

Using a Food Waste Diary to Impact Food Waste Reduction in Sydney's Eastern Suburbs

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ABSTRACT

Food waste management has been gaining more attention in New South Wales through several food waste reduction initiatives. Among them is a joint effort conducted by two councils in Sydney's eastern suburbs to test different food waste reduction methods and analyze their level of success. In August 2009, The Waverley and Randwick Councils launched a project titled "The Compost Revolution" which promotes the habit of composting and worm farming in residential dwellings in an effort to help reduce the community wide ecological footprint. 580 participants took part in community-based education activities and were monitored during 12 months. In March 2010, a group of participants was introduced to a food waste diary exercise. They kept a daily record of their food losses during seven days. The diary is a tailored instrument that provided a closer look at the composition and weight of food waste produced in households and also served as a tool for environmental reflection. The results show that participants responded with a high level of engagement in reporting their waste. 51% of food losses represent spoiled or excess cooked food and ten most common food waste items were identified. These findings offer another layer of explanations on the nature of food losses in the urban built environment and suggest the need to shift focus toward fostering behavioral changes.

KEYWORDS: *food waste management, diary method, awareness, Sydney*

1. Introduction

The issue of food waste requires more attention in discussions about municipal solid waste treatments. Large volumes of uneaten food discarded in residential dwellings contribute to financial and environmental liabilities and represents a waste of resources (Baker et al, 2009).

The environmentally sound management of food waste requires looking at how such items are being disposed of in residential areas as they belong to the organic stream that make up a large component of generated waste in the urban environment. In New South Wales (NSW), Australia, food waste constitutes 38% of generated waste in, representing an average of \$1,036 Australian Dollars per year according to a recent

benchmark study undertaken on food waste behavior and attitudes (Department of Environment Climate Change and Water NSW, 2009). Additionally, audits show that the average Australian bin has a large proportion of food waste, much of which is suitable for compost.

Studies that have focused their attention to food waste issues express the need to know more about Australia's food system, to understand food waste behavior and to create waste minimization strategies. The Australian Institute in their *Analysis of household expenditure on food* reveals that Australian households discard more than \$ 5 billion Australian Dollars worth of food per annum (Baker et al, 2009). In her report titled *Fruits and vegetable consumption and waste in Australia*, Morgan stresses a "low consumption/high waste paradigm" which represents a significant challenge in Australia's food system (2009:1). It appears that Australians consume less fruit and vegetables than they purchase. Consequently, remnants of fresh food represent a financial and environmental liability in Australia.

A recent study on Sydney's food value chain claims that the value of fresh food waste in Sydney is approximately \$600 million Australian Dollars, which is comparable to the value of Sydney's fresh food agriculture (O'Neill et al, 2009). Such observations raise the need to engage households to adopt smart consumption and waste reduction behaviors and recover food by-products through composting in an effort to reduce our ecological footprint.

Particularly in the State of New South Wales, food waste management has gained more attention through recent programs as well as discussions revolving around food systems and food waste issues. These debates point out the need to deploy more efforts towards understanding food waste, recognizing the context in which it is produced and identifying the appropriate avenues for recycling it (Baker et al, 2009; Jean-Baptiste, 2009; Morgan, 2009). Food waste in Sydney is situated at the end of a complex food system aimed at feeding a growing population of 4.2 million inhabitants. It is imperative to know more about the challenges of 'commodification of food', the range of stakeholders in Sydney's food chains and the impact of food waste in the city.

This paper provides an overview of a Food Waste Diary, referred in this paper as "the Diary". This data collection tool which was developed in the context of a PhD research was used to identify the composition of food waste in residential areas. The following sections expose the framework within which the Diary was applied and focuses on the lessons learnt while encouraging Sydney-siders to recycle their organic waste. The results show that participants responded positively to the behavior and environmental culture change brought about by the Compost Revolution. Informants showed high levels of engagement during the trial and good knowledge of household composting.

