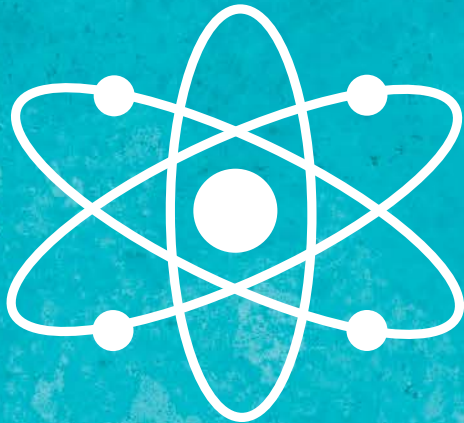




THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

GREEN LABS ANNUAL REPORT 2015

www.uq.edu.au/sustainability



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*Stuart Green,
Manager Sustainability*



*Christine McCallum
Project Officer Sustainability*

MESSAGE

from the Manager, Sustainability and the Project Officer Sustainability

In 2015 the Green Labs team continued to work with laboratory staff, building and facility managers and research academics to implement sustainable practices and technologies within UQ laboratories. Green Labs representatives were able to attend ongoing training sessions, participate in promotional activities and competitions, access new resources and engage with other Green Labs and Green Office representatives.

The Green Labs Program has continued to expand in 2015, welcoming another nine representatives. The program's success in enhancing the University's sustainable performance is evident through the 2015 assessment results which revealed annual assessments continuing to improve with existing labs averaging a score of 82% compared to 77% last year.

With fantastic Green Lab representatives and positive results, the program continues to strengthen and expand its impact throughout UQ laboratories. We thank each one of our Green Labs representatives for their contributions in 2015 and ask UQ laboratory staff who are not currently participating in the program to consider joining us in 2016.

This report is compiled by the Sustainability Office, Property and Facilities Division.

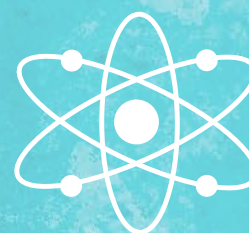
GREEN LABS ASSISTANTS

The Green Labs Program is supported by the Green Labs Assistant. The position is held by a UQ student, enabling them to gain valuable work experience coordinating the administrative aspect of the program. Bodhi Connolly, a second year engineering student, was appointed to the position earlier this year. Bodhi has gained experience working within laboratories during his studies and has also developed an interest in sustainability while analysing product lifecycle assessments.

Within his role as the Green Labs Assistant, Bodhi worked alongside Green Labs representatives to run promotional activities, educational sessions and to undertake new initiatives including updating the Green Labs webpage and investigating the development of a Green Labs online forum. Bodhi aims to continue to improve the visibility of the Green Labs Program online enabling it to reach a wider audience.



*Bodhi Connolly,
Green Labs Assistant*



GREEN LABS ACTIVITIES



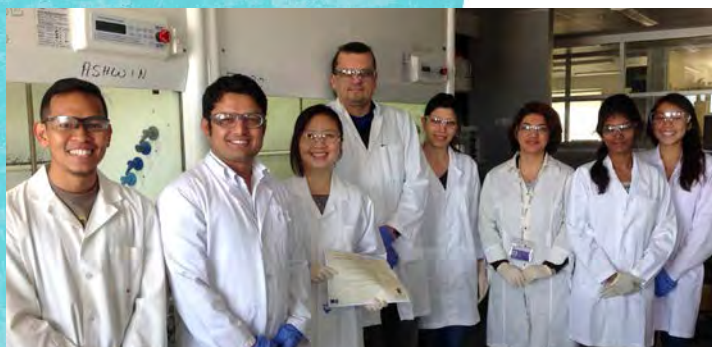
School of Chemistry and Molecular Biosciences Bernhardt Lab achieved the lowest overall sash heights regardless of the baseline heights.

Green Labs Promotional Activities

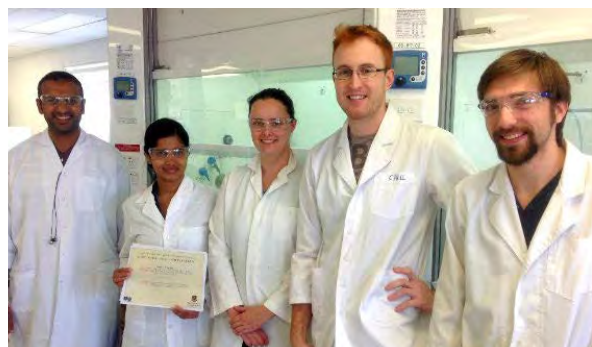
Shut your Sash Competition

Over the month of May the School of Chemistry and Molecular Biosciences participated in a Shut your Sash competition. Laboratories competed against each other to see who could achieve the lowest average sash height for their fume cupboards. Final results were impressive with competing labs reducing their sash heights by 70 per cent on average over the month. This resulted in energy cost savings of \$6200 and a GHG reduction of 40.5 tonnes CO₂-e.

