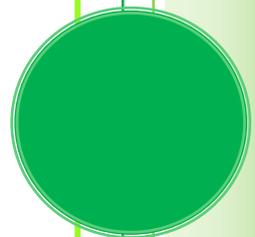


Rethinking Office-based Commercial Waste Recycling from Employees' Perspective in the Australian Capital Territory (ACT)

A report drafted for Conservation Council, ACT Region

Presented by Zhiyan Liu

Australian National University



Executive Summary

This study explores the factors influencing employee recycling behaviour in the commercial office by conducting a semi-structured exploratory interview with 14 employees from different businesses in two targeted commercial office buildings in the Australian Capital Territory (ACT). The structured interview questions are based on literature review to deeply understand how employees' recycling behaviour is influenced by both internal factors ("Personal attitude", "Office facilities accessibility", "Organizational leadership, policy, and culture", and "Financial motivation") and external factors ("Motivation from building management company", "Appropriate service and facilities", and "Knowledge and information provided"), and follow-up unstructured questions were raised to understand the interviewees' response. Among these factors, one external factor—"The way cleaners collect waste" has also been discovered in this study to have an effect on employees' recycling motivation, which was seldom discussed in previous research.

The building management company is identified to play the most important role in better waste management practice in the office. The most effective way to address the current situation should start from them. However, the target of general waste reduction by increasing recycling behaviour cannot be achieved only depending on enforcement of better waste management practice by the building management company or a single policy. To better improve recycling, some practical and actionable recommendations have been provided to organizations, building management company, Actsmart, the ACT Government, and the Conservation Council (ACT Region).

Table of Contents

1. Introduction	5
1.1 Organization Background	5
1.2 Research Purpose and Objectives	6
2. Literature review	6
2.1 Existing Situation of General Solid Office Waste in the ACT	6
2.2 Waste Management Actions in the ACT	8
2.3 Factors of Recycling Behaviour in Office Place	8
3. Research Methods.....	10
3.1 Data Collection	10
3.2 Methods	11
3.3 Data Analysis	11
4. Recommendations	26
5. Limitations.....	31
6. Future Project Direction.....	31
7. Conclusion	32
8. Internship Experience	33
Reference List.....	34
Appendix	36
Appendix A: Questions for interview.....	36
Appendix B: Sample analysis	37

Table of Diagrams and Photos

Diagram 1: Typical Office Waste Streams.....	7
Diagram 2: The Size of the sample companies	12
Diagram 3: Samples' Length of Time Exiting in the ACT.....	13
Photo I: One single general waste bin	14
Photo II: Separated bins	15
Photo III: Separated skipped-bins of Building A	22
Photo IV: Separated skipped-bins of Building B	22

1. Introduction

Waste generation has been a serious problem for many cities due to the population and economy growth, and this situation also exists in the Australian Capital Territory (ACT) with average growth of waste generation of 5% every year (Department, 2011). To more effectively reduce waste generation, the ACT Government has published a Waste Management Strategy 2011-2025 (2011) to achieve four outcomes: Less waste generated; Full resource recovery; A clean environment; and Carbon neutral waste sector. To achieve these outcomes, the Commercial and Industry (C&I) Waste sector has been targeted to encourage businesses in the ACT to reduce general waste and increase recycling. Therefore, a “Business Recycling Program”, run by Actsmart within the ACT Environment and Planning Directorate, has been established to provide businesses with support and information. This program facilitates businesses’ recycling behaviors by a step-by-step guide, handing out waste distribution tips and stickers, and conducting annual waste management checks. However, to encourage businesses to actively and voluntarily better manage their waste, there is a need for the ACT Government to better understand business needs, and explore the potential barriers to recycling at the workplace.

1.1 Organization Background

This research is presented for the Conservation Council (ACT Region), a non-government, non-profit organization, it is the leader of environmental groups in ACT and aims to achieve at a better environment through advocacy, campaigning and community engagement. The analysis of this research and recommendation will be applied to Conservation Council (ACT Region)’s future work to engage with businesses and the ACT Government.

1.2 Research Purpose and Objectives

This research aims to explore the potential internal and external barriers to recycling behaviors in commercial office from the employees' perspective. Furthermore, the aim is to also provide an in-depth understanding of the business sector; offer office-based building management companies strategies for potential improvement in waste management; and provide the ACT Government with solutions to effectively encourage businesses' recycling.

2. Literature review

Published documents from the ACT Government and previous literature are discussed to generate a general picture of current waste management in the ACT.

2.1 Existing Situation of General Solid Office Waste in the ACT

General Commercial and Industrial Waste (C&I), is defined as “the solid component of the waste stream arising from commercial, industrial, government, public or domestic premises (not collected as Municipal Solid Waste), but does not contain Listed Waste, Hazardous Waste or Radioactive Waste” (Authority, 2009). General office waste is a small component of C&I waste and consists of 55% paper waste, 25% general waste, 10% cardboard, 5% drink containers, and 5% reusable stationery items (see **Diagram 1**) (Remondis, 2008).

Diagram 1: Typical Office Waste Streams (Remondis, 2008)

Typical office waste streams



From 2009 to 2010, the amount of C&I waste generated in ACT was 103,000 tonnes, which was half of the total ACT waste during this period (Development, 2011). Only 53% of this waste was recovered and recycled, while 80% of household waste was collected and recycled (Inovact, 2010).