2. Contextual Background

2.1 Institutional efforts addressing food waste issues in New South Wales

Any institutional effort addressing sustainable food systems requires the examination of all aspects of the life cycle of food. Food waste is a major component of food systems as it is

generated at different stages and represents a major resource-demanding commodity. In New South Wales, there are currently three active regional programs aiming at improving the current food production model through long-term food production strategies. Table 1 summarizes operative programs embarked at a regional level and their aims.

Table 1: Regional food system programs implemented in New South Wales
Source: DECCW (2010)

Type	Title	Responsible body	Aim
Regional food system programs in NSW	Future Proofing Northern Rivers Communities Project	Eight councils: Rous River and Lismore, Byron, Ballina, Tweed, Kyogle, Richmond Valley and Clarence Valley Councils	Investigates the possibility for a more sustainable production practice in the north –east region of NSW.
	Ilawarra Biodiversity and Local Food Strategy	Wollongong, Kiama and Shellharbour Councils	Develops a local food strategy in the south of Sydney
	Local Food Futures Project	Coffs Harbour and Belligen	Builds capacity and resiliency in local food system to respond to global climate change issues.

2.2 Targeted actions addressing food waste issues in New South Wales

The landscape of food waste awareness programs in New South Wales includes a number of campaigns, which look predominantly at stimulating discussions on food waste avoidance. It is difficult to evaluate the extent to which those campaigns have been successful in improving organic waste recycling at a household level, however efforts towards understanding the context in which food waste is produced are visible. Table 2 illustrates selected food waste programs initiated in recent years. These programs although structurally dissimilar (government-related initiatives versus action-orientated strategies) center their attention towards food waste avoidance and education.

Table 2. Selected food waste programs introduced in New South Wales

Source: DECCW (2010), CENTROC (2010)

Type	Title	Responsible body	Aim
Targeted food waste programs in NSW	Love Food Hate Waste	Department of Environment Climate Change and Water (DECCW)	Educates NSW residents on food conservation and food waste avoidance
	Food Waste Challenge	NSW Nature Conservation Council (in partnership with DECCW)	Builds individual food avoidance skills through practical workshops about buying, cooking and storing food
	That's a Good Idea – Compost Cook-off Project	Central West Regional Organizations of Councils (CENTROC)	Promotes composting through workshops
	Groundswell Project	Goulburn-Mulwaree, Queanbeyan, Lachlan and Palerang Councils	Examines the sustainability outcomes of compost produced in urban areas
	The Compost Revolution (Food Waste Reduction Project)	Randwick and Waverley Councils	Tests the effectiveness of a home composting community education program in reducing and managing food waste

'Love Food Hate Waste' coordinated by DECCW is set up predominantly as a web initiative, which aims at educating people about food conservation and food waste avoidance. Based on an UK campaign with the same name, "Love Food Hate Waste" in Australia mainly focuses on providing online information about the impact of food waste and highlights ways to reduce food wastage through appropriate food storage and smart food shopping. The program also holds periodic food waste reduction workshops and establishes partnership with food retailers, health organizations and local governments.

The 'Food Waste Challenge' program promoted by the Nature Conservation Council in partnership with DECCW and the City of Sydney encourages individuals to adopt a more environmentally sound behavior through workshops.

Other initiatives in New South Wales connected to the idea of reducing food waste include “That’s a good Idea” and “The Groundswell project”. The first one supported by CENTROC incorporates composting as one of its three key areas. The ‘Compost Cook-Off Project’ initiated in 2010 aims at promoting composting of gardens organics and food waste avoidance at a household level. The Groundswell project focuses rather on agriculture through soil recovery and examines the sustainability outcomes of compost produced from urban organic waste. This project involves the councils of Goulburn-Mulwaree, Queanbeyan, Lachlan and Palerang Councils.

The “Food Waste Reduction Project” emerges from a collaborative effort by the Randwick and Waverley Councils and is a component of the ‘Ecological footprint of Eastern Suburbs’ which also includes the Woollahra Council. The project aims at testing a number of food waste reduction methods and analyses their factors of success in terms of awareness, avoidance, reduction and treatment. The project focuses on household composting and worm farming in single and multi-unit dwellings through ‘The Compost Revolution’.

