

Integrated Waste Management



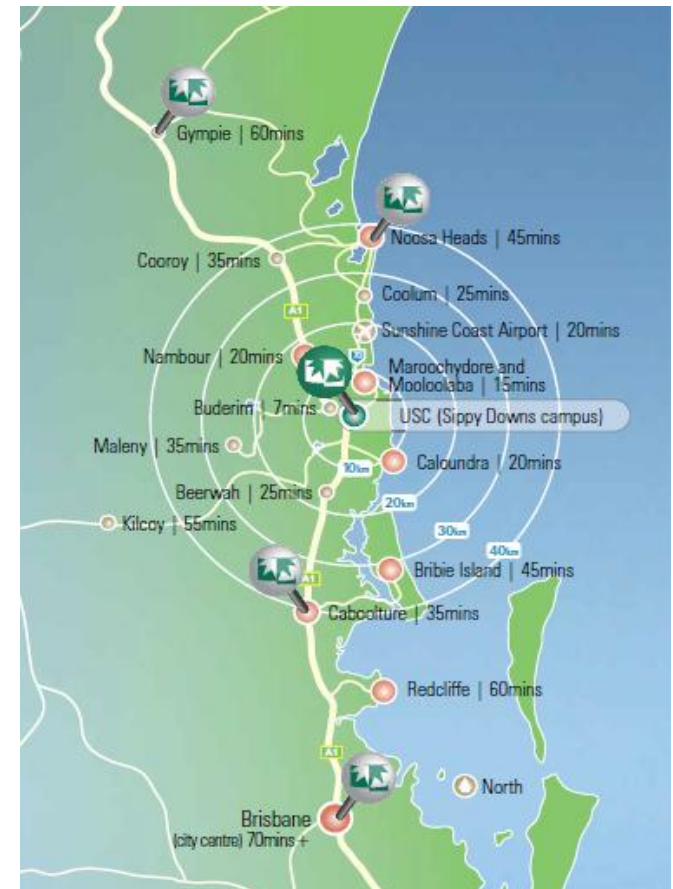
Sustainable USC



**University of the
Sunshine Coast**

University of the Sunshine Coast

- Sippy Downs campus, Sunshine Coast, Queensland, Australia (100 kilometres north of Brisbane, Queensland's capital city)
- USC has centres in Noosa, Gympie, Caboolture, North Lakes and at South Bank and operates a research facility on Fraser Island



Background

- The University opened in 1996 with 500 students
- It was the first greenfield public university to be established nationally since the early 1970s
- The 100-hectare site was chosen for its central location in the Sunshine Coast region and accessibility from the Bruce Highway and other major transport routes



Facts

- One of the fastest growing universities
- Increasing trend for student enrolments over the last five years
- In 2014 student enrolments increased to 9652
- USC is targeting student enrolments of 12,000 by 2015
- GFA 65,670m2 (UFA 38,397m2)

CATEGORY	2009	2010	2011	2012	2013	ANNUAL % change	TREND
STUDENTS							
Number of students ¹	6,325	7,276	7,766	8,139	8,904	9.4%	↑
Undergraduate	4,826	5,701	6,142	6,564	7,173	9.3%	↑
Postgraduate coursework	732	654	680	611	683	11.8%	↑

(Source) University of the Sunshine Coast Annual Report 2013

Integrated Waste Management

- The University of the Sunshine Coast is committed to increasing the sustainability of its operations/activities.
- In the area of waste management, the Facilities Management department has implemented a variety of strategies that consider the entire life cycle of a product from procurement to disposal.



Waste Management Objectives

- Reduce on-site waste (processing compostable matter, waste separation, education)
- Reduce environmental impact (less waste going to landfill, reuse of waste material)
- Reduce waste disposal costs
- Encourage staff and students to be environmentally responsible

Integrated Waste Management Strategies

- **Onsite composting machine (OSCA)**
- **Waste recovery stations**
- **Desktop recycling program**
- **Engagement through education – thematic communications, Green Space and stakeholder engagement**
- **Water Refill Campus**
- **E water cleaning solutions**

OSCA The Composter



DID YOU KNOW...

The University has a composting machine called OSCA that transforms organic waste into nutrient rich compost for the campus gardens.

OSCA means - On-Site Composting Apparatus and it can process many items including:

- All food scraps
- Compostable plates, cups and cutlery sold at USC retail outlets
- Paper hand towels
- Lawn and garden clippings
- Cardboard

You can help us to feed OSCA by putting your organic waste into the green lidded bins provided on campus.