Office waste (including waste generated from financial, insurance, administration and consulting support), although a small sector under C&I waste (occupied 2% of C&I waste), generated 124,700 tonnes/year across Australia, with only 57% recycled. This recycling rate is relatively low when compared with the ratio in manufacturing sector (62%) and transport portal and warehousing sector (86%) across Australia, which demonstrates that there is still room for the office sector to improve waste management performance across the country (Encycle Consulting Pty Ltd & Sustainable Resource Use Pty Ltd, 2013). In ACT, the recycling rate in office sector shows better performance with 11% higher than most industries (55% on average) but lower than the ratio in the landscaping and contractor sector (79%). However, this good performance should be considered in light of data from the Australian Bureau of Statistics (2016) that shows there has been a high increase in the rate

of start-ups in the office sector business from 2011 to 2015 (1.9% in financial and insurance; 0.7% in administration and consulting support), which indicates that the ACT Government would be facing the challenges of encouraging new office businesses to recycle and maintaining ACT's good performance in recycling across Australia.

2.2 Waste Management Actions in the ACT

In 1996, the launch of "Waste Management Strategy for Canberra" led to the ACT Government becoming a leader targeting "No waste going to landfill" driven by a strong desire to achieve a waste-free-society in Canberra. This strategy was later replaced by "ACT Waste Management Strategy 2011–2025", which sets the directions for waste management in the short-term future with four objectives and twenty-nine strategies. To achieve "Reduce, Reuse, Recycle", the government also set up special programs and studies, including the Actsmart Program, ACT Waste Feasibility Study, Green Bin pilot program, and participated in the Australian Packaging Covenant. Among all these programs, only a sub-program called "Business Recycling Program" under Actsmart targets the business sector by providing support for waste reduction, reusing, and recycling. However, limited information about the performance of this office-based commercial waste management program was available.

2.3 Factors of Recycling Behaviour in Office Place

According to the previous research, the factors which influence businesses' recycling behaviour are mostly separated into internal and external aspects.

Internal individual and organizational factors

Individual's attitude: Oke (2015) suggests that attitude has been recognized as the most significant factor in workplace recycling behaviour from all the

previous researches.

Employees' past behaviour: Lee et al.(1995), Marans and Lee (1993) confirmed that employees' recycling behaviours in their workplace are actually influenced by their behaviour at home, as people recycling at home are more likely to keep recycling in office (Price, S. & Pitt, M., 2012).

Organizational culture: Lee et al. (1995) suggest that both organizational and individual's environmental commitment are highly related to office workers' recycling behaviour. In addition, organizational commitment and policy can directly modify the individual's recycling behaviour at workplaces. Also, supervisory support has a positive influence on recycling innovation and employees' willingness to perform better in recycling (Ramus, C.A. & Steger,U., 2000). Andersson et al (2005) agree and further suggest that organizational policy and environmental commitment are part of organizational culture.

Financial motivation: In the Oskamp et al. (1994) survey conducted in 92 companies in Los Angeles, 77% of their sample implementing paper recycling receive payment or discounts, which was proposed as one of the reasons to recycle at workplaces. However, Oke (2015) demonstrates that financial rewards fail to continually motivate recycling behaviour in the office. Furthermore, some organizations (30%) in the ACT even worried about whether the cost of implementing recycling program might outweigh the benefits and reduce their incentive to recycle (Inovact, 2010).

Accessible facilities: There are a number of scholars who have identified that the convenience of facilities in office has a significant positive influence on employees' recycling behaviour (Humphrey et al., 1977; Brothers et al., 1994; Lo et al., 2012). To further explore, Price and Pitt (2012) identified that the "Distance of facilities" and "Not clear what bins to use" are the two main factors

to create facilities inconvenience for recycling in office.

Other external factors

Motivation from building management company: Oskamp et al. (1994) have found that some companies who have the recycling program were motivated by complying with building management's enforcement. Recycling program implementation could also be effective in improving the sustainability of the whole building (Pivo, 2010).

Appropriate service and facilities: In a study, 49% of businesses reported that the service provided for waste recycling is still absent, which includes no service or no one dedicated to do this job. For appropriate facilities, the insufficient room for waste, the variety of bins, and the access to bins are listed as the second barriers for workplace recycling (Inovact, 2010).

Knowledge and information provided: According to the research conducted by Inovact Consulting Pty Ltd (2010), even though 53% of 400 businesses in the survey actively and successfully found recycling information from the ACT Government Webpage and the Yellow Pages, there is still 27% of businesses unable to recycle as they wanted to, and 8% could not find any information, which has been defined as one of the major barriers in recycling.

3. Research Methods

3.1 Data Collection

To identify the specific factors influencing businesses' recycling behaviours, data were collected from two targeted typical office-based buildings in the CBD of the ACT, which include service companies such as financial consulting, employment consulting, data management, and accounting. Both buildings are long established for 30-35 years, managed by the same property company,

and provided with the same cleaning service.

Building A has 22 tenants, but only 19 tenants are classified as commercial office-based companies for this research. Among these 19 potential participants, 11 companies have engaged in the research. Building B has 13 tenants, and 3 companies have participated in the research. Therefore, the total sample is 14, with a response rate of approximately 43.8%.

Emails, phone calls, physical invitation letters and personal visits by the researcher were used at the initial sampling stage. One employee in each company who understands the waste management practice but not in the leadership position took part in the research. Among these 14 organizations, only 1 company sent out 2 employees to conduct the research together.

3.2 Methods

Semi-structured face-to-face exploratory interviews were used to understand the potential internal and external barriers to employees' recycling behaviour in office. Further existing waste management practices in the organization were observed by site visit. All interviewees were required to read the "Participant Information Sheet" and raise any question before being asked to sign the "Consent Form". During the interview, several semi-structured questions were asked (See [Appendix A](#)). After the interview, the interviewees were asked to take the investigator to see the facilities' allocations in the office for photos or notes taken.

