



JAMES COOK  
UNIVERSITY  
AUSTRALIA

Waste Reduction Management Plan - Draft  
James Cook University

Developed By: Estate Directorate  
December 2021

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## LIST OF ABBREVIATIONS

CRC	Cairns Regional Council
DEHP	Department of Environment and Heritage Protection
HSE	Health, Safety and Environment
ICT	Information and Communications Technology
JCU	James Cook University
SAC	Sustainability Advisory Committee
SAG	Sustainability Action Group
TCC	Townsville City Council
WRMP	Waste Reduction Management Plan

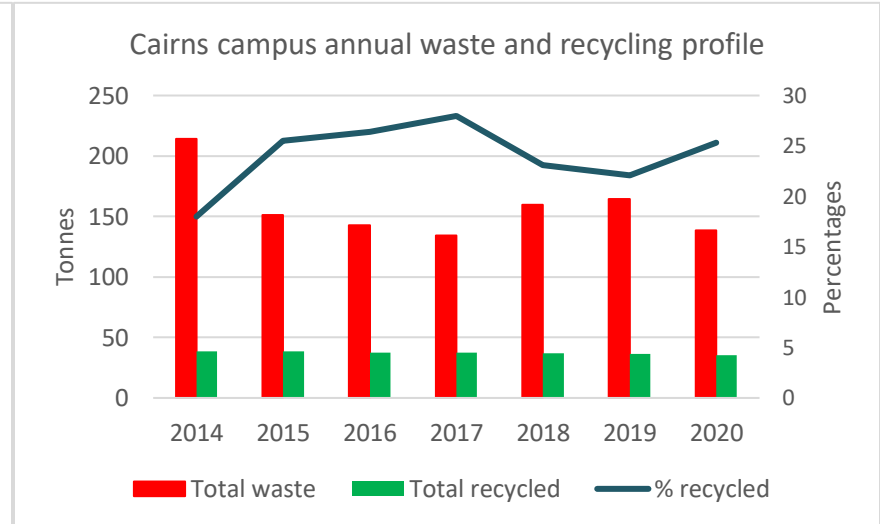
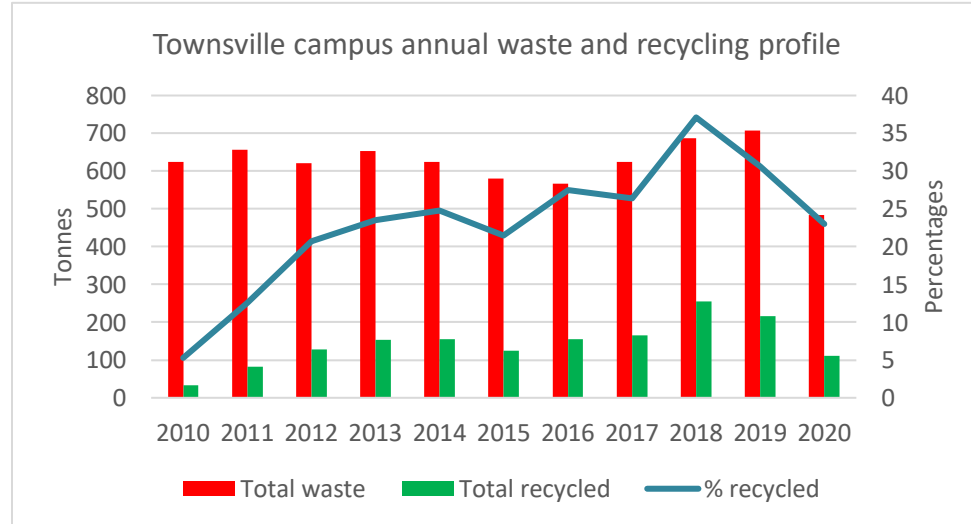
## BACKGROUND TO WASTE MANAGEMENT AT JCU

James Cook University creates a significant volume of waste each year from a wide variety of sources, much of which is unnecessarily sent to landfill. The University has implemented various programs to manage and reduce waste generation in recent years. However, additional, and on-going effort is required to minimise waste production and maximise recycling rates. The JCU Waste Reduction Management Plan (WRMP) deals with material wastes generated at JCU campuses and facilities that require reuse, recycling or disposal. It does not cover wastes generated as greenhouse gases or water related wastes as these are covered under other plans.

