

## **WHEN RECYCLING BECOMES LITTER: THE *ENVIROFLEXINET* TRIAL**

**Tai Haronga, Amanda Hargreaves, Marie-Claire Andrews, Tim Carthew  
ClearTide Limited, Wellington, New Zealand**

### **Introduction**

Recycling is harmful to our environment!

This statement may seem odd or just simply incorrect. But in certain instances it is true. Recycling can indeed be harmful to our environment.

Wind and scavenging animals can turn household recycled material awaiting collection into large scale litter that scars our streets, parks and waterways. This is true of all recycling systems, but it is particularly the case with 'open bins'.

Recycling becoming litter provides significant challenges to councils, collectors and household residents. It can have a considerable impact on the environment. But the impact can go further than that. It burdens councils with additional costs. It can lead to collection inefficiencies. And it adds extra stress and inconvenience to recycling householders. Critically it can also act as a disincentive to recycle.

This paper outlines the trial of the *EnviroFlexiNet*, a new product designed specifically to address the issue of well intentioned recycling becoming harmful littering. It is a trial that has yielded some spectacularly successful results.

The impact of 'recycling litter' should be factored into council decision-making when they are choosing or reviewing the most effective and cost efficient recycling method for their needs.

## Recycling becoming litter

As outlined above, wind and animals can lead to the dispersal of recycled materials awaiting kerbside collection. Which means that the best efforts of recycling households can unintentionally be turned into large scale litter.



The environmental impact of this litter can be significant. Not only does it visually scar our community landscape, but it can also:

- infiltrate our waterways causing fatal harm to marine life
- block drains leading to surface flooding on our streets and property.

It is worth noting that none of the recycling systems employed by councils around the country (from recycling bags to wheelie bins) are immune from causing this problem. But it is particularly an issue with 'open bins'.

This is unfortunate on two levels. The first is because a large number of councils around the country employ the 'open bin' method of recycling. The second is because the 'open bin' method fares well in analyses of worldwide recycling systems when evaluated against other performance measures.

*Analysis of Kerbside Recycling Systems* (Waste Not Limited, 2000) measured the overall effectiveness of a range of recycling systems used around the world. It evaluated a range of recycling systems from bags, to 'open bins', to wheelie bins.

The 'open bin' method rated well in the analysis. Open bins were seen to:

- result in good levels of recycled material recovery
- require only moderate education of householders
- encourage moderate levels of participation
- require a lower level capital cost and infrastructure outlay for councils.

Given the clear strengths of the 'open bin' method, it seemed important to find a way to resolve its weakness, the potential for its contents to be dispersed. Resolving this weakness would only give councils stronger options in arriving at the most effective recycling method for their needs.

*The EnviroFlexiNet* was developed to provide that solution ...



### ***The EnviroFlexiNet***

The *EnviroFlexiNet* concept was developed by ClearTide Limited, a company based in Wellington, New Zealand. It was an idea borne from experiencing first hand the problem of 'recycling' litter.

*"I saw recycling waste blowing around our streets on a weekly basis and thought it was disgusting. It continued to niggle at me. The final straw was when I went diving and came across two plastic milk bottles floating in the sea. I thought 'there has got to be something I can do about this.' "* [Tai Haronga, *EnviroFlexiNet* inventor]

The *EnviroFlexiNet* is a net that fits easily and simply over existing council recycling bins, keeping the recycling contents securely within the bin, whatever the conditions.

In developing the final design for the *EnviroFlexiNet* a number of key performance criteria were set. The *EnviroFlexiNet* needed to be:

- extremely easy to use (able to be attached and removed in seconds)
- capable of being customised to fit any style of recycling bin
- able to safely secure contents with the flexibility to handle even heavily stacked bins
- durable and recyclable.

In order to meet these criteria a number of actions were taken. Firstly the Wellington Institute of Technology's specialist industrial design unit were brought in to help hone the final design and ensure that the product was made from the best possible materials.

Secondly, a series of informal consultations and trials were conducted with both householders and collection operators, to gauge reaction to the 'prototype' net and assess how it performed in action.