3.3 Data Analysis

Among the 14 samples from 14 companies located in the two targeted buildings, 46% of these companies have less than 10 staff, and 50% of them have established their office in the ACT less than 10 years (See [Diagram 2](#),

Diagram 3 and **Appendix B**). All interviewees were asked the same semi-structured interview questions in **Appendix A**. Interview transcripts will be analysed to identify the factors influencing employees' recycling behaviour. These factors are classified into internal factors ("Personal attitude", "Office facilities accessibility", "Organizational leadership, policy, and culture", "Financial motivation") and external factors ("Motivation from building management company", "Appropriate service and facilities", and "Knowledge and information provided"), as identified in the literature. However, the way cleaners collect waste has also been identified as an external factor in this study, which has been seldomly mentioned in previous research.

Diagram 2: The Size of the sample companies

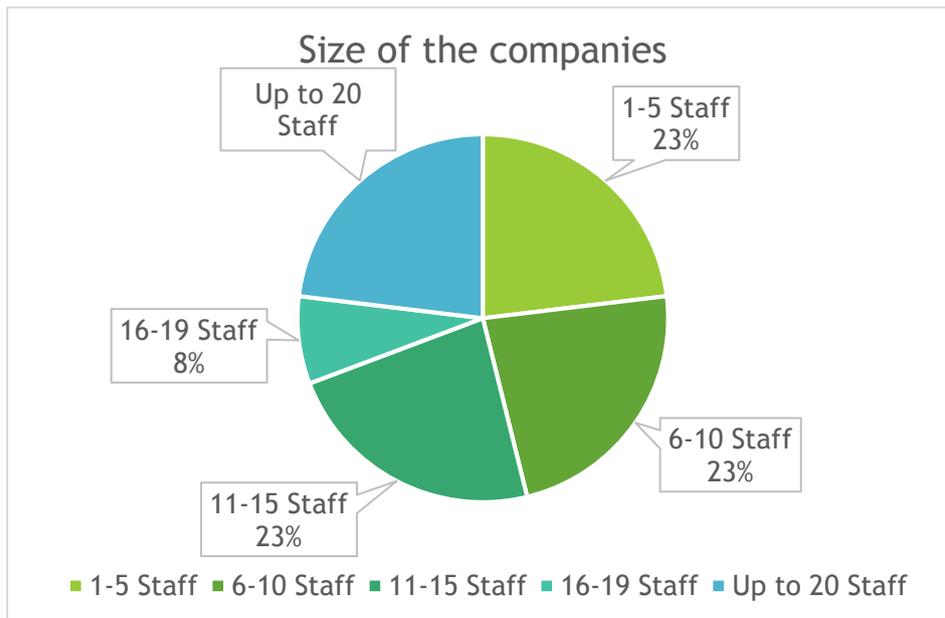
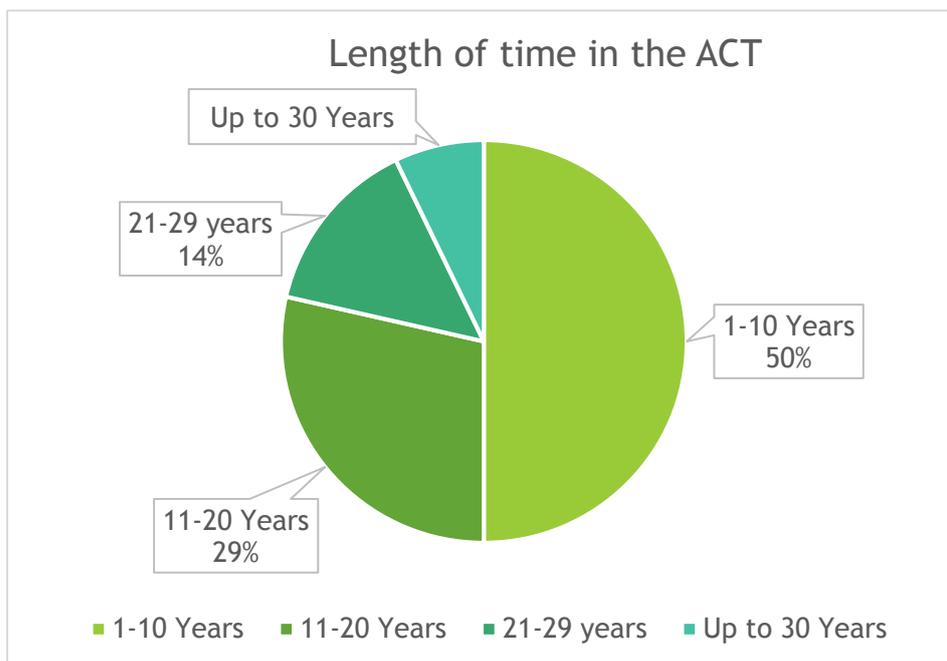


Diagram 3: Length of Time Existing in the ACT



Types of Waste Streams

Interviewees are firstly required to name the types of normal waste generated in office. Interestingly, “Paper” is the top waste that all the interviewees can think of, followed by plastic containers and bottles, food waste, general waste, cardboards, packaging, and printing cartridges. Seldom interviewees mentioned stationaries, aluminium cans, and batteries, as these appear to be regarded as an unusual items or do not appear in the office place.

