

# 2020 REVIEW OF NORFOLK ISLAND WASTE MANAGEMENT SYSTEMS

**Presenter:**  
Stewart Williams

Managing Director for  
Marine Plastic Solutions



**MONASH**  
University

# TODAY'S SCHEDULE



Waste Study Activities



Norfolk Island &  
Waste

Challenges  
Impacts



Waste Management  
& Costs

Logistics  
Costs



Moving Forward  
Together

NIRC  
Private Sector  
The Community



# 2020 REVIEW OF NORFOLK ISLAND WASTE MANAGEMENT SYSTEMS



REVIEW OF CURRENT  
WASTE MANAGEMENT  
SERVICES AND SYSTEMS



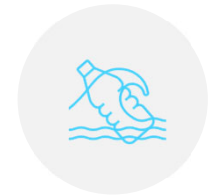
HOUSEHOLD WASTE  
AUDIT



BRAND AUDIT



ONLINE WASTE  
BEHAVIOUR SURVEY



MARINE LITTER AUDITS  
(EMILY BAY, BUMBORA  
BEACH, AND ANSON BAY)





## NORFOLK ISLAND & WASTE

Key Challenges

Waste Streams

Environmental Impacts



## KEY CHALLENGES



Remote location and  
small size of the island



No harbours and lack  
of regular/direct  
shipping



Unpredictable weather



Personnel shortage

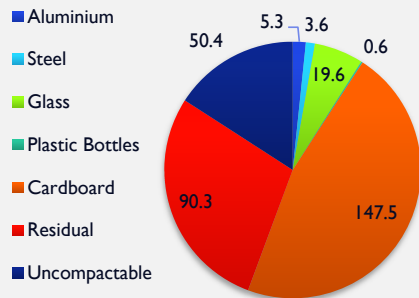


# NORFOLK ISLAND WASTE CHARACTERIZATION STUDY 2020

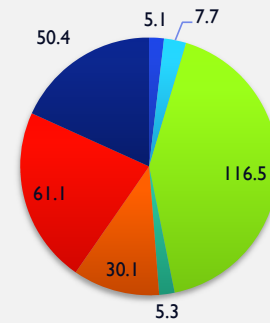
## Total Solid Waste 593.6t



## Commercial 317.3t



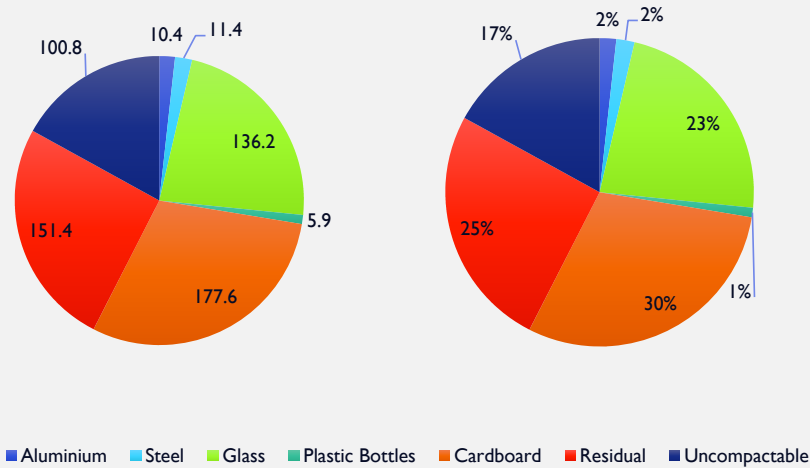
## Household 276.3t





# NORFOLK ISLAND WASTE CHARACTERIZATION STUDY 2020

Commercial, Household Combined (t)







## MAJOR WASTE STREAMS



### Cardboard

30% of municipal waste

A good candidate for on-island destruction



### Residual Waste

25% of municipal waste

Further source separation is needed (FOGO and hygiene waste should be targeted)

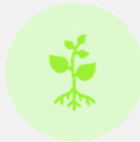


### Glass

23% of municipal waste

Higher quality automatic glass reprocessing unit needed

Glass waste is impacting beaches



### Organic Waste

88% of organic waste is managed outside of the WMC through animals, composting, vermiculture and burning



### Uncompactable Waste

17% of municipal waste

Burned at Headstone and ash disposed of into the ocean.





