number of possible benefits:

- *Reduced prices.* The vendor rationalisation process has resulted in price reductions of between 5 - 50%. This has been achieved by taking advantage of AMP's bulk purchasing power. In the specific example highlighted reducing the number of vendors for paper recycling and shredding would also make it easier for AMP to identify where the number of bins or collection frequency can be reduced, which could also result in cost savings.
- *Reduced labour costs in accounts payable*. A 10-15% cost reduction was achieved through the reduction of vendor numbers, as fewer resources are required in the process.
- *Improved environmental performance*. The largest impact from the vendor rationalisation process is the reduced number of vendors used by AMP, which makes it more practical to monitor, for example, trends in energy and stationery costs and use, and identify where the biggest costs and environmental reduction opportunities can be achieved. Without the vendor rationalisation carrying out the trial to identify environmental costs would have been more time consuming. Another direct environmental benefit from the vendor rationalisation process is the reduced paper use (due to a reduction in contract management, order forms and invoice processing).
- *Improved contract management*. For instance, in order to better manage paper recycling and shredding expenses and ensure AMP is getting value for money, the number of agreements is being reduced. Bins are also being given an ID number to be registered against its location allowing easier verification of vendor invoices.
- *Reduced risk of fraud*. Fewer vendors and an expense classification field in the Accounts Payable system will increase visibility into the nature of payments made. This subsequently reduces the risk of incorrect invoicing and fraudulent claims.

Greater benefits would be achieved if further vendor rationalisation were combined with adding an additional field in the accounts payable system describing the type or category of the goods or services provided by the vendor. This should be considered in light of the planned outsourcing of invoices processing for building services.

The costs and benefits of changing the system to include a greater degree of classification require further evaluation. Costs would include greater processing time and data storage requirement.

AMP could also consider a supplier's environmental policy when selecting new suppliers.

4 Evaluation

Other companies may wish to use the results of this case study to initiate a similar process within their organisation. Below are the key findings of this case study in relation to skills required, transferability of Services@AMP's experience to other organisations, and barriers and incentives for environmental management accounting.

4.1 Transferability

This case study of Services@AMP was selected to determine the potential for environmental accounting in companies operating largely within an office environment. It is one of four case studies undertaken on behalf of the ICAA. An important element of the broader study was to assess whether results could be transferred to other companies with similar products and services.

Unlike many industrial sectors, (such as manufacturing, mining, and forestry companies), companies operating within an office environment use the same type of resources and generate similar types of environmental outputs. In addition, most office-based companies are located in urban areas, use the same suppliers and have similar access to facilities such as catering, waste collection and recycling, and IT. For this reason we expect that this case study could be widely applied to similar service-focussed companies such as AMP. The sectors to which the case study is clearly transferable include financial institutions, professional service firms and government departments.

Whether a focus on environmental accounting will deliver the same benefits to other companies as it may to AMP will also depend on the size and the actions companies have already taken to reduce their costs of resources and waste.

Service-based companies with large offices share the same disincentive that costs for resources and waste are relatively low when compared to other costs, such as labour, IT and tenancies.

4.2 Skills required

We found that for environmental accounting to be successfully applied in an organisation, the following skills are needed as a minimum:

- *Accounting skills* - to provide an insight into the current management accounting system, to assess if proposed changes are feasible within the existing accounting processes and systems, and to analyse environmental costs in relation to other business costs.
- *Environmental skills* - to assist in understanding where and why a business incurs environmental costs and where reduction opportunities lie. An environmental specialist is particularly necessary if environmental accounting is undertaken as part of a broader environmental project or program (aimed at, for example, improving environmental performance, supporting the environmental management system or preparing a public environmental report).
- *IT skills* - due to the increasing use of software in accounting and payment processing systems, an IT specialist is required to assess if complementary information can be gathered, analysed and linked with the required level of accuracy. Adjustments to the

Accounts Payable system (eg. field modifications) also require appropriately skilled IT professionals.

In addition, for a large organisation it is important that key stakeholders with a thorough understanding of the business processes and the broader organisation, participate in any such project.

4.3 Barriers and incentives

The following barriers for environmental management accounting and solutions were found during this case study:

- *Staff time* - due to high labour costs, staff time is probably the biggest barrier in conducting a review of environmental costs. This is accentuated, as financial benefits are not always visible and achievable in the short term. In order to overcome this, a cost benefit analysis should be undertaken for recommendations raised in this report.
- *Limited control and influence* - Companies that operate in an office environment are often not directly in control of environmental goods and services consumed. This case study illustrated that many services, such as cleaning, waste collection, and sometimes electricity, are provided through the building manager. In addition, as companies increasingly outsource services that do not form part of their core business (such as building management), their potential to influence costs and the associated environmental impact is significantly reduced.

  This study recommends appropriate clauses need to be considered and inserted in outsourced vendor contracts to enable the company to have access to environmental costs and performance data.
- *Hidden environmental costs* - environmental costs are one of the many costs incurred by businesses and are often hidden in other costs, such as electricity costs included in a SOSC. For this reason, reducing environmental costs is likely to be most successful when environmental costs are evaluated as part of a broader cost analysis or change in business processes or systems.

  For example, AMP's vendor rationalisation process will cover all vendors, including those providing environmental goods and services. Although this is the case, environmental impacts was not a specific criterion assessed in this process. Rather than conducting a secondary project that is solely focused on environmental accounting, perhaps more would be achieved if environment impacts were to be included as a criterion to consider in company-wide projects.
- *Environmental costs are relatively low* - although environmental costs can be high, for a company focussed on service provision within an office environment, these costs are relatively low compared to other costs, in particular labour, IT and tenancy costs. This makes it more difficult to build a business case for environmental accounting for financial reasons alone. Other company drivers and benefits, such as reputation, management or legal compliance in relation to the company's environmental performance, and enhanced company culture and employee morale can assist in building the business case for environmental accounting.
- *Ability to leverage* – More time was required to conduct this case study because AMP's environmental policy and management systems are evolving. For AMP, environmental

accounting can therefore serve as a good starting point to enhance a company's environmental performance through the identification of "green office" options to reduce resources and wastes, and through the gathering of quantitative data for a green office program, environmental management system or a public environmental report. For other companies, environmental accounting could be a natural extension of existing environmental initiatives.