Internal Factors

Personal Attitude

When the interviewees were asked “How do you deal with your waste in your area and why do you do that”, they generally described their individual bins under their desks and their personal habits to deal with their waste. Some interviewees do not pay attention to recycling on their seats, because their company only sent out one general bin for each employee under their desks (See **Photo 1**). However, the rest of interviewees separate different types of waste and do recycle on their seats, as their companies set up two separated bins for them, one for general waste, and the other for paper or secured

documents to recycle (See **Photo 2**). To find out how personal attitude differs from employees who recycle and who do not recycle, a relevant question was raised afterward. 64.3% of interviewees clearly identified themselves as a “green person”, and they suggested that they always try to encourage others to recycle. However, they admitted that they would not push people to do that because they can understand why some people do not recycle, and they also need to consider their relationship with colleagues. Some interviewees said: “I don’t press the matter, I say once, they know I am green, and they tried. I haven’t made the big effort to encourage people.”; “I tried to encourage, but I don’t push it. Because they are colleagues, and they are busy as well, so I don’t put necessary pressure to change their habits.” When interviewees were asked the reason why some people in their companies do not recycle, “Lazy” was mentioned for 4 times; “Do not care” was mentioned for 3 times; “Do not have time” was mentioned for 2 times; “Do not have information” was mentioned for 1 time; “Demographic difference” was mentioned for 1 time; and “Not my priority” was mentioned for 1 time.

Photo 1: One single general waste bin

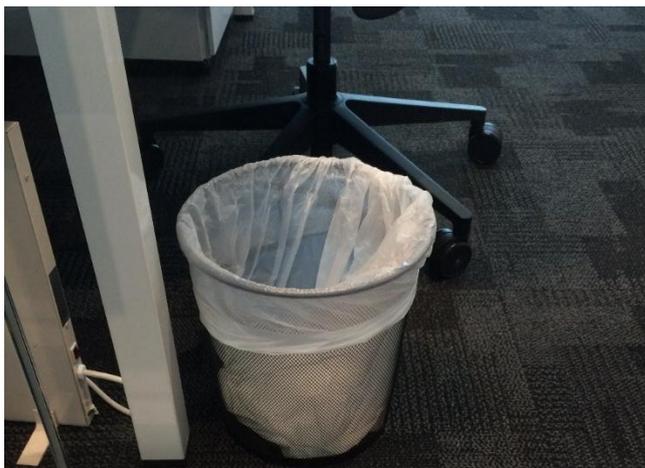


Photo 2: Separated bins (Left for general, right for paper)



Office Facilities accessibility

Apart from the individual waste bin, most companies put several bigger recycling bins for unsorted recycling waste from general waste and to dispose of secured document in a locked bin in a common working area. In terms of the kitchen area, even though most companies have both recycling bin and general waste bin, no company has been found that provide a specific bin for food waste, so all of the interviewees put general waste and food waste together in their kitchen. The volume of food waste generation depends on the nature of the companies. For companies whose employees are often out of the office visiting clients, interviewees generally think that they do not generate much food waste; therefore, it is unnecessary for their company to have a specific food waste bin in the kitchen.

Organizational Leadership, Policy, and Culture

In the interview question “Do you know how your company handles waste management?”, interviewees were asked to explain why their companies manage waste in this way, and discuss how this waste management method influences employees.

Generally, for companies which provide separated bins to each employee and make it convenient to access, their employees are more voluntary and willing

to recycle waste. In these companies, stickers of different types of bins can be easily found in the common area, which could be one of the reasons that employees are more careful putting waste into the correct bins. Among these companies with accessible waste facilities, some have a policy of "where to put what and how to dispose of things correctly", and some recycling habits were introduced by their leaders. An interviewee described that "If the leadership is setting a high standard, if they are green leaders, if they ask a certain thing: they asked for our all reports in an electronic format. It makes everyone sort of green". Another interviewee introduced their waste policy raised by a previous leader, "She was very pro-active in trying to make this office better environment for all of us, and people just followed it. She is a very good leader and very persuasive, outgoing, talkative".

Some of the employees in the organization recycling waste to fit the company's value, and some also have a management team or a 'Green champion' to be responsible for that. Experience and suggestions introduced by the participants, the "Green Champion" has to be someone who is pro-active and passionate about recycling, being popular among colleagues, being extravert and talkative, and knowing how to use a proper way to persuade others. It will be better if this person has been trained to use a positive tone instead of a judging attitude when they talk to others, such as using "Let's" and "Why don't we try " instead of "You should/should not"; and providing a more practically based reason for why to print less and do recycle. Interestingly, "being popular among the colleagues" and "talk in a proper way" are considered as the most important attributes of this person, however, they also admitted that even though "Higher position" is not necessary, but someone in a higher position who is also a "Green Champion" will be more persuasive.

And for the rest of interviewees who have recycle habit in spite of their

companies have no specific policy, they suggested that their companies have an environmental friendly culture that most employees obey this habit. Mentioned in several interviews, the reason of employees have recycling habit in a company without any clear waste policy is because “some people better at following the others”; and “they don’t want to be the one to be ‘labelled’”.

Lastly, two participants explained the benefit of better waste management in an organization that “The employees have a certain amount of pride if your company is pretty green”; and “If you are pretty innovative, full of young people, selling environmental friendly, it will add to your image”.

Financial Motivation

Most interviewees suggest that their companies have a cleaning contract with the building management company, but some of them also have an individual contract with another waste management company for paper and secured document collection. Many of them know what the waste management service provided by the cleaners in the building as well as by their individual waste management company in their extra contract, but none of them know the expenditure of these services every month. And many of them mentioned that the cleaning contract with the leasing company has not been broken down into specific items. In another word, all the waste management and cleaning service provided by the building management company are all included in the cleaning contract with a temporary fixed price. Therefore, for companies who have signed the cleaning contract with the leasing company as well as an individual contract with another waste management company, they are less likely to care about the cost in the cleaning contract but more interested in their individual contract with another waste management company.

