

Priority Area 8 – Food/organic waste

1. Background

The Board's Strategic Plan identifies food and organic waste as a priority for investigation. The plan states that:

“... there is also a lack of facilities that can accept organic waste for beneficial use, particularly for food waste and other odoriferous wastes. Given the potential greenhouse gas implication of landfilling these wastes the Board considers this area should be investigated and recommendations made.”

This report summarises some of the issues New Zealand faces with food and organic waste in order to aid the Board's discussions and the development of recommendations to the Minister.

Food and organic waste is a significant waste stream with estimates of it being up to 50% of household waste. Whilst it is difficult to access robust data for waste from commercial sources it is likely that for some sectors the proportion of food and organic waste is even higher than 50%.

The draft advice of He Pou a Rangi – the Climate Change Commission (CCC) to the Government estimates that *“If all organic waste was recovered from landfills, waste emissions could reduce by nearly 50% by 2035 and up to 75% by 2050 in Aotearoa”*¹.

The report recognises that the sector needs to be scaled up and that end uses for the diverted waste would also need to be developed.

They also estimate that between 5% and 60% of the organic waste stream could be recovered by 2030 and 60-95% by 2050.

Therefore food/organic waste is a significant issue for NZ, both from a circular economy opportunity, and a carbon emissions objective.

2. Foodbanks/food rescue.

The best option for unwanted food is for it to be eaten by people. Foodbanks/ food rescue organisations provide vital opportunity to divert unwanted food to those in need and away from landfill and other lesser beneficial opportunities. However, they are critically underfunded.

Most food rescue operations are staffed by volunteers and are under constant threat of closure through a lack of funds. Their additional costs to sort and deliver rescued food compared to other waste management options have them at a disadvantage, one that reduces their ability to maximise their diversion activities.

Given the social good they perform, feeding those in need within the local communities, and the waste diversion service they provide, options should be investigated to see how these activities can be supported and maximised.

3. Stock feed

¹ <https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/evidence/advice-report-DRAFT-1ST-FEB/Evidence-CH-04d-Reducing-emissions-Waste-20-Jan-2021.pdf>

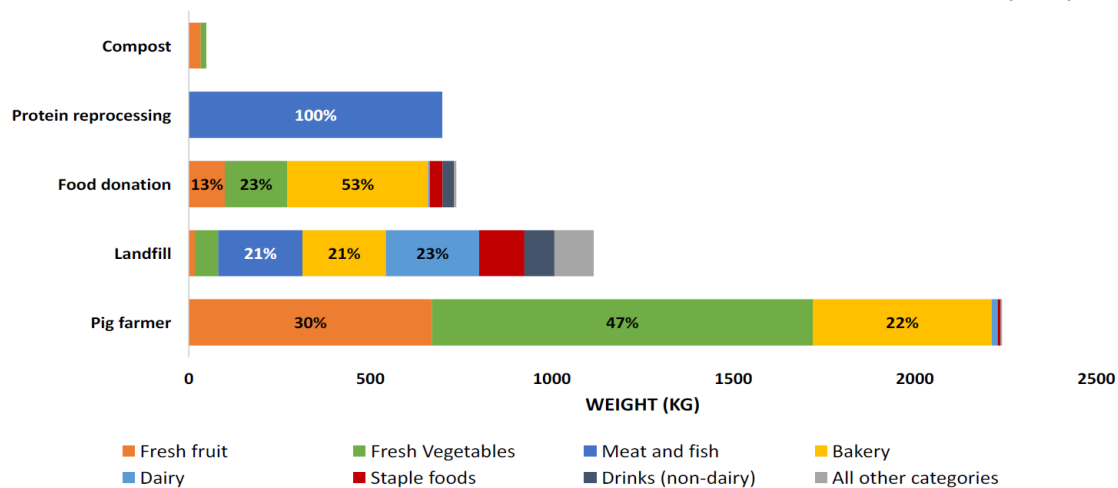
Another significant diversion option for food waste is as stock feed. This can either be directly to local farmers or can be via commercial third parties such as Ecostock who process it into animal feed.

Ecostock have received WMF funding and currently operate a de-packing plant that removes packaging from food items so that it can be processed into stock food. The removal of packaging is vital for anyone wanting to process food for stock or other foodwaste treatment options.

A 2018 University of Otago Master’s Degree study² compared the food waste of 16 supermarkets, eight Countdown supermarkets and eight Foodstuffs supermarkets based in the three large metropolitan areas of Auckland, Wellington and Christchurch.

It highlighted that this stock feed option is a significant disposal pathway for supermarket food waste.