## MINOR/MODERATE WASTE STREAMS



### Aluminum

2% of municipal waste

A dedicated aluminum compactor should be considered, and aluminum cans should be exported



### Steel

2% of municipal waste

A dedicated aluminum compactor could also be used on steel to reduce freight costs



### Plastic bottle

1% of municipal waste

The WMC chute needs to be changed so that only clean PET bottles are received, a separate chute may be needed for other plastics



### Hazardous and Special Waste

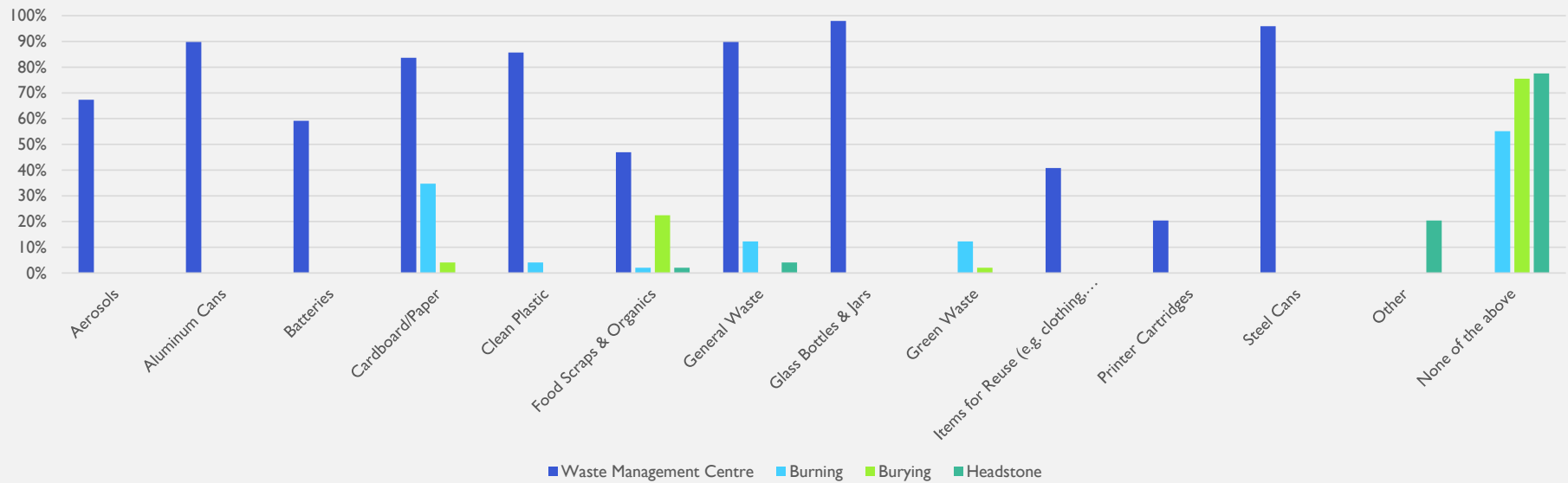
A moderate waste stream in Norfolk Island





# ENVIRONMENTAL IMPACTS

Disposal Method by Waste Type (% of Respondents).



A significant amount of waste is still disposed of outside of the WMC. Estimates indicate that approximately 60 tonnes of municipal solid waste is not managed by the WMC.