The charts below show the progress JCU has made to date on waste management for Townsville and Cairns campuses. Data is retrieved from reports provided by JCU's waste contractor - Cleanaway. Data for Cairns is only available from 2014.

Waste to landfill on Townsville campus has reduced by 17% from 2015 to 2020 while the recycling rate has increased by 2% (from 21% to 23% of total waste produced) although the absolute quantity of recyclable wastes has reduced by about 10% over the 2015-2020 period. JCU Cairns campus has also witnessed a reduction in total waste generation by 6% and a 25% recycling rate over the 2015-2020 period. Although the trends are undulating for both campuses, some successes have been earned due to continued efforts to roll out waste management programs and infrastructure to the campuses, while working closely with waste contractors, cleaning staff and the JCU community.

Further improvements are possible, hence the rationale for the WRMP, which outlines practices and procedures that will help to achieve the long-term waste and recycling goals of JCU.



## AIMS AND OBJECTIVES OF WASTE MANAGEMENT

The long-term goal of JCU is to reduce total waste production by 20% and increase the recycling rate to 70% by 2030 (from 2020 figures). This goal will be pursued by embarking on 'the circular economy of products' approach through two main strategies:

- a) Reduce waste by choosing reusables
- b) Recycle right and minimize contamination

### The Circular Economy Approach

The circular economy approach is a change from linear use of products to a circular as a means of reducing waste and the use of natural resources. Natural resources are taken from the environment to manufacture the products we use. These products are designed to last as long as possible, and be easier to disassemble, refurbish, repurpose, and reuse as multiple times as possible. When the products reach their lifespan and cannot be repaired and/or reuse, component parts and materials can be easily separated and used in new products, reducing the use of natural resources and the amount of residual waste sent to landfill.

Recycling is the last stage to close the circular economy loop. If recycling is not done right to minimize contamination, the whole process fails, and everything ends up in a landfill. This increases the amount of waste the environment has to contain, and the amount of natural resources manufacturers have to extract again to produce the same products.

To ensure the circular economy is effectively employed, this document will help to inform the development of a waste reduction action plan, which will identify specific actions to be undertaken to achieve the long-term goal of waste management at JCU.

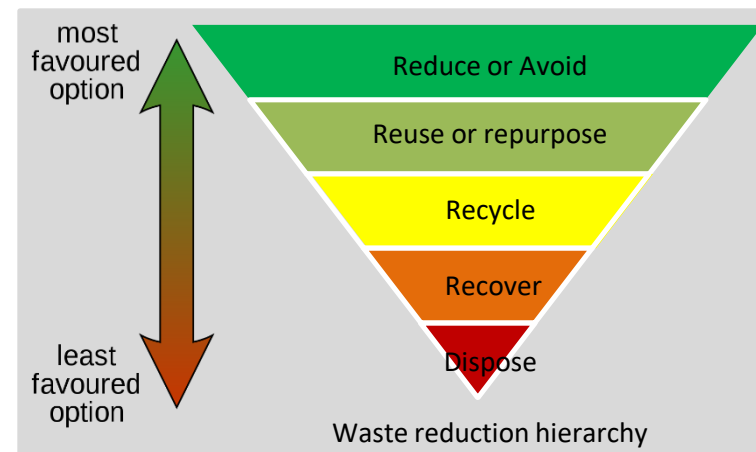
The WRMP aims to ensure all waste generated at JCU is properly managed

and disposed of through:

- Providing training and education to staff and students on correct disposal and management of various wastes.
- Providing adequate resources and infrastructure for students and staff to reuse and recycle materials at the end of their life.
- Providing easy to access waste management information and procedures via the TropEco website, newsletters, facebook and other communications avenues.
- Encouraging best practice for waste reduction and continually identify areas for improvement in waste management at JCU campuses and sites.
- Support and alignment with State and Federal Government waste management strategies.