2.3 Waverley Local Government Area

Sydney’s Eastern Suburbs is a region located east of the central business district of Sydney and includes Waverley, Woollahra and Randwick Local Government Areas (LGAs). Waverley located 7 kilometers east of Sydney’s city center, hosts 60,715 residents (Australian Bureau of Statistics- ABS, 2007) and is mostly a residential area. The most populated neighborhoods are: Bondi, Bondi Beach, Bondi Ward and Bondi Junction. There are a total of 27,389 occupied private dwellings (Hyder Consulting, 2010), characterized by 21.2% of single unit dwellings (SUDs), against 52% of multi-unit dwellings (MUDs). The dominant tenure type is rented-private.

2.4 Randwick Local Government Area

With a population of 119,884 residents (ABS, 2007), Randwick is located 6 kilometers south east of Sydney’s central business district and is known as one of New South Wales’ oldest LGAs. The housing scheme is characterized by detached houses on small individual plots, semi-detached houses (row/terrace) as well as townhouses. These make up for 32.3% of the housing typology in contrast to 52% of residential block arrangements composed by buildings with apartment or flats and others such as caravans, cabin and houseboats.

3. The Compost Revolution

Despite initiatives taken by the above mentioned institutional entities to resolve issues related to consumption and better management of food waste, the question of what type of food we discard and in what context do we waste food remains unanswered. Local governments may be able to fill that void through decentralized assessments of food waste. The focus here is to highlight the scale of food waste in relation to household domestic waste outputs.

In August 2009 Randwick and Waverley y councils initiated ‘The Compost Revolution’ with the idea of assessing the feasibility of composting at a household level. ‘The Compost Revolution’ is a food waste reduction campaign, emerging from a regional capacity building effort between three local Councils, environmental-engaged actors and residents of Sydney’s eastern suburbs area. The basis for the collaboration between Randwick, Waverley and Woollahra Councils is a 3-year Urban Sustainability Program grant from the New South Wales Government’s Environmental Trust.

580 households were involved in the Compost Revolution which initially ran for a trial period of 12 months, during which they were provided with necessary resources to cultivate their environmental knowledge and foster their engagement and participatory endeavor. The project included the following community-based education strategies:

- Workshops on composting and worm farming
- Talks on food systems and food waste avoidance
- Participatory monitoring and evaluation
- Training of potential multipliers (i.e. groups of individuals responsible for the introduction and development of collective composting experiences in their community).

4. Food Waste Diary Method

Diaries have clinical roots. They are known to be use in the study of mood, stress, personality and behavior. A structured diary is generally referred to as a booklet that contains a series of self-report questionnaire covering events or experiences over a period of time (DeLongis et al., 1992). The use of the diary methodology has been limited largely to research in social science. However this technique offers advantages when looking at behavior in real-life settings over a prolonged period of time. Although concerns over the degree of validity of diaries are been raised in several studies, the meaningfulness and reliability of the data may often be greater than a questionnaire administered on a single occasion. When applied properly, margins for errors may decrease as diary participants complete their report at a regular interval, allowing a certain level of accuracy.

The Diary trial, which was a component of ‘The Compost Revolution’ idea, aims at investigating the composition of food waste produced by a smaller pilot group within the ‘The Compost Revolution’. A central concern in the studies using diaries is how changes occur and what the processes of change are. With that in mind, the objectives of the Diary are first to highlight and measure the composition and weight of the food waste produced in residential units over a period of seven days; second, to look at food waste behaviors and waste storage habits; and finally to contribute food waste awareness and home composting.

4.1 Food Waste Diary method applied during the Compost Revolution Project

The Diary was implemented between March and June 2010 and included the following stages: Planning, Acting and Reflecting.

- Planning: required collaborative efforts to set up an appropriate knowledge-exchange and communication platform.
- Acting: included participants whom were prompted while completing their diary
- Reflecting: involved pattern coding and the production of matrixes and marginal remarks.