Fact:

It takes 20 wheelie bins full of organic waste to generate 1 wheelie bin of compost in OSCA

On-Site Composting Apparatus (OSCA)

- The OSCA (On-site Composting Apparatus) is the first Australian system of its kind and has been designed using an automated aerobic system to process organic matter
- Designed and built locally, and all components sourced within Australia
- USC is the first University to roll out the composting machine (OSCA) technology
- Worms Down Under – USC pilot project used to enhance the design and technology

OSCA

The key features of OSCA include:

- Automated aerobic system
- Maintains constant temperature of 60 degrees
- Process up to 1 tonnes of waste per week
- Low energy consumption
- Silent operation and odourless
- Produces safe high quality compost
- Two week turn around for compost product
- Shredding machine used to shred paper, coffee cups and plates – improve compost processing and consistency
- Compost used on campus gardens and for innovative pot planting
- Links: <http://www.onsitecomposting.com.au/>



Waste Recovery Stations

- Colour coded bin collection system across campus to facilitate the separation of waste streams and providing compostables to OSCA
- Change management
 - staff, contractors and students
 - retailers/suppliers – catering supplies

1. 60L and 40L - indoors and eateries
2. Wheelie Bins - outdoors



Waste Education

Paper & Cardboard

Scrap paper & newspaper

Office paper

Coloured paper

Assorted envelopes

Cardboard folders

Cardboard boxes (Flattened)

Sustainable USC | University of the Sunshine Coast

Compostable

All Food Scraps - anything edible is compostable

Fruit & vegetables

Servittes, plates & cutlery made from plant fibres

Coffee cups & lids sold at the USC retail outlets only

Hot food cartons, paper bowls, tea bags

Sustainable USC | University of the Sunshine Coast

Landfill

Chocolate bars, foil wrappers, chewing gum & sauce packets

Biscuits & muesli bar wrappers

Chips & savoury snack packets

Plastic straws, lids & lids from soft drink cans such as Microplastic & Zante's

From such as coffee sachets, hard cartons, drink sachets, oil & hot food bags

Polystyrene foam, non-recyclable plastics, plastic wrapping & labour bands

Sustainable USC | University of the Sunshine Coast

Recyclables

Plastic food containers, containers sold at USC for sandwiches, wraps, meals & cases

Drink bottles, plastic bottles, cans, glass bottles & juice cartons

Milk cartons & P.E.T bottles

Snack & yoghurt containers, tin cans & mint boxes

Crushed paper, envelopes, newspapers, brochures, cardboard food boxes

Sustainable USC | University of the Sunshine Coast

Desktop Recycling Program

- Current under-desk bins replaced with a desktop mini wheelie bin and communal waste recovery stations (staff)
- Staff can use the mini bin for preferred waste disposal type
- Compliments onsite waste streaming and OSCA system
- Empowers staff to be environmentally responsible



Waste Education

YOUR GUIDE TO RECYCLING AT USC: What goes in → to the right bin?

Paper & Cardboard



ALL PAPER
STATIONERY
CARDBOARD
(BOXES FLATTENED)

Compostables



ALL FOODS
COFFEE CUPS
COFFEE CUP LIDS
PLANT FIBRE PLATES
& CUTLERY

Recyclables



BOTTLES
JUICE CARTONS
CONTAINERS
CANS

Landfill



GENERAL RUBBISH
SUCH AS PLASTICS
FOLDS & WRAPPERS

AT USC WE'VE GOT IT SORTED The waste goes in → to the right bin!

You now have a mini desktop wheelle bin to replace the old waste bin under your desk. This mini bin is your responsibility to empty and can be used for your preferred type of waste disposal at your desk i.e. paper, plastics, food scraps.

This desktop initiative is designed to complement USC's colour coded waste recovery bin system across the campus which encourages staff and students to avoid, reduce, reuse and recycle waste.

Waste Recovery Station Bins are emptied everyday by the cleaners and are located at agreed office locations (usually the kitchen area), outside buildings as well as campus Cafes and eateries.

To learn more about how you can sort your waste responsibly see the 'Guide to Recycling at USC' on the back of this flyer.

www.usc.edu.au/sustainability

OUR GOAL IS TO:

- Separate waste streams for recycling
- Reduce waste sent off site to landfill
- Collect & process all compostable waste



Sustainable USC |  University of the Sunshine Coast

The Green Place

- Located at the OSCA site on campus
- Provides a community learning space for sustainability initiatives, OSCA technology and waste management strategies
- Showcases veggie garden using compost from OSCA
- Tours can be arranged for schools, business, industry, community groups, organisations, staff and students
- Facility to be completed by the end of 2014