If participating labs continue to keep this up over an entire year they will save \$75,000 on energy costs while reducing greenhouse gas emissions by 480 tonnes CO₂-e.



The School of Chemistry and Molecular Biosciences Level 8 East laboratory shared the prize for the greatest reduction in sash heights through-out the competition with the Toth Medchem group.



School of Chemistry and Molecular Biosciences Toth Medchem group.

Sustainable Commuting Competition

The Sustainable Commuting Competition kicked off in the first week of November with participants competing to reduce the greatest percentage of carbon emissions during their daily commute.

There were participants from many different areas within the University, including a number of Green Labs representatives, and all were encouraged to trade in their usual method of transport for a more sustainable mode of transport such as cycling, walking or public transport, thereby reducing their emissions for the week.





Freezer Rebate Scheme

This year the Sustainability Office implemented an Ultra-Low Temperature (ULT) Freezer Rebate Program for Green Labs. Rebates were available to Green Labs who wished to replace ULT freezers more than ten years old with new, energy efficient models.

Every day, ULT freezers use as much electricity as an average household. Older freezers can use as much as double that! This makes it an important area for the Green Labs Program to target. The rebate provided half of the installed freezer cost to eligible labs.



20 year old ULT Freezer to be replaced through the Green Labs Freezer Rebate Program.

In order to quantify the environmental and financial benefits of the program, energy meters are being used to measure the power use before and after the upgrade. Results will be available in early 2016.

Green Labs Freezer Month Competition

The need to address energy consumption by laboratory freezers compelled the Green Labs Program to undertake a freezer month competition in August. The main objective of the competition was to give Green Labs a reason, through a friendly competition, to undertake some basic freezer maintenance and sample management while also alerting reps of the enormous environmental footprint of ULT freezers. A poorly maintained, disorganised freezer that holds out-of-date, unrecoverable or no longer valuable materials will waste energy. In addition, freezer samples are often stored at temperatures colder than necessary as it is believed that colder must be better.

The competition was based upon a point system where identified actions gained the competing Green Lab a predetermined number of points. Activities included:

1. Freezer clean out and defrost
2. Chill up (increasing the temperature from -80°C to -75°C or even -70°C)
3. Switch off, retire, or share a freezer
4. Inventory set up

Jeremy Brooks from the Diamantina Institute won the competition. Jeremy's lab defrosted and cleared out their ULT freezer and then introduced an inventory system to make sure only necessary samples are now being stored. Julia Groening from QBI defrosted five freezers and managed to unplug two, saving both energy and carbon emissions. These are just two of the many competition success stories and based on the popularity of the competition it will be repeated in 2016.



ULT freezers being defrosted during the Freezer Month Competition.

GREEN LABS UPDATE SESSIONS

Update Sessions provide an opportunity for Green Labs representatives to network and engage with other like-minded staff in the program. Three update sessions were held in 2015 as well as a workshop featured during Sustainability Week.

GCI Tour

Green Labs representatives were invited on a guided tour of the Global Change Institute's Living Building, a building that is ranked 34th in the world's 50 most impressive environmentally friendly university buildings. The GCI building operates as a zero-energy and zero-carbon workplace designed to work with the natural environment. The building generates more energy than it consumes, is naturally ventilated for most of the year and stores up to 60,000L of rainwater. Representatives learnt how the building functions and what innovative materials were used to achieve this zero-carbon, sustainable building of the future.

The Psychology of Sustainability

Associate Professor Kelly Fielding spoke to Green Labs representatives about the social and psychological determinants of people's environmentally sustainable behaviour. She described how representatives can promote more sustainable actions within their labs and encourage others to make long-term behavioural changes. Attendees found the session very valuable, as promoting real sustainable change within a workplace can be particularly challenging.



Tour of UQ's Global Change Institute Building



The Psychology of Sustainability Update Session.



Global Change Institute Building



Purchasing and the Planet

Andrew Wilson, lecturer from the School of Geography, Planning and Environmental Management and Energy Manager, Property and Facilities Division led an interesting session on sustainable purchasing. Supply chains and product lifecycles were considered through the investigation of real lifecycle data from major international products. Andrew demonstrated how we can apply this information to everyday purchasing decisions, while also identifying how products may potentially deceive purchasers with misleading environmental claims.