## ENVIRONMENTAL IMPACTS

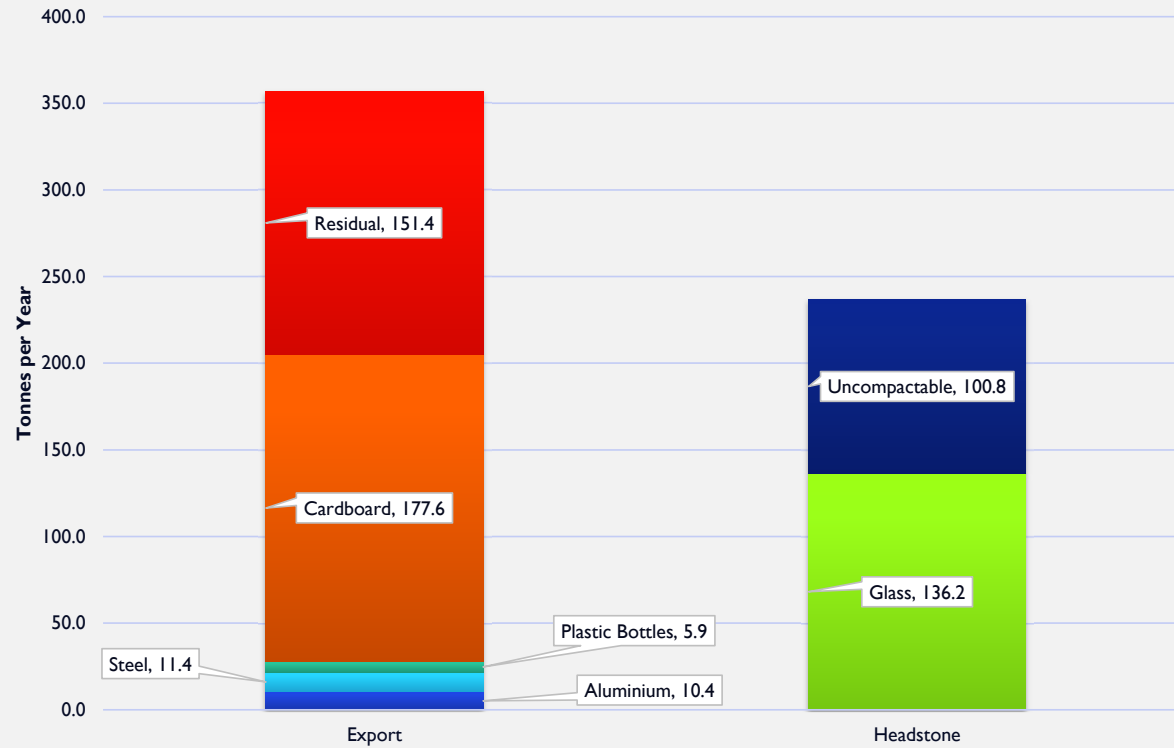
- Contaminating and harmful methods of waste disposal such as burning, backyard burial and disposal at sea have reduced but still occur.