### Waste Reduction Hierarchy

The WRMP aims to reduce waste generation at all JCU sites using the waste reduction hierarchy as the basis. This hierarchy is supported by State and Federal Government waste management strategies.



## JCU WASTE PROFILE

JCU consists of two main Australian campuses at Townsville and Cairns, a Singapore campus, and smaller study centres in Mackay, Mount Isa, and Thursday Island. JCU also runs several research stations across North Queensland. The majority of JCU's waste is generated at the Townsville and Cairns campuses. These sites are the main consideration of the WRMP. However, the smaller study centres and research stations still require effective management of waste.

Where effective waste management is critical, such as the Daintree Rainforest Observatory and Orpheus Island Research Station, waste management plans are included in the Environmental Management Plan for the site and should be referred to in the first instance. For other JCU sites, staff should follow the waste reduction hierarchy and utilise local recycling services where possible before disposing items to landfill. The Estate Directorate can help with any specific waste enquiries for these sites.

JCU works closely with its waste and recycling contractors and cleaning contractors to minimise waste to landfill and improve recycling rates. JCU's reporting requirements for waste and recycling generation have increased in recent years resulting in the monitoring of all waste disposed of on its Australian Campuses. Anyone disposing of waste outside of the regular waste and recycling system should report their activities to the Estate Directorate.

### Waste generation at JCU

Waste is generated from various areas across all campuses and sites, including:

- Offices
- Laboratories and research facilities

- Gardens and landscape
- University accommodation
- Food and beverage outlets
- Educational facilities
- JCU Tenants



### Waste streams at JCU

Waste types dealt with at JCU include:

- Paper
- Cardboard
- Plastics (recyclable and non-recyclable)
- Confidential waste
- Green waste
- Food waste
- Furniture
- Polystyrene
- Glass
- Electronic waste
- Metal
- Lighting
- Batteries
- Chemical waste
- Clinical waste
- Radioactive waste
- Construction waste
- Sanitary waste



The commitment of JCU staff and students and behavioural change towards circular economy of products would help manage waste at JCU sustainably.

## JCU SUSTAINABILITY COMMITMENT

James Cook University is an international University committed to creating a brighter future for life in the tropics. JCU has made a clear commitment to [sustainability](#) – through the inclusion of sustainability in the Statement of Strategic Intent, the University Plan, the JCU Code of Conduct for staff, and most recently, by becoming a signatory to the [Talloires Declaration](#), an international agreement of university leaders for sustainability.

Sustainability finds expression in how we deal with global challenges such as climate change adaptation, diminishing biodiversity, food security, human rights, poverty alleviation, multiculturalism, and global security. Responsible management of waste is one method we employ to ensure that our actions do not limit the range of social, cultural, environmental, and economic options open to future generations.