The conceptual framework illustrated in Figure 1 indicates how principles of Action Research were utilized to develop a diary model based on co-generation of knowledge about food waste with residents. During the Diary procedure, participants played a central role in the collection of data. They were coached to report their food waste at regular interval and their observations and remarks were considered while reflecting on the results of their findings. Because the Diary finds its roots in addressing questions of processes and change, it is inherently a gradual tool that can be used to reflect on previous experiences and reframe its adaptability to the natural setting in which it is applied. This brings together theory (i.e. food waste knowledge) and practice (i.e. food waste procedure) based on a household-centered approach.

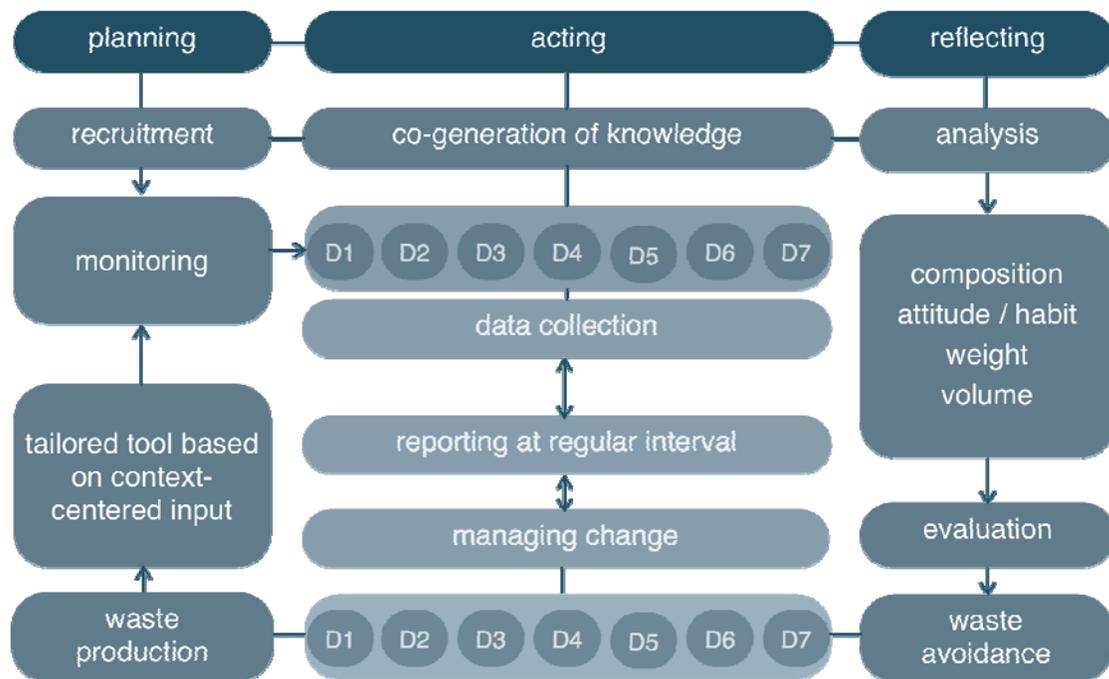


Figure1. Conceptual framework for the procedure of the Food Waste Diary

4.2 Food Waste Diary protocol

35 participants attended an information session which provided them a platform for questions and answers about the application of the Diary. During the session, attendees demonstrated an interest for food waste issues and the majority demonstrated knowledge of the terminology related to food waste management and composting. In addition, many showed a high level of engagement and a strong willingness to participate in an exercise, which required repetitive separation, weighing and recording process. On completion of the information session, participants were provided with a record set which included an instruction and different record sheets (See appendix 1).

Between 20.03.2010 until 27.03.2010 inclusive, 26 informants recorded the weight and volume of food waste produced in their weight record sheets. The food waste was weighed on a white SALTER electronic kitchen scale with a maximum capacity of 3kg/7lb. During the trial 112 scale tests were conducted. The tests took place mostly daily. Nine households conducted daily tests, 14 households conducted tests from two to three times a week and 3 households weighed their food waste four to five times a week. The kitchen sink bins provided by the Councils for the purpose of the trial had a capacity of 1.3L. Participants were encouraged to weigh their waste frequently in order to avoid exceeding the maximum capacity of both bins and scales.