Sustainability Week Session

Sustainability Week saw a broad range of activities and events for UQ staff and students to participate in. Green Labs representatives were invited to attend the Sustainable Living in Brisbane workshop. Margarita and Saphira, graduates in sustainable systems, showed attendees that reducing your footprint through efficient consumption is about adopting systemic thinking that is fun, creative, innovative, resourceful and aims to enhance your (and everyone else's) quality of life.

New Green Labs Representative Training

This year the Green Labs Program ran three training sessions, and welcomed four new representatives from Gatton and five from the St Lucia campus. The program expanded to reach a wider audience with representatives joining up from the School of Human Movement & Nutrition Sciences, School of Biomedical Sciences and the School of Mechanical and Mining Engineering.



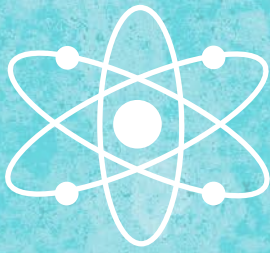
Andrew Wilson speaking to Green Lab representatives.



UQ Sustainability Week 2015



Green Labs Training session 2015



GREEN LABS ASSESSMENT RESULTS

Throughout the year the Green Labs Assistant has been conducting baseline assessments for new representatives and continuing to conduct annual assessments for existing representatives. Baseline assessment results have continued to improve with existing labs averaging a score of 82% compared to 77% last year. Furthermore the average score for new labs is slightly higher than previous years, 79% compared to 74%. The Green labs team would like to congratulate all Green Lab representatives on the fantastic job done over the past year in implementing environmentally sustainable work practices within your labs.

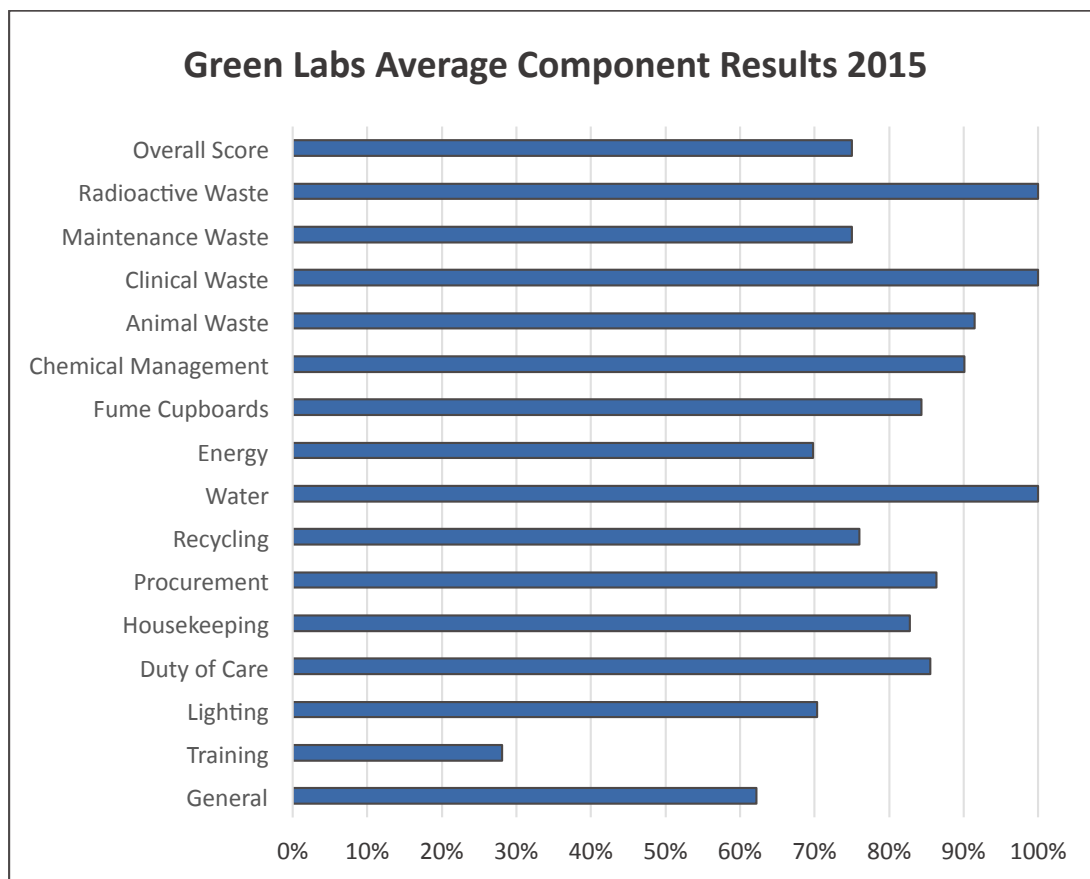


Figure 1 Average component results for all Green Labs assessments conducted in 2015, including baseline and annual assessments.