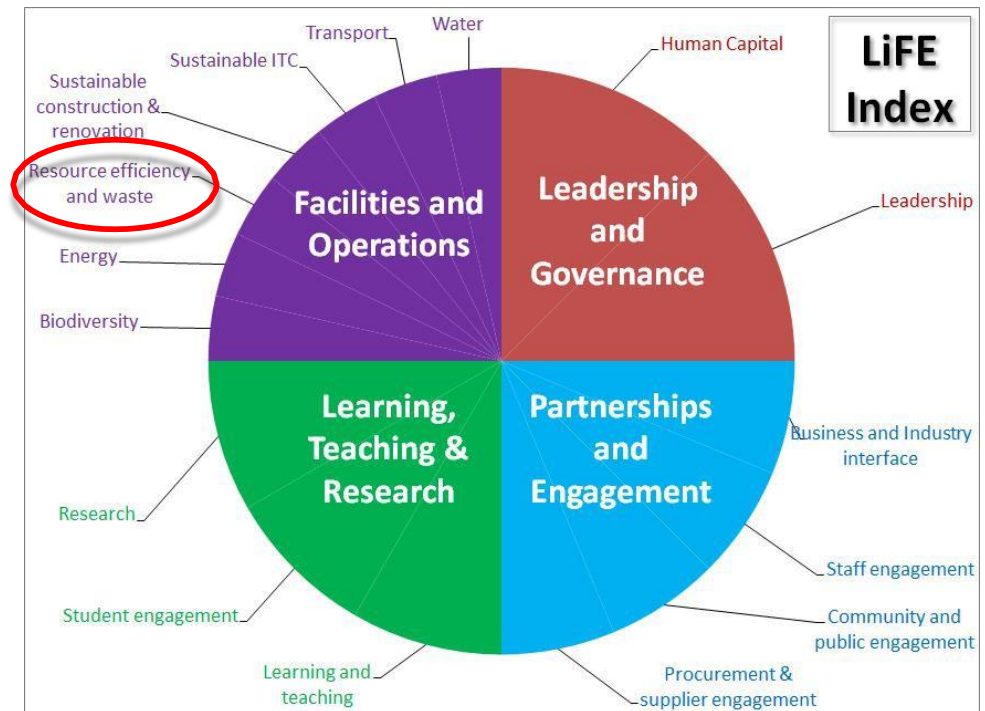
### JCU's Sustainability Vision

*“Committed to the principles of sustainability, we will ensure that our actions today do not limit the range of social, cultural, environmental and economic options open to future generations. Our sustainability vision is anchored in the belief that social, environmental, and economic sustainability must be embedded in our daily practices and integrated in everything we do. Sustainable development is rooted in respect for our natural and social contexts, and in the knowledge that we will be judged by future generations according to our success in realising our sustainability goals.*”

*In seeking a brighter future for people in the tropics worldwide, JCU staff and students will work to ensure that our actions today do not limit the range of social, cultural, environmental, and economic options of future generations. Through our scholarship and practices, JCU seeks to meet the challenges that affect the tropics, and in doing will materially contribute to sustainable development, world-wide.”*

### The LiFE Index- planning for a sustainable JCU

As part of its commitment to a sustainable university, JCU has implemented the LiFE Index system to benchmark and develop action plans to embed sustainable practices in all its operations. The LiFE Index breaks down the relevant areas into Priority Areas and Frameworks to focus on specific activities required for a sustainable University. *Resource efficiency and waste* is one of the Frameworks under the *Facilities and Operations* Priority Area, and this document represents the management plan for waste reduction at JCU. Additional management plans and action planning is occurring for other Frameworks within the LiFE Index.



## TARGET SETTING

Target setting is an important part of progress toward minimising waste production and maximising recycling efforts. JCU sets targets according to the SMARTER principle - specific, measurable, achievable, relevant, and time- targeted objectives which are evaluated and re-evaluated.

Annual waste reduction and recycling targets become more specific through quantification or enumeration, or by defining certain tasks that need to be completed. Target setting creates an official commitment to reduce waste and increase recycling and attracts the allocation of resources to achieve the agreed targets.

Creating reductions in waste volumes and increasing recycling rates will result in immediate savings to JCU. The major barrier for waste reduction is behaviour change from staff and, to a lesser extent, students. Most of the required infrastructure is already in place and it is a matter of educating and encouraging a cultural shift in waste management practices to create changes in procurement and disposal practices.

TropEco and the Sustainable Development Working Group have a major role to play in creating the cultural shift. Targets will focus on a reduction in total waste volume (waste and recycling combined) and an increase in the recycling rate, with the key objective to reduce total waste volume and maximise recycling rates for the remaining waste.