Distribution (weight) of food category to food waste stream_(n=11)



The study highlighted that diversion to stock feed is by far the most used form disposal and that landfill disposal is greater than the amount of food donated to food rescue operations.

It also highlighted that composting was the least used form of diversion which may be due to the lack of consented facilities.

4. Current organic waste treatment options

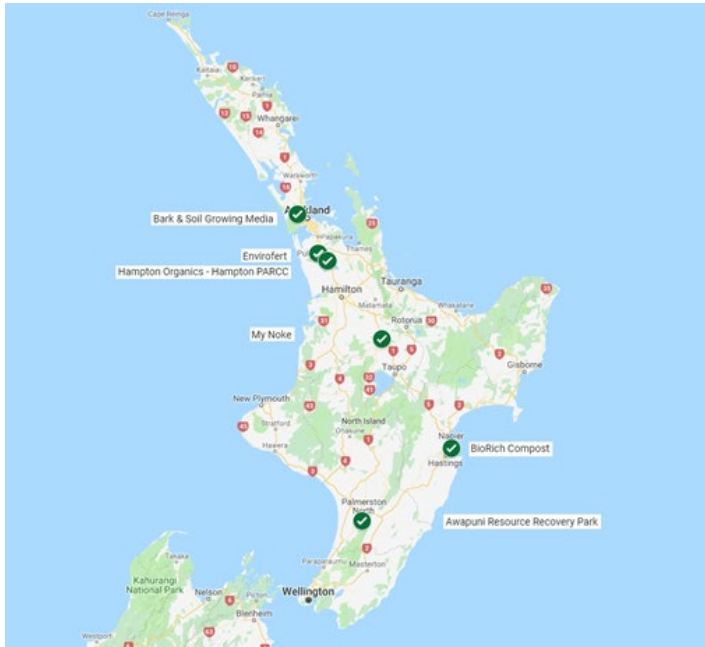
WasteMINZ recently undertook a study to identify commercial composting facilities within New Zealand and found up to 62 that process organic waste. These were predominantly green waste (garden waste) composting facilities.

Of these 62, 10 are recorded as having consents to accept food waste although two of these only accept small amounts.

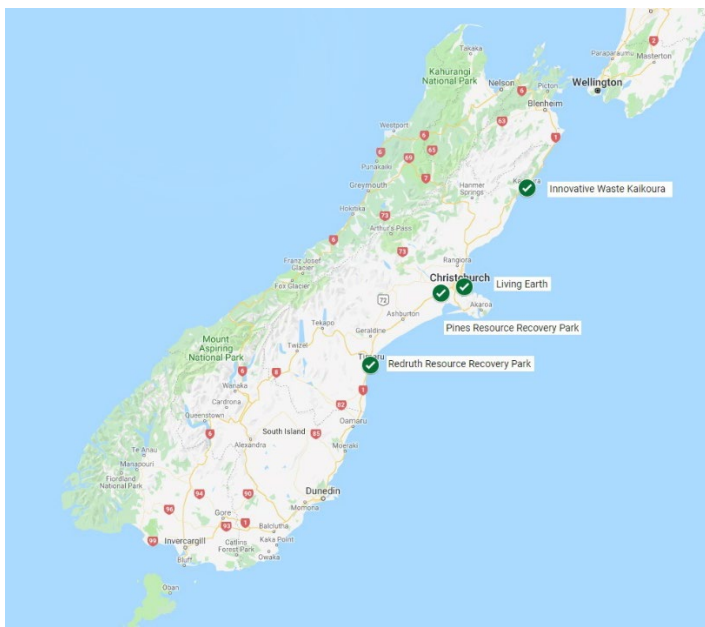
² F Goodman-Smith, A Quantitative and Qualitative study of retail food waste in New Zealand, Otago University

Not all of the 10 listed are able to take all food waste. Meat, fish, dairy, eggs etc will be restricted by some due to the potential risk of odour and vermin. Small amounts may be ok but larger quantities would not.

The maps below show the distribution of the 10 consented sites.



NORTH ISLAND COMMERCIAL FOOD WASTE TREATMENT FACILITIES.



SOUTH ISLAND COMMERCIAL FOOD WASTE TREATMENT FACILITIES.

These maps indicate that significant areas of the country have limited or no access (for food waste that can't be donated for food rescue or stock feed) to alternatives to landfill disposal for food/ odorous organic waste.

For the South Island, Canterbury is reasonably well served but there were no other facilities identified in the remaining parts of the Mainland.

The North Island does have more facilities but areas such as Northland, Gisborne, Bay of Plenty, Taranaki and Wellington etc had no facilities listed.