The results were very encouraging and the feedback received helped to inform further development of the *EnviroFlexiNet*.



The *EnviroFlexiNet* was now at a sufficiently advanced stage where it could be presented to local councils. The intention was to generate enough interest to secure a first order, or more realistically, gain agreement from a council to jointly establish a pilot study to more formally trial the product.

The *EnviroFlexiNet* was first presented at a meeting of councils from the greater Wellington region. As a direct result of that first meeting, one of the councils, the Hutt City Council, were sufficiently interested to agree to pilot a trial of the *EnviroFlexiNet* among a selection of its residents.

### ***The EnviroFlexiNet Trial: Methodology***

The trial took place among 500 Hutt City residents in December 2007. All residents were currently using 'open bins' for their recycling.

*EnviroFlexiNets* were distributed to residents across five suburbs carefully selected to represent a range of wind zones and socio-economic levels. Residents were asked to trial the *EnviroFlexiNet* for a two week period and then to complete a questionnaire that captured the results of their experience. Importantly, residents were not shown how to use the product, but instead received a simple set of written instructions.

## The Trial Objectives

The key objectives of the trial were to determine:

1. The 'usability' of the *EnviroFlexiNet*
2. The functionality of the *EnviroFlexiNet*, including its ability to:
  - 'keep the streets clean'
  - 'keep the recycling in the bin'
  - 'reduce recycling hassle'.
3. General levels of satisfaction with the product
4. Residents willingness to purchase the product.

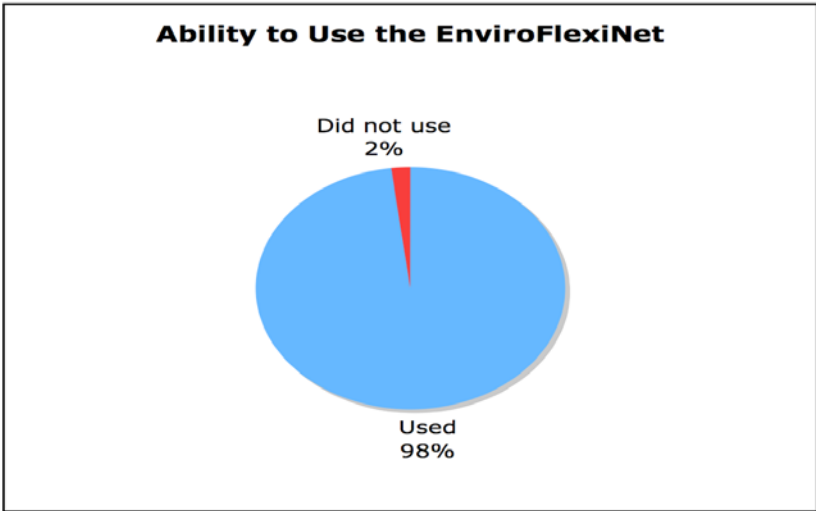
## The Trial Results

Results from the trial were overwhelmingly positive.

Over 36 percent of residents completed and returned the questionnaire, which was a high level of response, particularly in the hectic pre-Christmas period.

### 1. Usability:

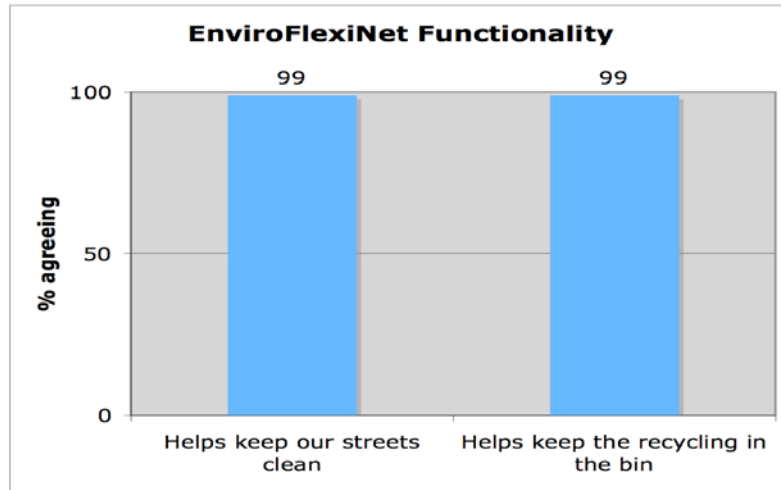
Almost all residents were able to successfully use the *EnviroFlexiNet*, with the tiny minority who could not, including those with damaged or non Council issued bins.