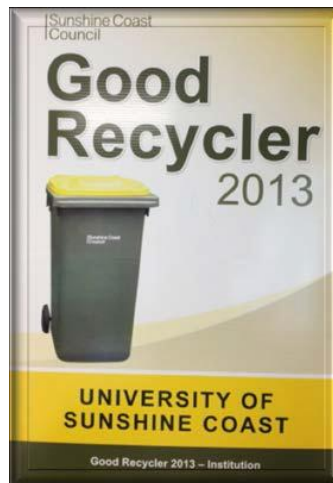
Battery Recycling

- Facilities Management (FM) have partnered with “Battery Wise” to provide a battery recycling bin outside reception (e.g. batteries and mobile phones)



Good Recycler Award Recipient 2013

- USC won the Institution category of the 2013 Sunshine Coast Council's inaugural Good Recycler awards.
- The award was presented for USC's rollout of a colour coded waste recovery bin system across the Sippy Downs campus and the introduction of OSCA technology for processing compostables on campus.



Collaboration and Partnerships

Key drivers to the success of implementing the waste management system at USC have been:

- Partnering with Biniris (Cleaning Contractor) to embed the required tasks and sustainability expectations into the Cleaning Contract
- Enabling cleaning staff to take ownership of the new process – boost job satisfaction and team morale
- Working closely with campus retailers to use catering supplies that conform with the waste management system (i.e. compostable cutlery, coffee cups, plates)

Collaboration and Partnerships

Continued....

- Sharing rewards and recognition for milestones reached (FM awards)
- Adapting to increasing demands to reduce general waste onsite in a collaborative manner (change management, innovative technologies)
- Introducing an educational approach through each stage of the project
- Encouraging staff and students to actively participate in achieving campus waste management goals



Costs and Figures

- Initial start-up cost - \$110,450
(bins, educational materials, OSCA technology, shredder)
- Additional cost for compostable catering supplies – approximately 5-20c per item dependent on product and supplier
- Ongoing cleaning contract hours to separate waste for OSCA (approx 15 hours a week)
- Reduced general waste bin lifts (2 cubic metres) from 38-35 per week since implementation in August 2013
- Currently in 1st year of post implementation so quantifiable figures and savings cannot be reported or normalised to reflect true values and volumes per student and staff at this point in time.

Water Refill Campus

- Aim to be the first Queensland University to remove the sale of commercial bottled water (by Feb 2015)
- Provide a combination of free and paid refill options
- Supports USC's goal to reduce onsite waste (i.e plastic bottles)
- Water refill machines provide a comparable alternative to bottled water up to 80% cheaper
- Estimated to prevent 40, 000 plastic bottles per year going to landfill



USC IS A WATER REFILL CAMPUS

- Bring your **own bottle** or buy one from USC retail outlets

Refill on campus at:

- 18 x green aqua bubbler stations
- More than 50 water fountains
- 3 x micro-filtered still and sparkling a water refill machines (starting at 40c per 500ml refill)

Reduce tonnes of waste on campus by choosing to refill— together we can help save an estimated 40,000 plastic bottles per year.

University of the Sunshine Coast
Sustainable USC

Water Refill Campus

- Installation sponsored by Pro Acqua
- Water vending machine system – owned and maintained by Pro Acqua
- Commission from water usage, smart cards and digital advertising
- Transitional stage (Jul 14 – Feb 15)
- February 2015 onwards - bottled water removed from campus retail outlets
- Flavoured beverages in plastic bottles replaced with glass and can varieties where possible
- Cost to USC for marketing and events materials
- Link: www.usc.edu.au/refill



USC WATER REFILL LOCATER MAP

**RE-USE
A BOTTLE**

**REFILL
WATER**

**REDUCE
WASTE**

USC IS A WATER REFILL CAMPUS

University of the
Sunshine Coast



**THERE ARE OVER 50 FREE WATER
FOUNTAINS SPREAD ACROSS THE
CAMPUS IN EACH BUILDING**

FREE AQUA BUBBLER

**PRO ACQUA WATER REFILL MACHINE
MICRON FILTERED STILL OR SPARKLING WATER**

HOW TO USE THE PRO ACQUA WATER REFILL MACHINE

The Pro Acqua water refill vending machine provides micron filtered, chilled still or sparkling water for a low cost to our loyalty smart card users.