Furthermore, all interviewees think that the financial benefit of decreasing general waste cost by increasing recycling waste has limited influence on the

individual employees, but it will arouse management team's attention and provide some motivation for better recycling, if the waste management cost can be broken down into a specific number.

"The financial has to be an incentive to do it and that becomes a business priority. No one wants to lose money in business."

"Money talks, that might be one of the great incentives. Employees don't really care about the cost, unless the cost is being unfolded to the employer, and the employer will soon change the structure at the workplace."

"It is sort of management level will be conscious of that, maybe employees wouldn't care, because they are not really paying the bill. But if the office manager aware of how much savings they will make, then they could enforce it. It is better to break down the cost in explicit items in the leasing contract."

However, for companies (especially small offices) that do not have a cleaning contract with the building management company, they think there is no economic benefit for them to hire someone to do it, and they would not bother too much on waste management in their companies.

External Factors

Motivation from building management company

Since breaking down the cost of different services in the cleaning contract was generally regarded as providing a financial incentive to organizations to recycle, even though several participants think that the leasing company has been doing good enough because "I haven't seen a great problem, so I assume that they are doing everything they should do", other interviewees think the leasing company in these two buildings should be more responsible for their existing waste system to reduce the cost. These employees

understand that it is sometimes hard to manage the office building, but they also mentioned that the company who managing these two buildings have done limited improvement in waste management or related service.

“I have never seen them ask anything. They will give us notice about the problem of the waste, but they have never sort of said please put your waste in this way or that way”.

“If they were keen to talk about waste management, I suppose the trends or what the cleaners found. I am sure they can put forward if they got any data and know what’s happening, but today, I haven’t”.

And most interviewees mentioned that if there is any way to encourage people to do better in recycling, it is the building management to put forward this option instead of individual companies, because tenants are too passive to make a change.

“It will be more driven by the building, we kind of cannot do. If it came from the building management perhaps that will be a better rule rather than an individual office managing people.”

“If the building management people encourage them, it will have to be done by these people rather than the company. Because as tenants, we are quite passive, whereas, the building management people are the active owners and the management of the building.”

It is also suggested that if the building management company decided to implement a better waste management system, they should make a clear announcement with instructions instead of just encouragement.

“They can ask people to do stuff, just asking people to do recycle without saying how they are going to do that, there is no any difference to me. But if they say, we are going to put paper recycling bin and co-mingle recycling bin on each floor, then maybe we will do it. It is a lot easier.”

Appropriate service and facilities

For the waste management facilities in the two targeted buildings, the separated skip bins are located in the basement of each building (See **Photo 3** and **Photo 4**), one common-shared general bin is located in the shared-kitchen at each level, and the recycling bins are unequally located in different level's kitchen. As reported by the interviewees, the recycling bins located in their organizations are assigned by their companies instead of the building management. Some small companies blamed their non-recycling habits on the lack of recycling bins provided in the buildings.

“That paper recycling bin came with us from our previous office. So I actually don't think the building manager encourages us to have that.”

“They take care of the bins, but they are not implementing the strategies of disposal.”

“If the option is there, I will have no issue with waste. If the building management came up with the plan to do the recycling, I am a hundred percent no issue.”

“If they recycled, then everybody in this office will be very careful to not put recycling in the general waste but separate bins, and it is an issue that often being discussed in the office. But that is the problem.”

On the one hand, business tenants in these two buildings require recycling bins provided by the building management company, on the other hand, they do not think it is necessary to allocate more general waste bins on each floor and in the lobby, as many of them suggested that they have no trouble to access a general waste bin, because their office have bins and they only spend time in office.

The building management company who is responsible for the two targeted buildings in this research have mentioned that they are trying to upgrade both buildings in NABERS (National Australian Built Environment Rating System) rating, since they have upgraded the energy facilities in these buildings. However, they have not considered waste management improvement. One reason is the long history and original designs of these buildings, both of these buildings' entrance height are too low for the trucks to come in and collect different wastes, which causes inconvenience for cleaners to take all the skip bins out when being collected. Also, the loading zone in Building B with 13 tenants has a small basement for only four skipped bins settled in there, which makes it hard to recycle as much as they want or put different recycling bins. As the building manager mentioned in a previous conversation, their company is going to change their waste collection contract to another waste company, which could help them save \$10,000 to \$15,000 per year, but they have not actively asked their tenants to do better recycling, even though their company supports recycling and even pays for a green bin collection (for kitchen and food waste) which could not be found in the building. What's more, green bin is mostly regarded as unnecessary in the office. One reason is residents in Canberra have not been provided any green waste bin, therefore, some people do not see it is necessary to have one in their office. The other reason is the knowledge gap between businesses, most employees worry that having a green waste bin would lead to odour and flies in the office, especially in summer.

In terms of the service provided by their external waste management companies, as the tenants in these two buildings signed up the individual contract for paper and security document collection, they do not think it is necessary to have a third party to guide them on how to handle paper in a

proper way.

Photo 3: Separated skipped-bins of Building A



Photo 4: Separated skipped-bins of Building B



Knowledge and information provided

Waste management knowledge or information is not often provided by the participated companies. Some interviewees mentioned that waste management training has never happened in their companies, neither being raised in new employees' training nor in their routine organizational meetings. "It has never always been a topic of discussion because people just know what to do." And if there was a training held in an organization, it is suggested should be provided to the new employees by the Human Resources (HR) Department, "People come and go, HR department needs to continuously

teach them about that, and they should be responsible for training new employees about how to use the different bins, and how to keep confidential documents”.