All targets refer to the Townsville and Cairns Campuses only, as data collection from other JCU sites is difficult and waste volumes are minor compared to the major campuses. As better data becomes available, other sites may develop their own targets that can be added to the WRMP. The baseline year for all targets is 2020.

### Short-term targets (up to December 2022)

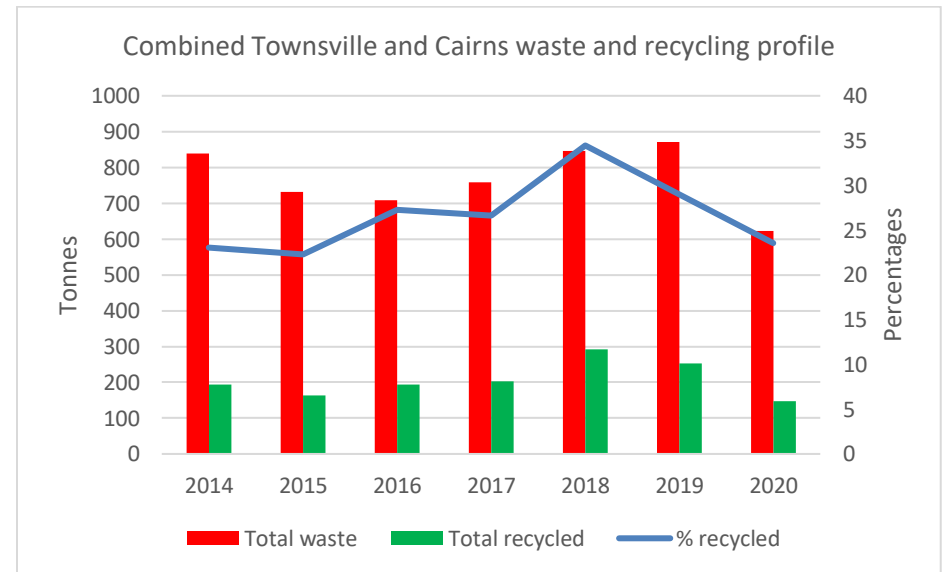
- No net increase in total waste production (waste and recycling combined)
- Continuous improvement in recycling rates

### Medium-term targets (up to December 2025)

- 10% reduction in total waste volume
- Recycling rate of 35%

### Long-term targets (up to December 2030)

- 20% reduction in total waste volume
- Recycling rate of 70%



## WASTE MANAGEMENT THROUGH PROCUREMENT

Effective procurement plays a large role in minimising unnecessary waste production. The JCU Procurement Policy states that:

*“The University will strongly contribute to the advancement of corporate, community, local industry and environmentally sustainable outcomes through all of its procurement activities. To achieve this, we will use our best endeavours to do business with ethical and socially responsible suppliers.”*

JCU will reduce waste going to landfill by applying purchasing principles that includes, avoiding, reducing, reusing, recycling and then finally disposal to landfill, of products used by JCU. Staff should:

- Ensure suppliers minimise packaging and request that all packaging can be recycled. Staff should also consider the life cycle of any product purchased and ensure it has a long-life and can be reused or recycled at the end of its life.
- Avoid waste by not purchasing items that are not needed or are obsolete, not sustainably produced, or are not of a quality which will last.
- Reuse items instead of disposing to landfill. This may include reusing items such as office supplies, stationary, furniture, machinery and paper within the workplace or finding an alternative opportunity for reuse.
- Recycle materials such as paper and cardboard, plastic containers, glass jars and bottles, steel and aluminium cans, printer and toner cartridges, green waste, construction/demolition materials, and E-waste. Preference should be made for items that are recycled through existing recycling processes and systems.