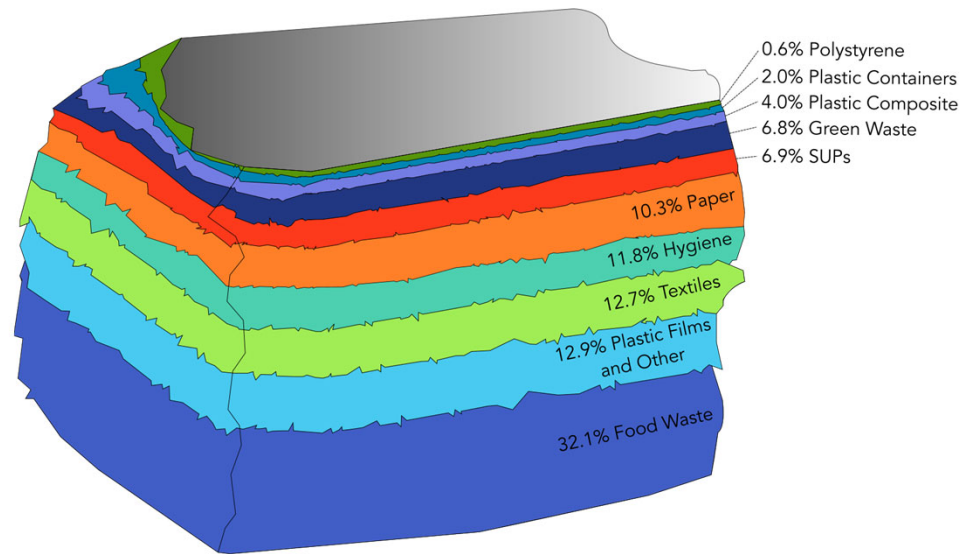
# ENVIRONMENTAL IMPACTS

## Current Treatment Processes





## Residual Bale Waste Characterisation



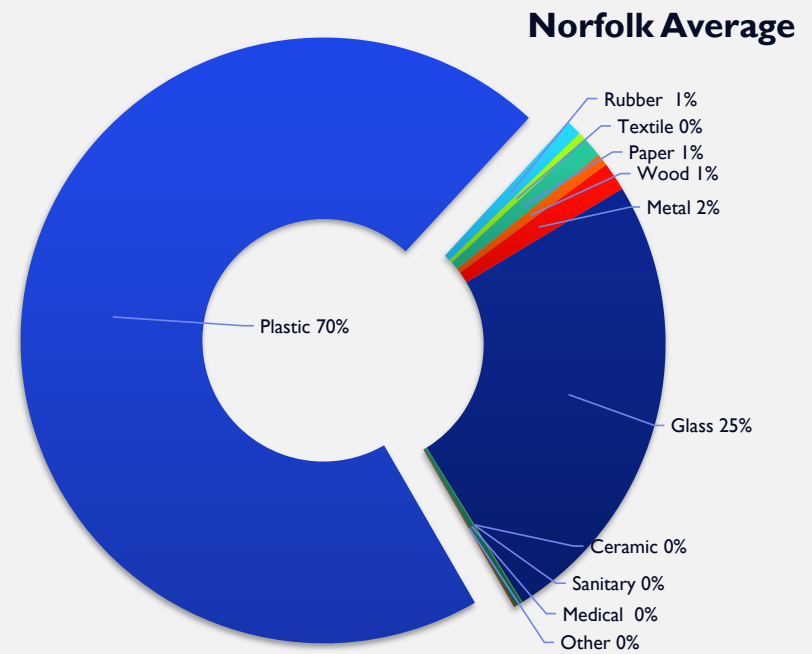




# ENVIRONMENTAL IMPACTS

## BEACH LITTER

Survey Site	Abundance of Litter (Items/100m)
Anson Bay	1393
Bombora Beach	793
Emily bay	176
<b>Norfolk Average</b>	<b>787.33</b>
<b>Western European Average</b>	<b>300 - 600</b>







WASTE  
MANAGEMENT &  
COSTS

A large blue circle with a white border is centered on the left side of the slide. Inside the circle, the text "WASTE MANAGEMENT & COSTS" is written in white, uppercase letters.

Current VS Future Costs

Logistical Recommendations

Financial Recommendations



## TRANSPORT & DISPOSAL COSTS

Component Cost Comparison	Air Freight (t)	Sea Freight (t)
Freight	\$ 1,005.60	\$ 748.36
Customs/Quarantine Charges	\$ 25.60	\$ 56.23
International Terminal Fees	\$ 402.10	\$ -
Land Transport	\$ 57.18	\$ 91.60
Disposal Costs	\$ 273.00	\$ 273.00
<b>Total Cost</b>	<b>\$ 1,763.48</b>	<b>\$ 1,169.19</b>