Furthermore 98 percent of all residents said they found the *EnviroFlexiNet* 'easy to use'

## 2. Functionality:

The overall functionality of the *EnviroFlexiNet* was also rated extremely highly.

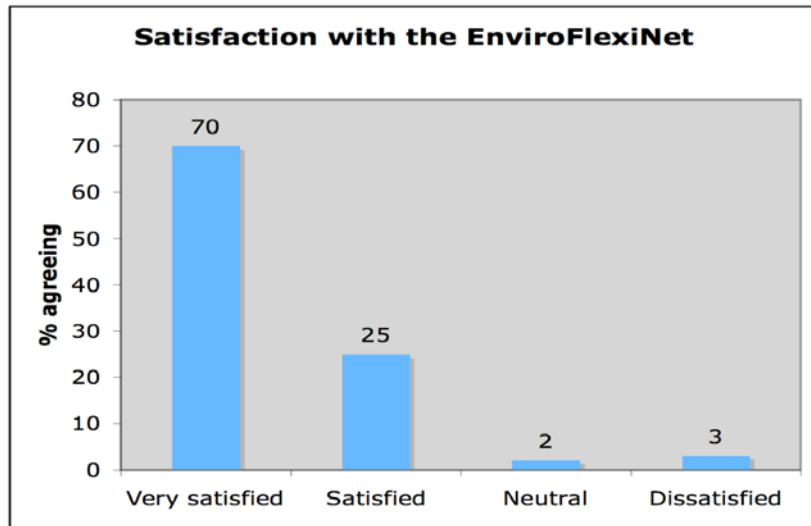


Almost all residents (99 percent) agreed that the *EnviroFlexiNet* ‘helps keep our streets clean’ and ‘helps keep the recycling in the bin’, with 70 percent and 78 percent respectively, strongly agreeing with these statements.

Furthermore, most residents also believed that the *EnviroFlexiNet* ‘makes recycling less of a hassle’, with only a minority (6 percent) disagreeing.

### 3. Overall Satisfaction:

Ninety five percent of residents were satisfied with the *EnviroFlexiNet*, with the majority saying they were very satisfied.



### 4. Willingness to Purchase:

Surveyed residents were asked if they would be willing to purchase an *EnviroFlexiNet*. Encouragingly, across all residents, 70 percent said that they would be prepared to pay \$10 or more for the product.

### Summary/Conclusions

The trial clearly demonstrated that residents viewed the *EnviroFlexiNet* extremely positively. They viewed it as easy to use and effective in keeping their recycling contents in the bin and helping keep their streets clean. Most also believed that the *EnviroFlexiNet* took some of the hassle out of recycling.

Residents engagement with the *EnviroFlexiNet* was reinforced by their willingness to purchase the product.

Perhaps equally importantly, residents' positive reaction to the *EnviroFlexiNet* was proof that they too, placed high importance on helping prevent recycling becoming litter!

One strong conclusion to be drawn from the trial is that councils should ensure that they factor in the impact of ‘recycling litter’ when choosing or reviewing their method(s) of recycling. Councils should not just consider the environmental impact, which is difficult to adequately quantify, but also the more practical potential costs, such as additional street cleaning and repairing the damage caused by blocked drains. The positive impact of a tidier community on ratepayer happiness and wellbeing should also not be underestimated.

### **Reference List**

Hutt City Council. (2008). *EnviroFlexiNet trial and customer demand survey*. Lower Hutt: Hutt City Council

Waste Not Limited. (2000). *Analysis of Kerbside Recycling Systems*. Retrieved 20 June 2008, from <http://www.zerowaste.co.nz/assets/Councilssolutions/Kerbside.PDF>