5. A Definition and Classification of Food Waste

Food waste generated from households is a biological substance with perishable properties. In contrast to other types of household waste, food waste is subject to decomposition that can occur at different stages depending on factors such as storage process, temperature, excess purchase, shopping and cooking habit.

The food waste found in Australian residential areas is commonly described as household¹ waste, which in addition to food items, includes bulky waste (voluminous unwanted items such as old furniture), green or garden waste (leaves, grass, tree branches), product packaging, clothing, bottles, plastic and glass containers, newspapers, appliances, paints, batteries and numerous other unwanted everyday household objects. According to the definition proposed by Parfitt et al., ‘household food waste’ is considered all “food and drinks that are consumed within the home”. This consideration includes ‘takeaway’ and ‘homegrown’ food in addition to ‘food retail’ sources and excludes food consumed outside the home - i.e. in the workplace and /or in restaurants (2010:3073).

Within the literature, a further food waste grouping “avoidable” and “unavoidable” has been put forward (Ventour, 2008; Morgan, 2009; Hyder Consulting, 2010). The differentiation between the two categories relates to behavioral aspects. Morgan identifies avoidable food items, as those that are “truly edible” versus “inedible parts of food products” considered as unavoidable (2009:15).

The source of generation of the food waste examined during the trial emerges from residential units in single unit dwellings as well as multi-unit dwellings. For the purpose of

¹According to the Australian Bureau of Statistics and household is: one or more persons, at least one of whom is at least 18 years of age, usually resident in the same private dwelling.

this paper, food waste is defined as an organic by-product that emerges from the preparation and consumption of food, which consists of all edible items found in the household with the intention of being consumed. It incorporates food losses i.e. entire food item discarded prior to consumption² food scraps, uneaten leftovers, fruits and vegetable and peelings, excess cooked food, outdated bakery goods, spoiled dairy. The above definition is central to accurately assess the composition of food waste reported through the waste diary. Such definition takes into account a broader meaning of food waste found in homes. It might also incorporate soiled napkins, tissues, bags and other packaging goods as well as slurry food mixture and beverages. In the context of the trial, food waste includes, but is not restricted to, “comfort food” such as chocolate bars, candy, ice cream and desserts consumed in most households. The following table illustrates the classification proposed during the Diary trial:

Table 3. Classification of food waste in the context of the Food Waste Diary trial

Category	Description	Example
Spoiled cooked food/excess food	Processed food that has become unfit for consumption due to microbial or environmental contamination.	<ul style="list-style-type: none"> - excess cooked rice - spoiled leftover - uneaten cheese sandwich - slice of bread - leftover cake
Vegetables/fruit peelings	Strips of outer skin of any vegetables and fruits discarded in the household.	<ul style="list-style-type: none"> - potato peelings - apple skins - carrots trimmings - avocado seed
Beverage	Any liquid refreshments	<ul style="list-style-type: none"> - excess milk - leftover coffee - unfinished tea
Raw food/ meat scraps	Uncooked animal source products such as raw meat scraps and similar, as well as non-edible meat remnants	<ul style="list-style-type: none"> - skin flesh from any food not yet processed - meat joint in its natural state - seafood waste including shells - bones and/or chicken leg unfinished sausage
Comfort food	Rest of sweets and pastries products	<ul style="list-style-type: none"> - chocolate bar - ice cream - rest of cake

² This paper also differentiates food waste/food scraps from food losses. Food waste and or food scraps are remains of food after consumption or parts of food that are unfit for consumption due to decomposition. Food losses mostly found in food system literature are referred as “entire food item that do not serve their purposes” (Fehr et al, 2002: 248). Food losses issues are commonly considered during post-harvest stages in the commodity flow between food producer and consumer. Food loss or ‘spoilage’ is related to the decrease in food quantity or quality” (Parfitt et al, 2010:3066) at any stage between production and consignee.

6. Results

6.1 Characteristics of Household Informants

The Diaries were completed by an ‘informant’ in each household. The results show that 21 women against 5 men completed the diary. This is consistent with other research related to household activities. These women in the trial belonged to two age groups: 35-44 and 55-64. Many reported to work professionally. Figure 2 summarizes the characteristics of the informants who completed the Dairy.