## NORFOLK WASTE MANAGEMENT BUDGET

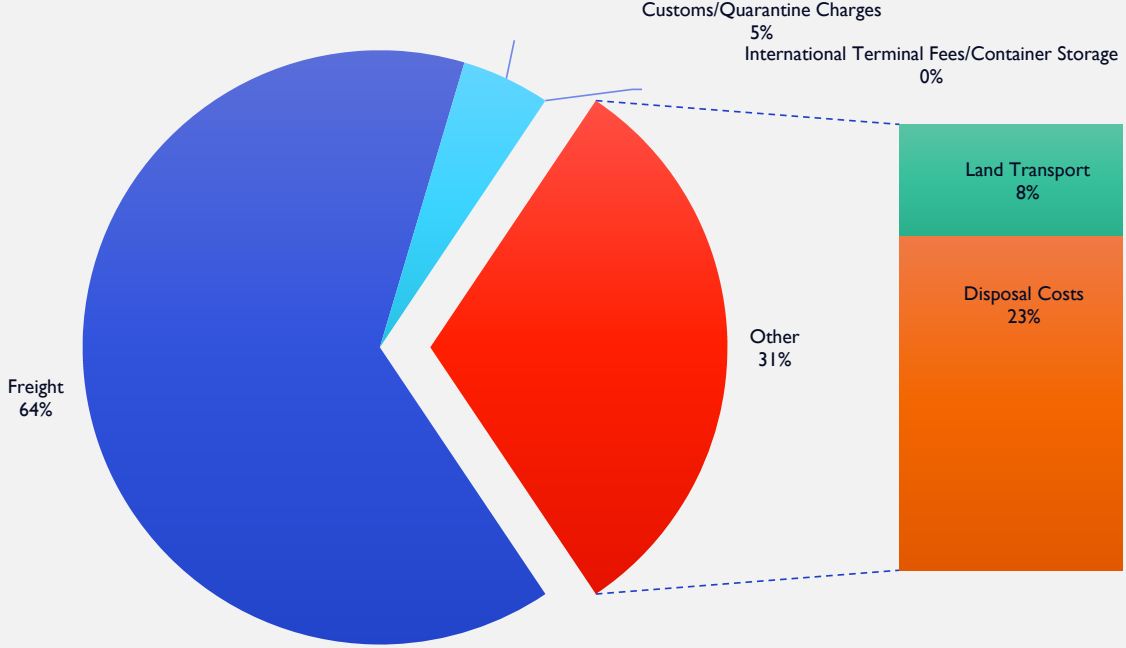
### Actual 2020/2021 Waste Management Budget

Total Operating Expenditure*	\$ 1,960,338.85		
Total Revenue	\$ 689,012.35		
Remaining	-\$ 1,271,326.50		
* Excluding capital cost, depreciation etc			



# COSTS – SEA FREIGHT

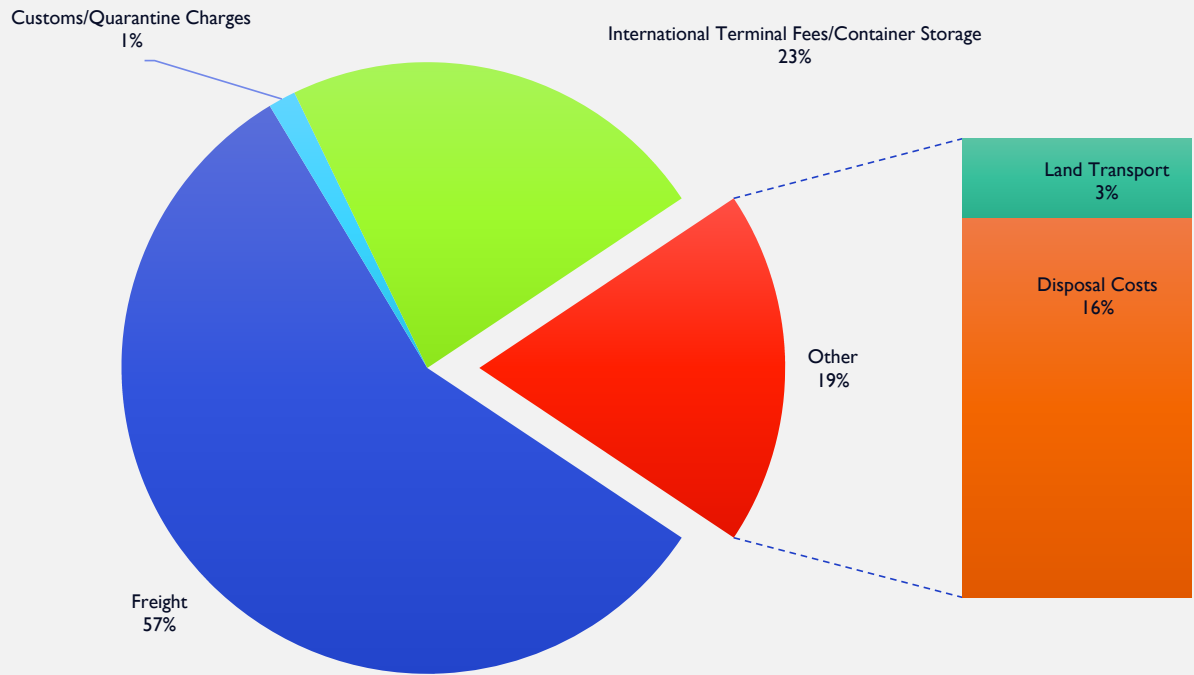
Sea Freight Cost Breakdown (per tonne)