JCU will base procurement decisions on the principles of “value for money over lifecycle of products” rather than “lowest cost” and will give preference to and purchase energy efficient, water saving and environmentally performing products and services that are cost competitive. Applying a life cycle assessment on products will consider social, environmental, and economic impacts, rather than economic impacts alone.

## WASTE AND RECYCLING PROCEDURES

[Waste & Recycling Procedures](#) have been developed to inform JCU staff and students on managing specific waste and recycling streams on JCU’s campuses. All staff should be familiar with the procedures that are relevant to their work environment.

If followed, these procedures are expected to result in a significant reduction in waste to landfill and overall reduction in waste production for JCU, ensuring environmental, social, and economic impacts related to waste are minimised.

The Estate Directorate is responsible for managing most waste streams on campus and should be the first point of contact for waste and recycling queries.

Staff should ensure they have consulted the relevant information in the [Waste & Recycling Procedures](#) before making any queries. Any queries should be directed to [estate@jcu.edu.au](mailto:estate@jcu.edu.au), or for urgent waste related enquiries please contact 4781 5060.



## WASTE INFRASTRUCTURE & SIGNAGE

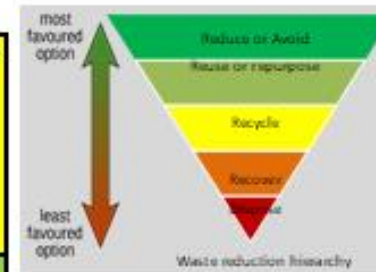
Appropriate infrastructure and signage are essential for effective waste management and recycling program. JCU uses standard bin types and signage for most waste streams. The Queensland Government's public place waste and recycling signage has been adopted along with colour coding for major waste and recycling streams to ensure consistency and familiarity with the system. A summary of what waste goes into what bin has also been developed for use at JCU to make waste management simple and recycling less contaminating.

The Estate Directorate can provide additional bin infrastructure, signage, posters, training, and educational material to assist areas to reduce their waste production and increase recycling rates. If a service is lacking in your area or you have suggestions for improvement, please contact [tropeco@jcu.edu.au](mailto:tropeco@jcu.edu.au).



# JCU WASTE DISPOSAL SUMMARY

	<b>Red Bin General waste</b> 	<b>Yellow Bin Co-mingled Recycling</b> 	<b>Blue bin Paper/ cardboard</b> 	<b>Cardboard skip</b> 	<b>Orange bin Confidential</b> 	<b>White bin Soft plastic</b> 	<b>Green bin Compost</b> 	<b>Clinical Waste</b> 
<b>✓</b>	Disposable coffee cups Plastic traps/ smoothie cups Soft plastic Food waste Contaminated paper Pizza boxes Broken crockery Polystyrene	Paper Glass Steel cans Aluminum cans Clean hard plastic containers and bottles	Copy paper Clean cardboard Newspaper Magazines	Flattened clean cardboard boxes	Confidential documents	Plastic shopping bags Clean plastic food bags Confectionary wrappers Chip packets Produce netting bags Courier satchels Gladwrap Large soft plastic sheets cut into A3 pieces Bubble wrap	Fruit and vegetable scraps Paper towel Tea bags Compostable containers Coffee grounds Plant material	Laboratory waste Used sharps Human tissue waste Animal waste
<b>WHATS IN?</b>								
<b>✓</b>								
<b>✗</b>	<b>Batteries</b> E-waste Broken appliances Chemicals Paint Hazardous waste	bottle lids Disposable coffee cups Plastic traps/ smoothie cups Soft plastic Food waste Contaminated paper Pizza boxes Polystyrene Paper towel Coffee pods	Waxed paper plastic coated paper Staples Sticky tape Plastic sleeves Laminated paper Wet, dirty paper	Plastic packaging materials Polystyrene packaging Pallets/timber Wet/contaminated cardboard	General waste Non-confidential papers	Coffee cups Biscuit packet trays Dirty packaging Polystyrene	Dairy Meat Bones Oil Oily food waste Coffee cups Coffee pods	General waste