The lack of these organic processing options means this organic waste will be going to landfill and given that the vast majority of municipal landfills in NZ do not have gas capture, particularly in the regions, the anerobic conditions within the landfills will lead to the generation and escape of greenhouse gasses adding to NZ's carbon emissions.

The increasing cost of disposing of waste to landfill due to the levy increases should make diversion options more economically viable and encourage investment in new infrastructure.

Ecostock for example are to receive \$8.9M (\$7M loan)³ ⁴from the Provincial Growth Fund to develop a full-scale demonstration biogas plant in Reporoa, Bay of Plenty.

The plant will be able to process between 20,000 tonnes and 75,000⁵ tonnes of local kerbside and commercial food waste to produce gas and heat for the adjacent T&G Global site.

It will be two to three years before it is fully established but it is understood that other plants will follow if successful.

As with this example the establishment of this type of infrastructure takes time, and in the space between the increasing cost and its availability, waste producers could seek cheaper solutions which may not deliver the waste minimisation benefits that the landfill levy intends.

For example, there are largescale maceration units that are being promoted to larger organic waste producers such as restaurants and supermarkets, as a way of reducing landfill costs.

These units turn the food waste into a slurry, which is then disposed of to the trade waste system. If taken up on scale this could lead to an overload of municipal wastewater treatment plants which would have an impact on their discharges to the environment.

This has been recognised as an issue by some councils, with Christchurch City Council objecting to the installation of one of these systems at a major cooked food supplier.

In addition to the increased load on treatment plants it would also restrict the beneficial use of the organic material limiting its circular economy opportunities. These organic wastes would be mixed with other trade wastes, that would include heavy metals and other industrial contaminants, rendering them unusable for food production.

Furthermore, it is often difficult for wastewater treatment facilities to find beneficial disposal options for their biosolids. Therefore, this material can often end up having to be disposed of to landfill.

For a Circular Economy to thrive these food wastes should be used to produce nutrients that can help to grow more food, not be contaminated with substances that limits their use and potentially restricts their disposal to Class 1 landfills.

5. Markets for organic waste products

³ <https://www.growregions.govt.nz/assets/funding-announcements/bay-of-plenty-announced-projects.pdf>

⁴ <https://www.beehive.govt.nz/release/pgf-invests-game-changing-initiatives-bay-plenty>

⁵ <https://www.newshub.co.nz/home/new-zealand/2019/07/multi-million-dollar-boost-for-kiwi-company-turning-food-waste-into-power.html>

Another barrier to the development of organic waste treatment options is the limited market for the resultant compost. The CCC pointed out in its report that it is important that there are markets for these products and the development of these markets should be supported.

6. Waste avoidance/reduction initiatives

As we know avoiding the production of waste is the most effective way to manage it, reducing both its upstream and downstream impacts.

Worldwide a third of all calories produced are wasted either in transportation from farm to table or from uneaten food that is thrown away by consumers. That means that the equivalent of half of the calories we eat have gone to waste.

A WasteMINZ study carried out in Auckland estimated that New Zealand households waste \$872M of food each year, the equivalent of feeding double the population of Dunedin every year.

Following the results of this study the Love Food Hate Waste (LFHW) campaign was launched in NZ with funding from local councils and the WMF. The initiative was highly successful in raising awareness of food waste and showed significant engagement of the NZ public with a waste minimisation programme.

Unfortunately given the time-limited requirements for projects of the WMF, funding could not continue and LFHW has had to rely solely on individual council support limiting its national focus and impact.

This requirement of the WMF to fund projects and not programmes limits these national behaviour change initiatives to a specific funding timeframe. This forces good programmes to stop and new programmes to be developed and delivered to replace them. This wastes valuable resources and undermines the desired behaviour change messages with the delivery of a different programme.

Road safety and health campaigns are not funded and delivered in this way and neither should these waste initiatives. They are all behaviour change initiatives and require ongoing programmes that deliver long term changes.

The LFHW campaign targeted the households of NZ but there are also opportunities within the food sector to promote the same waste avoidance messages.

Programmes for this sector should also be encouraged and supported.

7. Conclusion

Food waste is a significant issue for New Zealand. The current paradigm does not maximise avoidance or reuse but encourages disposal to landfill. Thus needlessly leading to wasted food and significant carbon emissions.

This needs to change and the Board should consider effective ways in which this could be done.

8. Recommendations

1. That options to support food rescue operations be investigated with the aim of maximising the diversion of edible unwanted food to those in need.
2. That options for the ongoing funding of national behaviour change campaigns for both the domestic and commercial food sectors be investigated.

3. That markets for processed organic waste such as compost be developed and supported.
4. That large organic/food waste infrastructure be supported particularly for odorous and difficult to manage wastes.