SHOWCASING GREEN LABS IN 2015



Michael Tobe

*School of Geography
Planning and Environmental
Management*

Michael joined the program last year, being the first Green Labs representatives from the School of Geography Planning and Environmental Management (GPEM).

GPEM inherited an old disused laboratory space and over the past year Michael has helped redesign this space to suit the schools requirements. Michael joined the Green Labs Program in the hope of gaining resources and assistance to facilitate a sustainability-focused refurbishment.

The refurbishment is now complete and the end result is impressive. The original lab has been divided into three operational zones; teaching / sample preparation, research / chemical extracts, and instrument clean rooms. Each zone has independent motion sensing LED lighting and independent air-conditioning units – selected precisely for the temperature, volume and air exchange rates required. A new custom built three metre long under bench fridge was purchased for storing sample cores, reducing cold storage requirements through the more efficient use of space. Full height glass walls allow the light from the external windows to penetrate into the lab and corridor, maximising the availability of natural daylight while reducing energy use.

A number of sustainable practices are also being implemented. Paper, plastic and cardboard is being recycled within the lab. A reusable wipe on / wipe off card system for labelling unattended experiments has been implemented. Online sustainability training for lab users has been completed and the laboratory manual and laboratory procedures have been reviewed and updated to incorporate sustainability practices and training. Michael is hoping to implement a Laboratory Information Management System (LIMS) next year to optimise operations and manage data, resources and workflows.



Igor Popovic

*School of Chemistry and
Molecular Biosciences*

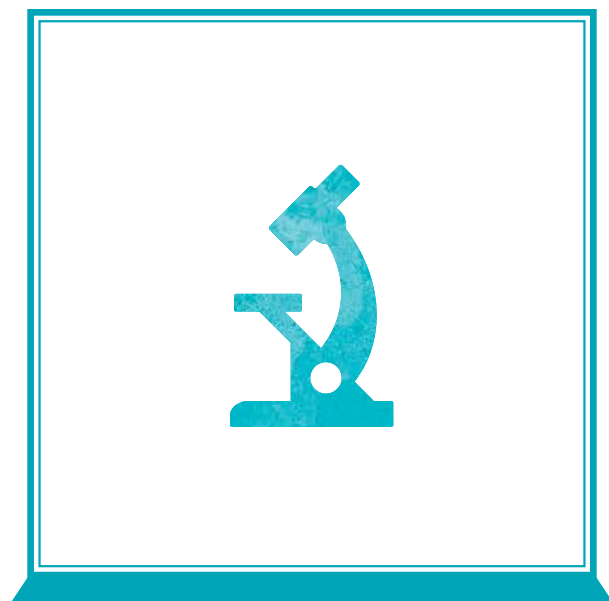
Igor is a Scientific Officer within the School of Chemistry and Molecular Biosciences and joined the Green Labs Program in 2013. Igor initially joined the program to improve his understanding of environmental issues

specific to a molecular biosciences laboratory. He also wanted to play an active role in adopting and promoting environmental practices within his workplace.

Since becoming a Green Labs representative Igor has concentrated on improving energy management practices within his workplace. Green Labs stickers have been placed around the Molecular Biosciences building including the Switch off & Save Energy stickers and the fume hood sash ruler stickers. In May, Igor was involved in promoting and assisting with the administration of the School of Chemistry and Molecular Biosciences Shut your Sash Competition. Igor explains that while he was happy with the success of the competition, the challenge always remains getting staff to maintain energy saving practices once the competition is over.

Other sustainable practices Igor has implemented since becoming a Green Labs representative include waste recycling and sustainable procurement practices such as replacing old laboratory equipment with environmentally preferred equipment incorporating energy saving functions/modes.

Igor has discovered that there are many barriers to improving sustainable practices within his lab including initially identifying areas where sustainable improvements can be made given the limited resources, limited time and the restrictions associated with PC2 laboratory environment. Igor has also experienced many obstacles associated with engaging colleagues in environmentally sustainable behaviour change. Nonetheless, Igor believes improvements in technology and raising awareness can go a long way to accomplishing a more sustainable lab.



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