## What other items can I recycle at JCU?

- Batteries**  
Battery world bin 
- Coffee Pods**  
**Mobile Phones**  
**Printer cartridges**  
Recycling hub stations 
- E-waste**  
E-waste Skips 
- Unused Furniture**  
Online furniture redistribution network 

## ACTION PLAN, MONITORING AND EVALUATION

Waste reduction action plan has been prepared to be implemented to achieve the aims and objectives of the WRMP. This action plan is composed of several activities the execution of which will help push forward JCU's War on Waste campaign. These activities will be monitored and evaluated regularly to assess implementation progress and impacts. Effective monitoring and evaluation of waste management activities is essential to ensure accurate reporting and planning.

Waste auditing will be carried out as part of the monitoring process. Two types of waste audits need to be conducted to get an accurate understanding of waste management practices - a volume/weight audit as a qualitative measurement and a waste type/contamination audit as a quantitative measurement.

### Waste type/contamination audit

Waste auditing looks at total volume and/or weight of waste and recyclables disposed, as well as a breakdown of the types of waste disposed of in general waste, to identify the opportunities for additional recycling or reuse.

Auditing the waste types being disposed of in general waste bins should be done at least once per year on a representative sample of bins/skips on each campus. This involves taking a sample of waste from several skips, sorting it into waste types and weighing each waste type. This is to identify the amount of waste that could potentially be recycled and allows targeted communication programs and waste infrastructure changes to ensure maximum diversion of waste to recycling.

An audit on recycling contamination rates should also be conducted on each major recycling stream at least once per year on a representative sample of bins/skips for each campus. This should identify the percentage

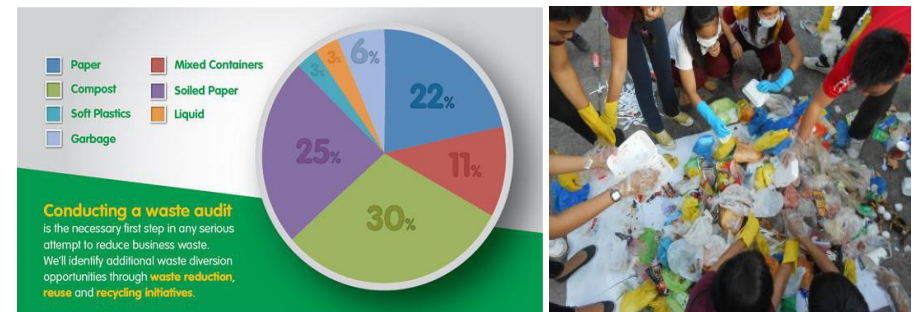
of contamination in bins and a breakdown of the types of contaminants to inform strategic decisions towards zero contamination.

All audits must be conducted in a safe manner and ensure a risk assessment has been conducted prior to commencement and appropriate PPE is worn.

### Volume/weight audit

Waste contractors for both campuses provide waste data following collection. These data indicate volume/weight of disposal to landfill or recycling. These data will be used to track the progress of waste reduction and recycling on both campuses.

Not all waste streams are collected by JCU waste contractors. For such waste streams, audit should be done on each bin or skip as and when they are disposed of. The audit should be conducted on all bins/skips as close as possible to the collection day/time to ensure all waste disposed of is accounted for. Liaison with cleaning and/or waste contractors may be required to ensure accurate results.



## CONTRACT MANAGEMENT

The Estate Directorate manages waste and recycling contracts for the Townsville and Cairns campuses for the following waste streams:

- General waste
- Commingled recycling
- Paper and cardboard recycling
- Confidential waste
- Sanitary waste

To ensure high quality of service, JCU requires all contractors to have appropriate systems in place to manage their operations effectively. These include quality assurance, health and safety, environmental performance and relevant permits and licences.