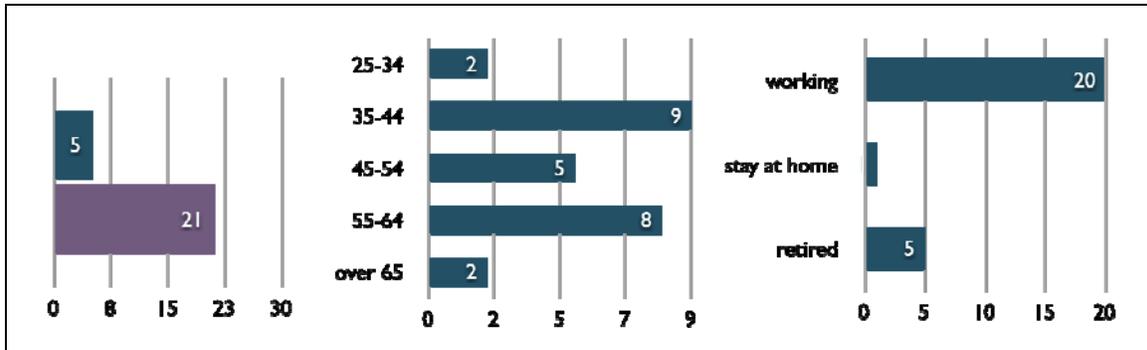


Figure 2. Characteristics of informants.

6.2 Number of occupants and type of housing

Another important indicator for food waste assessment is the number of occupants per household and the type of building structure in which food waste is produced. The Diary was completed by six different sets of households. As shown in Fig. 3, there are 6 households with 2 members (2M) and an even number of households with 3, 4 and 5 members.

In terms of the building structure, the sample included 18 SUDs and 8 MUDs. People living in SUDs have more opportunities to compost versus those living in MUDs. However, there is an assumption of increasing interest of people living in apartment buildings to recycle their organic waste. During the trial, participants living in MUDs were able to use a worm farm or compost in a common area attached to their residence. Those using wormfarms in MUDs could generally only “compost” a smaller range of food than those living in MUDs or SUDs who had the opportunity to compost their food waste.

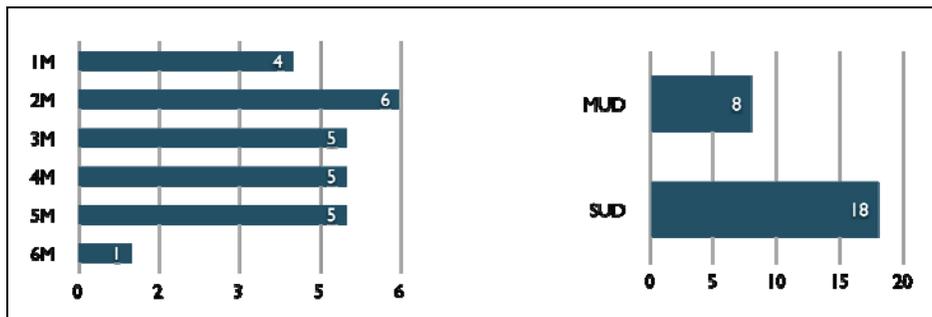


Figure 3. Number of occupants and type of housing

6.3 Type of Meals

A total of 182 meals were registered. 82% of them were shared meals as shown in Figure 4. This suggests that the data collected by informants denotes the food waste of the household as a unit. The type of meal most reported is dinner with 106 entries followed by breakfast with 51. An explanation for the high number of ‘dinner’ entries is that most participants were professionals and there may be more opportunities for sharing meals during dinner time. This is also an indication that a higher amount of food residues is produced during that time.