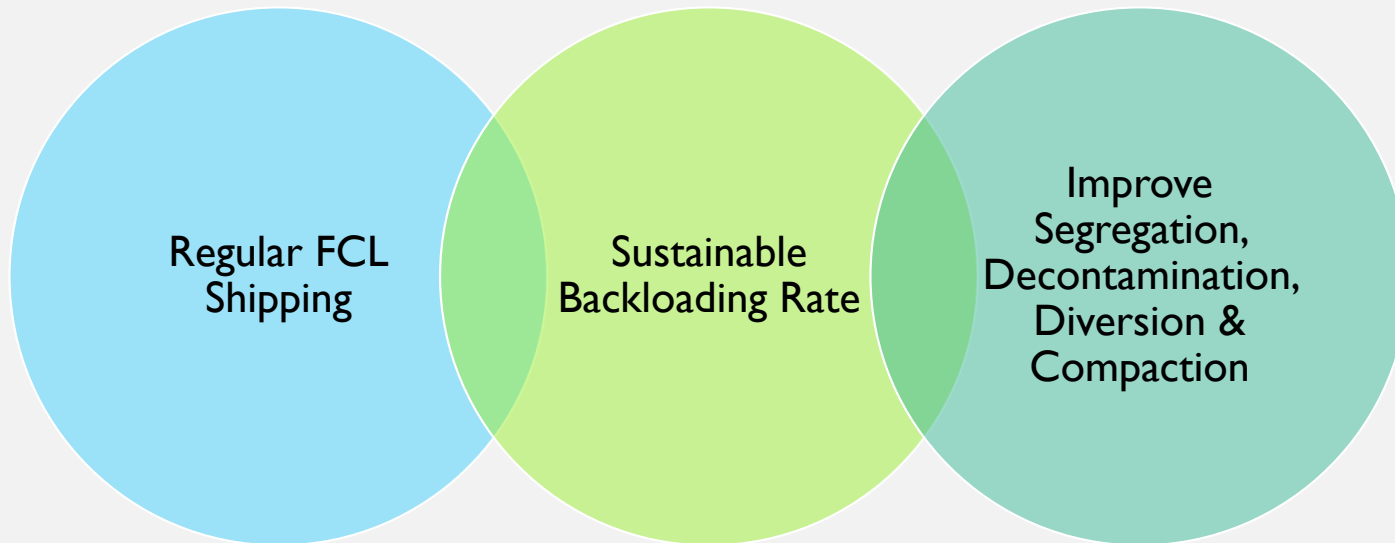
# COSTS – AIR FREIGHT

**Air Freight Cost Breakdown (per tonne)**





## LOGISTICAL RECOMMENDATIONS







## FINANCIAL RECOMMENDATIONS

Waste management income needs to meet costs equivalent to outcome and as is provided by other Australian Councils

A waste management fee in rates needs to be considered (as in all other jurisdictions)

EPR sources of funding should be developed (ie bottle return schemes)

'Best outcomes' (cost/environmental impact) needs to be developed for each waste stream

Financial plans and scenario modelling

EOL management fees for difficult wastes should match costs of disposal (via levy change?)