All you need to do is:

1. Bring your own bottle, purchase a refillable bottle or a 500ml compostable cup from any café or eatery on campus.
2. Purchase a refill smart card from Café C, Café J, Sports Tower Café, or the Brasserie.
You will pay \$7 for your card which includes \$5 credit to purchase water from the machine
3. Insert your smart card or credit card and place your bottle under the water nozzle

4. Choose water type and refill size
Refill Cost (Still or Sparkling):

With loyalty smart card:

Small	500ml - 40c
Medium	750ml - 50c
Large	1Litre - 60c

With credit card:

Small	500ml - 80c
Medium	750ml - \$1.00
Large	1Litre - \$1.20

5. Recharge your smart card:
 - By credit card at the water refill machine for \$10 recharges
 - By cash at any café or eatery on campus for \$5 only
 - (When recharging by cash our retail staff will swap your empty smart card for a new one with \$5 credit)

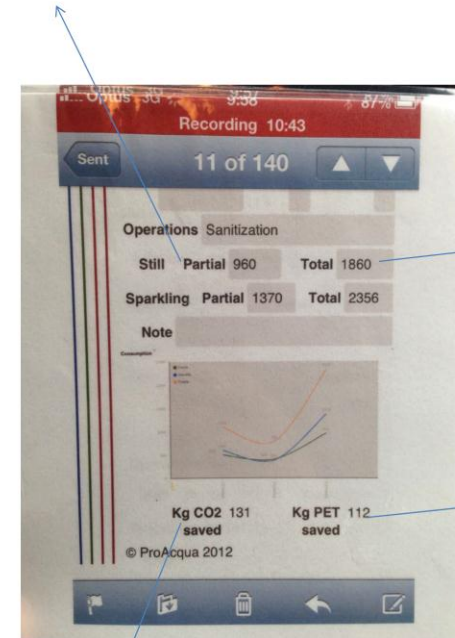
Note: If you choose not to purchase water refills with a smart card then you can purchase individual refills via a credit card which will incur an extra cost for bank fees as shown above



Water Refill Campus – monitoring

- Monitoring and evaluation over the next 12 months
- Retail data reports
- Water usage and environmental reporting via smart phone
- Survey to staff and students

Partial lifetime of filter since installation (L)



Total machine refills (L)

How many kilograms of plastic (PET) saved

How many kilograms of carbon emissions (CO2) saved

Collaboration and Partnerships

Ways that this project fosters collaboration and partnerships:

- Partnering with Pro Acqua and Do Something - leadership and commitment on an international scale
- Providing a cheaper comparable alternative to bottled water (water quality accredited, chilled and filtered) - motivates participation/uptake
- Enabling retail staff to take ownership of the new process (i.e. alternative non-plastic products)
- Working closely with retailers and Pro Acqua to develop a business model that fits the retail system and generates revenue
- Empowering staff and students to be environmentally responsible and contribute to the University's sustainability goals
- Link: <http://www.proacquaaustralia.com.au/>

E-Water Cleaning Solution

Electrolysed water solutions—eWater Sanitiser and eWater Cleaner

- Created by applying an electrical charge to a mixture of tap water and plain table salt.
- The electrolysis process separates the sodium and chlorine in the salt, leaving two solutions on opposing ends of the pH scale: alkaline for cleaning and acidic for sanitising.
- Significant saving on industrial cleaning chemicals
- Created and quality controlled onsite
- Initial investment \$10K
- Links: <http://www.ewaterystems.com/>
<http://ewateradvantage.com/the-science/>



E- Water

eWater Sanitiser - acidic pH of 2.7

- Has powerful antibacterial and fungicidal properties
- Research has shown that it effectively kills dangerous pathogens and viruses such as E. coli, salmonella, listeriosis and staphylococcus
- Does not leave harmful residues behind

eWater Cleaner - alkaline pH of 11.3

- Is a highly effective all-purpose cleaner and degreaser
- Removes dirt and grime from all kinds of surfaces and even human skin
- Environmentally friendly



Benefits

- Alignment with objectives of the Strategic Plan 2011-2015 and the Campus Master plan 2012
- Reduced financial costs associated with waste disposal
- Improved separation of waste streams
- Significant reduction of plastic bag bin liners
- Reduced plastic pollution going to landfill
- Reduced landscaping costs through ongoing supply of quality compost



Benefits

- Empowerment of staff and students to contribute to achieving sustainability outcomes
- Demonstrates environmental leadership to the wider community
- Enables USC to work in partnership and knowledge share with Businesses, Industry, Organisations, Schools, Community Groups and Universities to provide “best practice” methods for waste management and sustainability innovations



Considerations

- Consider your current waste management process and the changes you could you make to improve this?
- What are the main obstacles stopping you from introducing these changes?
- What are some quick wins you can make?
- What could you include in your cleaning/waste related service agreements to help achieve a successful outcome?



Questions



(Source) http://muppet.wikia.com/wiki/Oscar_the_Grouch