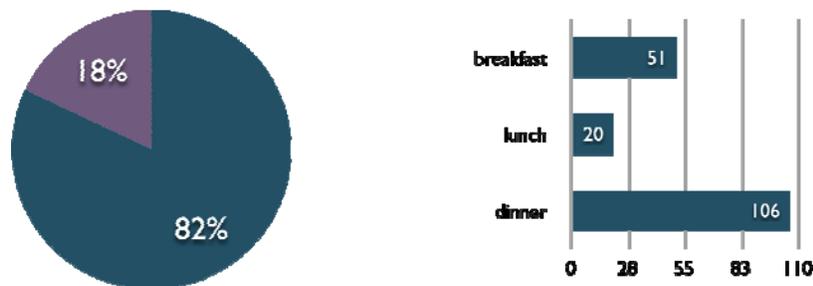


Figure 4. Type of meals reported in the Food Waste Diary

6.4 Food Waste Matrix per household: Daily weighing

Table 4 illustrates a matrix per household based on the report obtained from a daily weighing. This provides an overview of the food waste description as each entry is recorded in the matrix. In addition each food item is categorized as well as the waste storage selection, registered as “location” and the weight of the waste. This particular matrix indicates the food waste generated in the general bin is 0.26 kilograms per week in contrast with the food waste calculated in the compost bin of 4.42 kilograms per week. In this household, fruit and vegetable scraps constitute 50% of the entries registered. The categories of food waste mostly indicated are “vegetable and fruit peelings”, followed by “meat scraps” and “beverage”. The entries for location of disposal are mostly “compost bin” with seven entries and “general bin” with two entries. This pattern of waste disposal indicates that the choice for composting was dominant during the trial.

Marginal remarks obtained from the informant suggest satisfaction in producing little amount of food waste in the general bin. The calculations were 0.21, 0.03 and 0.02 kilograms per day respectively during a period of seven days. The informant notes on Day 6 that “more food waste was produced that day due to more cooking”. An important note is that the weighing exercise was conducted daily; despite the fact that little amount of waste per day was produced in this household. This indicates a particular motivation and engagement to use the food waste diary tool.

A total of 112 weighing tests were conducted on composting and general bins. These tests vary in frequency as some were carried out daily or each two or three days. The average weight of food waste registered in the compost bin is 5.02Kg/household/week

versus the general bin with a record of 1.88Kg/household/week r. The compost bin with the maximum weight registered is 11.65 Kg/household/week versus a minimum weight of 0.95 Kg/household/week.

Table 4. Matrix per household - Example of daily weighing

day	type of meal	food waste description*	category	location of disposal	weight /kg.da	
					general bin	compost
D1	dinner	vegetable peelings	vegetable/fruit peelings	compost bin	0.21	0.8
		orange juice	beverage	down the drain		
		skin fish	meat scraps	general bin		
D2	lunch	orange /melon peelings	vegetable/fruit peelings	compost bin	-	1.1
		old cheese	spoiled/excess cooked food	general bin		
		coffee grounds	beverage	compost bin		
D3	breakfast	plum stone	vegetable/fruit peelings	compost bin	-	0.4
D4	dinner	vegetable peelings	vegetable/fruit peelings	compost bin	-	0.2
D5	dinner	vegetable peelings	vegetable/fruit peelings	compost bin	0.03	0.4
		lamb bones	meat scraps	general bin		
D6	dinner	vegetable and fruit peelings	vegetable/fruit peelings	compost bin	0.02	0.7
D7	breakfast	nothing	nothing	-	-	0.6
Total weight/kg/week					0.26	4.4

6.5 Food Waste Items Identified During The Trial

The ten most commonly identified food waste items reported by participants are listed below. The matrixes report mostly entries of fruit and vegetable peelings followed by eggshells and other food waste items such as coffee grounds and meat scraps. These findings appear to be consistent with the literature that consider them perishable items. These are considered unavoidable food waste items (U) as shown in Figure 5. These findings differ to some extent from other waste audits conducted in New South Wales. One audit by EC Sustainable Environmental Consultants prior to the Compost Revolution Project founded that the bins contained a high amount of leftover food waste, considered as

avoidable food waste items (A). One explanation for these variations is the notion that participants in the Diary trial were going through a behavior and attitude change which may have influenced their food waste composition and storage pattern at the time of the trial.