Besides, Actsmart is a program established by the ACT Government for providing supports to schools, businesses, and communities. And a sub-program called “Business Recycling Program”, which encourages all the businesses in the ACT to be a recycler, has been sending out best practice waste management information, stickers for different types of bins, etc. In the question “Have you heard about Actsmart Business Recycling Program in the ACT”, interestingly, 6 out of 14 participants have not heard about this program, 7 interviewees have heard about its energy efficiency instead of recycling program, and only one company has been participating in this program since 2013, which means in these 14 samples, only 1 company has the direct channel to receive information and knowledge about better waste management. The company who participated in the Actsmart recycling program commented that “We are putting our effort to the right things. I think it is good. It keeps us on track and makes sure what we are doing and what we can improve.” On the other hand, the 7 interviewees who have heard about Actsmart but have not participated, demonstrated that they only heard the “Tips for energy efficiency” from the advertising instead of the “Business recycling program”. When the interviewees were asked if they would consider joining this program after a brief introduction of it, several companies replied that they don’t see they are big enough to involve in that program, “We might participate, but the effect is minimum, because our office is so small”. Some interviewees said they would love to put forward to their leadership, but it is headquarters’ decision to participate, as their office cannot make this decision. And one interviewee mentioned that the company might not join, because their company has their own waste management program.

Further, since the building management company did not send out any sticker or related information to these business tenants, it caused some trouble for the employees to separate waste. Many interviewees said that separating most waste should be a common knowledge learned from schools and parents when they were a child and how people separate or recycle in office will be the same behaviours when they were at home. However, they feel confused about where some waste should go into which correct bin, and they have limited knowledge of some concepts, for instance, what sorts of waste can be put into a “Co-mingle” waste bin.

The way cleaners collect waste

During the research, it is surprised that one interviewee mentioned that their organization is considering moving to another office building, because they have seen the cleaners in this building put all the waste into a big general bag without separating them, even though this company has set up several different types of bins in their kitchen. “We do have separated bins in our kitchen, the problem is, we all know in this building, people who collected waste don’t actually recycle. All the waste is put into the same bin.” And this situation was also brought up by another interviewee from a different company, “I don’t think they are particularly always considering about the different bins. I have seen them sometimes throw things into the same bag”. To find out what influence of this factor will be on the interviewees, they were asked to describe how they felt about this when they saw it. One interviewee described that “Because they are dealing with waste in that manner, we don’t have the motivation to put the rubbish into the correct bins, and that will be the same in every office in this building because of the building system. Because they just all put into one bin, so there is no recycling”, and another interviewee

explained that “I won’t say that is necessary to be the top of their priority list, but doesn’t mean they have done a good job at the same time.”

To further confirm this situation, other interviewees were asked to describe how they had witnessed a cleaner in this building normally collect their waste, and a cleaner was asked if they would separate waste when they collect it. These interviewees and the cleaner replied the contrary situation that cleaners collect waste in a proper way, but not every cleaner will collect recycle waste every day. To conclude, the existence of waste collecting depends on the individual cleaner who has been well trained or not, and employees’ motivation will be decreased when they see a cleaner collect waste in an inappropriate way, which is an important findings that have been seldomly mentioned in the previous researches.

4. Recommendations

Drawing conclusions from this research some recommendations are put forward.

For Organizations

Leadership in general organizations could consider encouraging recycling behaviours by making several actionable changes.

Firstly, set up simple waste management policies, such as reducing printing; setting up automatic back-to-back printing documents; having more environmental friendly paper; and changing physical paper form into electronic. Such policy could create an environmental friendly culture to arouse employees' awareness.

Secondly, set up enough separated bins and provide sufficient information in the office. Companies could consider assigning two separate bins under each employee's desk for convenience, and clear stickers or posters should also be provided in the common used area. Also, waste management training could be provided to new staff by HR Department. The ACT Government ACTSmart area can assist companies to establish these systems.

Last but not least, create an environmental friendly organizational culture by setting up a "Green Champion". Since "being popular among the colleagues" and "talk in a proper way" are regarded as the most important attributes of a "Green champion", organizations need to have an effective selection method, provide communication training to the "Green champion", and regularly check the progress of the waste management practice in the office.

For Building Management Company

To upgrade the existing waste management system in both buildings in this research the building manager needs to provide tenants with accessible facilities with corresponding cleaning service, sufficient information, and an announcement instead of just an encouragement.

Firstly, the building manager should provide tenants with more waste facilities. Different separated bins such as cans, plastics, and paper could be placed in the common-shared area with different stickers of what kinds of waste go into which bins. Also, since the ACT Government is encouraging businesses to have a green waste bin, the building management could consider setting up a shared-green waste bin in the kitchen on each floor.

Secondly, provide sufficient education. Building managers could actively educate the new tenants about how to properly deal with waste. Further, since the individual cleaner's cleaning habits have a negative influence on building management image and on tenants' motivation to recycling, it is their responsibility to provide proper training and performance evaluation for the cleaners. However, training for tenants is considered unnecessary or "waste of time" by interviewees in the research.

In order to better engage tenants in the recycling program, the building manager should send emails with instructions to each tenant, playing moving image of "make sure to recycle" on LED TV screens near the lifts, and provide enough stickers to tenants.