MOVING  
FORWARD  
TOGETHER

Norfolk Island Regional Council

Private Sector

The Community



# NORFOLK ISLAND REGIONAL COUNCIL

The Waste Management Centre and its staff should be recognised for the great strides in improved waste management that have occurred since 2015

The Strategic Waste Management Plan should be updated following the information presented in this survey and study and include

A costed implementation plan (5 years)

A funding plan (5 years)

Asset and operational management plan

Training plan & Logistics plan

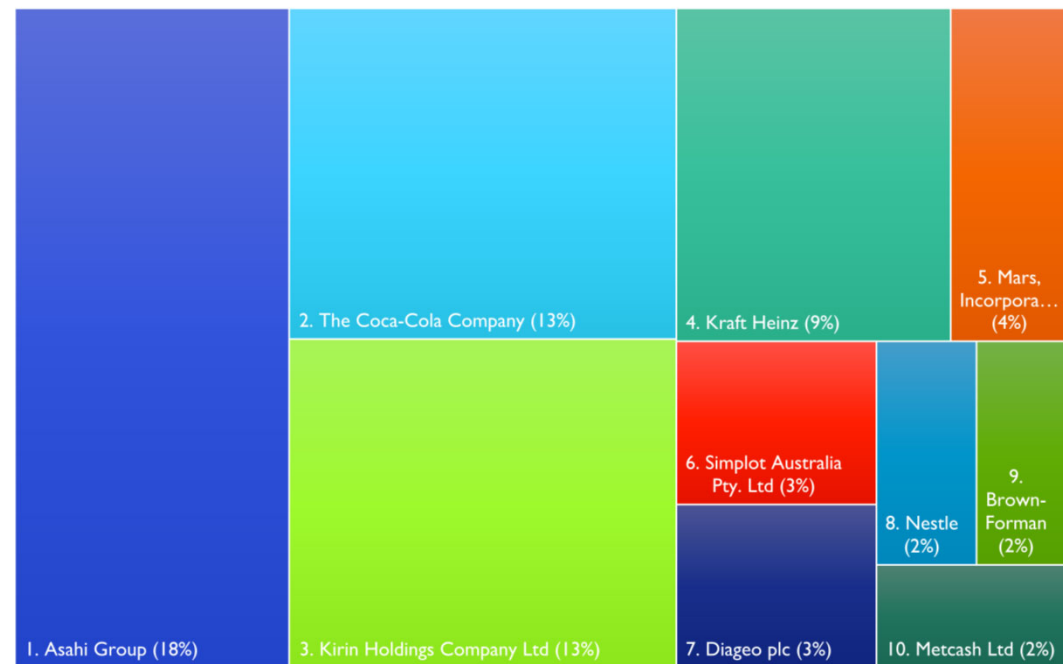
Monitoring & evaluation plan



## PRIVATE SECTOR

- Extended Producer Responsibility, Circular Economy and corporate social responsibility
- The Brand Survey results should be used to leverage assistance from companies whose products dominate the Norfolk Island waste stream through projects such as APCO, ANZPAC and RedCycle.
- Private sector entities such as Prinke should be emulated to reduce packaging waste through low and no waste systems and linkages made to replicable practices in mainland Australia (and elsewhere).

Top 10 Parent Companies Share of all Branded Items





## THE COMMUNITY

- The community plays a critical role in the long-term success of waste management on Norfolk Island
- Purposeful engagement of community through structured community-based social marketing (CBSM) should be employed
- Barriers to effective engagement and communication specific to Norfolk Island need to be identified and addressed specifically





**MONASH**  
University

THANK YOU

- For any further information contact:

Marine Plastic Solutions

[admin@marineplasticsolutions.com](mailto:admin@marineplasticsolutions.com)

[www.marineplasticsolutions.com](http://www.marineplasticsolutions.com)