The top 10 food waste items found are:

- fruit peelings (U)
- vegetable peelings (U)
- egg shells (U)
- coffee grounds (U)
- meat fat/scrap (U)
- cooked rice (A)
- milk (A)
- tea leaves (U)
- juice (A)
- cereal/bread (A)



Figure 5. Picture of unavoidable food waste items

6.6 Behavioral indicators in regards to food waste production

In addition to reporting the food waste produced, participants were given the opportunity to annotate their comments on their report sheets. Remarks ranged from the reasons for wasting food to their reactions to the food diary exercise. Given the limited studies on household food waste behavior and the complexity of attitudes, values and behaviors toward food waste. It is only possible at this stage to expose the most frequent type of comments regrouped in following categories:

1. Behavior recognition commentaries
 - “We don’t waste a lot of food... I make everything from scratch”
 - “I find I don’t throw out food when I make it”
 - “I realize I throw away more leftovers”
2. Food Waste Diary application
 - “Pretty easy”, “Not difficult at all”
 - “I’m really interested to see how much waste we produce! We also have a dog... So that helps”
3. Drivers for excess food waste
 - hectic and busy lifestyle
 - families with small children
 - poor knowledge of food storage
 - social events/parties
 - forgotten food in the fridge

7. Conclusion

The diary method, best known in the context of social psychology and clinical health, has appeared as a data collection tool in recent food waste studies. This mode of inquiry is based on the premise that some situations and behaviors may be best understood by studying them over time; especially when there is a concern with issues of process and change. Despite the fact that diary applications come with several challenges, the use of structured diaries holds some advantages when looking at daily events

The Diary applied in the context of the Compost Revolution provided additional data on the household food waste composition in the Councils of Randwick and Waverley Sydney's eastern suburbs. One of the reasons for employing a diary methodology was to move outside the boundaries of traditional audits and survey methodologies and to test other participatory techniques which could potentially serve as reflection tool at a household level.

During the food waste exercise, the response rate was positive. Participants showed a high level of engagement and a strong willingness to participate. An explanation for the success in generating interest in the community is the synergy of communication and actions, (i.e. collaboration between actors involved) as well as the Compost Revolution approach mixing recreation, education and community involvement.

This trial shows there is a desire to learn more about food waste reduction. Informants were keen in identifying the type of waste they mostly produced as well as the ways in which they can improve their behavior. While most households reported a high proportion of fruit and vegetable being discarded, the type of avoidable items found indicates a trend of excess cooked food. While other studies have stressed economical factors as a major motivation for environmental change, this exercise suggests however that the desire to change comes from a sense of community and environmental value.

Although it is recommended to use other measurement techniques such as observations or cross-check examinations to enhance the validity the findings, these procedures were considered unnecessary. The Diary trial was designed as a punctual food waste reduction intervention. It was introduced as a component of a larger program, hence its high response rate. In addition, periodical electronic reminders were sent to participants and a close communication was kept during the Diary report and weighing period. Despite these precautions, the Diary method involves a certain degree of subjective assessment, which require careful considerations when analysis the findings.

The Diary calls for interaction between groups. In the case of the Compost Revolution Project it appears not only to offer detailed data about the composition of food waste but also served as a tool for self-reflection which is essential in education for sustainability. It also provided more knowledge about participatory monitoring, and was used as an instrument for exchange and reflection about the problems and solutions of food waste. Further more, several participants expressed their desire for transferring their knowledge to their family and neighbors, showing the diary's potential for transferability. In the case of the application of the food waste dairy in Sydney's eastern suburbs, the richness of the information obtained outweighed issues of time consumption usually

associated to diary studies.

The comments expressed by most participants show consistency with other studies stating the concern of many Australians about the amount of food discarded in their homes. However, the problems related to food waste are likely to persist in single and multi-unit dwellings if concern is not translated into action. While policy implications for the State of New South Wales are not explored in this paper, there are grounds for suggesting that local governments need to focus on awareness and education programs that foster behavioral changes towards food waste prevention, reduction of avoidable food waste and organic recycling through composting and worm farming.

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