Most importantly, the building manager actually has the opportunity to become a “Price Leader” by reducing the leasing price and providing more efficient facilities. If waste management costs can be broken down into a specific number and shown to the tenants, it provides a financial incentive for tenants to actively reduce their costs by asking their employees to perform better in recycling while reducing general waste, which inversely decreases the building management’s cost in the leasing contract.

For Actsmart

Three issues for Actsmart have been identified: the misunderstanding gap in the majority of businesses; the difficulty of engaging with the Canberra office of bigger companies, and; need for better connection with property industry.

actsmart needs to actively approach businesses who have not engaged in the “Business Recycling Program” by handing out supportive information, posters and stickers to introduce their program. Also, advertising on radio during rush hours, playing advertising video on public transports, and sending out “Tips for recycle” could be helpful. What’s more, all the posters and stickers should be creative and updated frequently to attract attention and reinforce the message. Benefits such as the “accredited business recycler”, organizational reputation and image improvement, and attraction to young employees could be advertised to businesses. For companies who think that it may have a conflict with their own waste policy, Actsmart people might need to customize their program and provide further help to complete these companies’ waste policy.

Actsmart needs to consider how to communicate with businesses who are just a single office belonging to bigger companies. It is important to show these offices the benefits of the program, how this program could help with the whole company's image or reputation, and what financial benefit they could have if they join the program. Further, application could also be simplified during the whole communicating process. Actsmart could consider assisting these offices to communicate with their head office and demonstrate how simple is the whole process, and how different they can be after a small effort they take.

According to the information provided by Actsmart's website, advertising fliers, and annual report, they are trying to connect businesses, schools, and communities, nevertheless, they also need to find a connection to the property industry, because some businesses are facing the problem of not being provided with the correct facilities and service by the building management, even though they have their waste management system. Also, the research findings show that the participation of the building management will provide a bigger motivation for business tenants to change their behaviours.

For the ACT Government

Generally speaking, to achieve the four outcomes demonstrated in The Waste Management Strategy 2011-2025 (2011) published by the ACT Government, the government needs to narrow the gaps between school education, community supports, workplace regulation, and industry production. Innovative message repetitively enforcing in the whole society also helps to culture the environmental awareness in the whole society. Also, to better assist Actsmart, the government should consider resource sharing between departments and sub-programs, which could provide Actsmart a list of new businesses to approach.

Green waste (kitchen waste) bins in workplaces need more promoting by the ACT Government. Since the residents in Canberra have not been provided any green waste bin, the government needs to send out the message explaining why businesses need a green bin in their office. To advertise the green waste bin concept, the government also needs to promote the benefits of this bin, how this bin can be operated, and make sure no inconvenience will be caused.

For Conservation Council (ACT Region)

This research helps Conservation Council to better understand how employees think about their recycling behaviours in the workplace, what factors can influence their behaviours in real life, what effective solutions could be raised to address this issue, and what could be done in the future work. Since the Conservation Council has limited resources, it should start with taking effort to work with Actsmart. The Council could point out the issues that Actsmart people are currently facing and assist them to find out the most effective way by process adjustment and seeking supports from the ACT Government. After the Actsmart is able to solve the issues they are facing and bring out an effective and simple process, the Council can work with Actsmart to show this research and raise this topic to the ACT Waste Feasibility Study (including its Commercial Reference Group) and the Canberra Business Chamber for further suggestions. Trials in different businesses could also be proposed to test whether the solutions from Actsmart are effective or not. Finally, with the most effective solution and positive experiment results, the Conservation Council, Actsmart, the ACT Waste Feasibility Study Group, and the Canberra Business Chamber can work together to more broadly influence businesses in the ACT to undertake better waste management. Last but not least, any proposal for setting up related new policy or regulation in the ACT area can also be put

forward to the ACT Government by the Conservation Council to arouse the whole society's awareness to better achieve the targets in the strategy.

5. Limitations

The sample commercial office buildings in this research are above 30-years-old and located in the city area in the ACT, the situation in these buildings might be different from differently-aged office buildings and from businesses located in regional town centres. Therefore, data analysis and recommendations in this report might not be representative of the majority of businesses in the whole the ACT.

6. Future Project Direction

In this research, the defective original infrastructure designs for both two older commercial office buildings are factors influencing recycling behaviour. It is worth exploring whether infrastructure has been improved in newer commercial office buildings in the ACT and what planning and building requirements would assist better waste management. Also, a solution for better waste management systems in older commercial office buildings without renovation could be considered in a future project.

7. Conclusion

Several researches have been done to explore the factors influencing employees recycling behaviour in the office by quantitative data analysis, however, this research was conducted through in-depth interviews to help the ACT Government better understand the existing situation in the ACT commercial business sector, to point out potential barriers, and to develop some actionable recommendations to achieve the four targets in the “ACT Waste Management Strategy 2011-2025”.

From the findings of the research, even though the government has been taken lots of effort on public awareness culture and program assistance, there is still a knowledge gap among public, a communication gap between different departments in the ACT Government and with businesses, and a deficiency of continued environmental education among different levels in the society. This report provides different stakeholders with actionable recommendations to deal with the issues found in the research.

8. Internship Experience

This internship is such a valuable and meaningful adventure I had for the first time in my ANU learning experience. It is a great change for me from someone who was afraid of making mistakes and worried too much, to someone who is confident enough for myself that I am capable of any probability. Even though it was stressful and sometimes torturing during the process of the whole research conducted in a short time, I have acquired lots of skills and knowledge about communication, negotiation, conducting interview and research implement. And a positive attitude I have learned from this adventure makes me start to enjoy any difficulties I had in the past will become a fortune in my future.