The Estate Directorate works closely with its contractors to improve resource recovery rates and reduce waste to landfill. Contractors are required to report waste and recycling data for each waste stream monthly. This information is used for efficiency planning and reporting.

### Waste management contractors

Currently JCU engages Townsville City Council for waste management in Townsville and Cleanaway in Cairns, with Shred-X carrying out confidential waste management.

Additional waste streams will be managed under contracts as required to ensure appropriate and responsible disposal of JCU's waste, with reuse or recycling of wastes carried out wherever viable.

### Cleaning contractors

JCU's cleaners are required to separate recyclables from general waste and dispose of recyclables in the recycle skips provided, where recycling bins are provided on campus.

JCU's cleaning contractors have been inducted and trained in the process of disposing of waste and recyclables and the correct procedures should always be followed by cleaners. Where recycling is deemed to be contaminated, recyclables will be disposed of in general waste bins by JCU's cleaners.

If you have any concerns about correct disposal of recyclables or waste by our cleaners please contact the Estate Directorate - [estate@jcu.edu.au](mailto:estate@jcu.edu.au).

### Construction contractors

Construction sites often produce a large volume of waste materials. Much of these materials can be recycled or reused when managed properly. The Estate Directorate and other relevant departments at JCU will work closely with contractors to ensure waste is reduced and maximise recovery of recyclables.

No contractor waste materials should be disposed of in JCU skips or bins without prior approval from the Manager, Environment and Sustainability. Contractors are required to dispose of waste off-site or ensure a skip is ordered through the relevant JCU Project Manager. Recyclable materials should be separated from general waste. Asbestos materials or materials suspected to contain asbestos must be disposed of in the correct manner by qualified contractors.

The **JCU Design Guidelines – Section 21 – Environmental Management**, specifies the correct disposal method for most major waste types produced during construction and operational works at JCU. Contractors should refer to this document in the first instance.

## EDUCATIONAL RESOURCES

TropEco is responsible for ensuring staff and students are familiar with the waste and recycling system at JCU and can provide educational material such as signage, posters, handouts, and training for anyone requiring more information, tailored for the Cairns or Townsville Campuses.

The TropEco website also contains information on waste and recycling management at JCU. If you would like further information or resources, please contact [tropeco@jcu.edu.au](mailto:tropeco@jcu.edu.au) or visit the TropEco website: [www.jcu.edu.au/tropeco](http://www.jcu.edu.au/tropeco)

## RELEVANT JCU POLICIES

[Asbestos Policy](#) - relates to management and disposal of asbestos containing materials

[JCU Code of Conduct](#) - Principle 4 - Embrace sustainability and social responsibility - relates to responsible waste management

[Health, Safety and Environment Policy](#) - relates to health and safety requirements for people managing waste on campus

[Risk Management Policy](#) - relates to management and disposal of wastes in a way that minimises risk to people and the environment

## ADDITIONAL RESOURCES

Queensland Government Waste Management website – information and resources on waste and recycling <http://www.ehp.qld.gov.au/waste/index.html>

Queensland Government - Waste Avoidance and Resource Productivity Strategy 2014 - 2024 <https://www.ehp.qld.gov.au/waste/qld-waste-strategy.html>

Townsville City Council waste and recycling information <http://www.townsville.qld.gov.au/resident/waste/Pages/default.aspx>

Cairns Regional Council waste and recycling information

Visy recycling webpage – information about processes and products produced <http://www.visy.com.au/recycling-about/>

Australian Government – National Waste Policy <http://www.environment.gov.au/protection/national-waste-policy>

Clean Up Australia – recycling information <http://www.cleanup.org.au/au/Factsheets/recycling-waste.html>

TerraCycle Australia – recycling services <http://www.terracycle.com.au/en-AU/>

SITA recycling webpage – facts and information <http://www.sita.com.au/community-education/site-tours-education/fact-sheets/>