Here, a great “Thank you” sending to my workplace supervisor Larry O’Loughlin and academic supervisor Gary Buttriss for providing help and information I need, and giving me support and understanding for all the troubles I had faced. What I have learned from Larry is more than what I have learned from the past work experience, and I am sure it will make a change for my future life. And all the research knowledge and skills I have learned from Gary certainly improved my personal ability and fulfilled my working experience, which will be valuable in my future career.

At last, I will need to appreciate all the interviewees who participated in this research. Thanks for spending time with me and helping me with this research during your busy working hours. The outcomes I have got from this research are beyond my expectation, and these should be all credited to your support.

Reference List

Andersson, L. et al., 2005. Enacting ecological sustainability in the MNC: A test of an adapted value-belief-norm. *Journal of Business Ethics*, Volume 59, p. 295-305.

Authority, E. P., 2009. *Waste guideline*, Adelaide: EPA.

Brothers, K. J. et al., 1994. Office paper recycling—A function of container proximity. *Journal of Applied Behavior Analysis*, Volume 27, p. 153-160.

Department, A. G. E. a. S. D., 2011. *ACT Waste Management Strategy 2011-2025*, Australian Capital Territory, Canberra: Environment and Sustainable Development Directorate.

Encycle Consulting Pty Ltd & Sustainable Resource Use Pty Ltd, 2013. *A study into commercial & industrial (C&I) waste and recycling in Australia by industry division*, Melbourne: Department of Sustainability, Environment, Water, Population and Communities.

Environment, P. a. S. D. D. - . E., 2016. *ACT Government*. [Online]

Available at:

<http://www.environment.act.gov.au/waste/act-government-action-on-waste>
[Accessed 01 11 2016].

Humphrey, C.-R. et al., 1977. Attitudes and conditions for cooperation in a paper recycling program. *Environment and Behavior*, Volume 9, p. 107-124.

Inovact, I. C. P. L., 2010. *Increasing Recycling by Business in the ACT: An analysis of barriers from the perspectives of businesses and waste service providers*, Canberra: Inovact Consulting Pty Ltd.

Lee YJ et al., 1995. Factors influencing individual recycling behavior in office settings: A study of office workers in Taiwan. *Environment and Behavior*, 27(3), pp. 380-403.

Lo SH, et al., 2012. A Review of Determinants of and Interventions for Proenvironmental Behaviors in Organizations. *Journal of Applied Social Psychology*, 42(12), pp. 2933-2967.

Marans, R. W., & Lee, Y. J., 1993. Linking recycling behavior to waste management planning—A case-study of office workers in Taiwan. *Landscape and Urban Planning*, Volume 26, p. 203-214.

- Oke, A., 2015. Workplace Waste Recycling Behaviour: A Meta-Analytical Review. *Sustainability*, Volume 7, pp. 7175-7194.
- Oskamp S. et al., 1994. Psychological factors affecting paper recycling by businesses. *Environment and Behavior*, 26(4), pp. 477-503.
- Pivo, G., 2010. Owner-tenant engagement in sustainable property investing. *Journal of Sustainable Real Estate*, 2(1), pp. 184-199.
- Price, S. & Pitt, M., 2012. The Influence of Facilities and Environmental Values on Recycling in an Office Environment. *Indoor and Built Environment*, 21(5), p. 622-632.
- Ramus, C.A. & Steger, U., 2000. The Roles of Supervisory Support Behaviors and Environmental Policy in Employee "Ecoinitiatives" at Leading-Edge European Companies. *The Academy of Management Journal*, 43(4), pp. 605-626.
- Remondis, 2008. *Remondis Australia*. [Online]
Available at:
<http://www.remondis.com.au/en/reau/services/business-solutions/office/>
[Accessed 18 10 2016].
- Services, T. C. a. C., 2016. *ACT Government*. [Online]
Available at:
http://www.tccs.act.gov.au/recycling-and-waste/resources/ACT_Waste_Management_Strategy
[Accessed 01 11 2016].
- Statistics, A. B. o. S., 2016. *Counts of Australian Businesses, including Entries and Exits, Jun 2011 to Jun 2015*. [Online]
Available at:
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/8165.0Main+Features1Jun%202011%20to%20Jun%202015?OpenDocument>
[Accessed 18 10 2016].

Appendix

Appendix A:

Questions for Interview

Company size: 1-5 6-10 11-15 15-20 Up to 20

The length of time company has established/moved to ACT: _____ Years

1. What types of waste are normally generated in your office?
2. How do you deal with your waste in your area?
3. Do you know how your company handles waste management?
 - Did your company sign up an individual contract with other waste management company?
 - What service do they provide?
4. Have you heard about Actsmart Business Recycling Program in the ACT?
If no, ends the interview, if yes, continue answering the following questions.
5. Did your company sign up to this program?
 - Could you tell me your experience of this program?

Appendix B: Sample Analysis

Sample ID	Interviewee is/is not a green person	Waste management policy	Environmental culture in the organization	Waste disposal training	Have individual waste management contract	Have/Have not about Actsmart
1	✓	✓	✓	✓	✓	✓
2	✓	x	✓	✓	✓	✓
3	✓	x	x	x	✓	x
4	✓	x	✓	x	✓	x
5	x	x	x	x	x	✓
6	x	x	✓	x	✓	✓
7	✓	x	✓	x	✓	✓
8	x	x	✓	x	✓	x
9	x	✓	x	✓	x	x
10	x	✓	✓	✓	✓	x
11	✓	x	x	x	x	✓
12	✓	✓	✓	x	✓	x
13	✓	✓	✓	✓	✓	Participated
14	✓	x	✓	✓	✓	✓