

# Research Newsletter



# Singapore: Waste Management



**Dr. Caroline Wong**  
JCU Singapore

**M**anaging municipal solid waste is a universal issue affecting every single person in the world.

At JCU Singapore, Dr. Caroline Wong and her research team are looking into how Singapore and Hong Kong are managing waste and the systems they have in place to manage the problem. As Dr. Wong acknowledges, the world cities generated about 2.1 billion tonnes of solid waste per year, with extremely conservative estimates saying that at least 33 percent of which is not being dealt with in an environmentally safe manner.

In the Asia-Pacific region, some the figures are also damaging with 45% of waste generated in East Asia and Pacific is disposed of in landfills,

often considered the least desired waste management alternative from an environmental point of view. The improper management of municipal solid waste have significant environmental impacts including climate change, environmental and human health damage, and biodiversity loss and soil erosion. In Singapore, approximately 7.81 million tonnes of solid waste is produced each year. Of this, at least 1.76 billion plastic items are produced with less than 20% of these items being recycled. Despite this, there is no plan in the near future to ban single-use plastic bags nor impose levies on its use and a mandatory reporting framework for e-waste management will only be introduced at the end of 2020. In the case of Hong Kong, the statistics are very similar to that of Singapore. However, its government has taken a more proactive stance as it aims to reduce waste by implementing a charging scheme for municipal solid waste by the end 2019 at the earliest as part of its Smart Environment Strategy.



However, despite such initiatives, the amount of waste generated by those that live in the city has been growing at more than 2 percent a year in recent times. So what more can be?

Unfortunately, urban waste management is expensive. Despite the importance of minimizing the amount of waste produced in the first place, there is little to deny the burden that it places on local, regional, and national governments. In low-income economies, the management of waste can be the single highest budget item, accounting for nearly 20% of municipal budgets for many local government administrations.

Moreover, for middle-income countries, solid waste management typically makes up approximately 10 percent of municipal budgets, while it accounts for about 4 percent in high-income countries. As a costly process, waste management initiatives should incorporate the best of new technologies, draw upon human synergies whenever relevant as well as changing mind-set. As such, Dr. Wong's study takes a socio-technical approach by examining three specific avenues.

Firstly, an analysis of informal waste activities (often referred to as the

'informal waste sector') to better understand its potential role within the make-up of waste management infrastructures. The informal waste sector has often played an indispensable part of the waste management systems, particularly in developing countries. For the purpose of this study, informal waste sector refers to people who make a living from waste and its recycling, but are not formally tasked with providing the service by the responsible authorities. The informal sector is generally characterised by small-scale, labour-intensive, largely unregulated, low-technology manufacturing or provision of services.

Secondly, a review of internet-of-things-based (IoT-based) smart cities infrastructure as a means of driving new, creative waste management solutions. Thirdly, a shift of mindset to rethink the concept of development (by manufacturers and consumers) that takes into consideration shifting the consumption element to being a contribution to a regenerative cycle and the durables, to emphasize use, and not just consumption only.

# Research across the CBLG?

## What has been going on across the college?

### Brisbane

*Dr. Bandula Gamage*

I am currently planning to work on a project called the "Impact of Behavioural Factors and Risk Perception on Individual Investors' Decision Making: The Moderating Role of Financial Literacy"

In traditional finance theory, there is the presumption that investors act rationally and consider all the essential information available in their investment decisions, which is in line with efficient market hypothesis. However, behavioural finance, criticizes this rational perspective and indicate that psychological factors may affect for making investment decisions. According to (Kengatharan and Kengatharan, 2014), behavioural finance theory is based on psychology and seeks to understand how emotions and cognitive errors influence behaviours of individual investors. Further, behavioural finance has its explanations rooted in several market anomalies such as dividends anomalies, equity premium puzzle, and January Effects etc. which traditional theories failed to account.

This study will be beneficial for investors as it allows them to be more conscious of their own behavioural bias and their impact on decision making in the stock market. Furthermore, this study will help to facilitate to have a better understating of the market anomalies and the

reason irrational decision making behaviour from investors.

This is a multidisciplinary research project that combines the expertise from accounting/finance and sociology/psychology. Also I am planning to do this research as a case study of ASX or a comparative study between a developed economy (Australia) and one of the emerging economies (Sri Lanka). I am optimistic that such combinations will lead to creative and high impact research. Furthermore, given the scale of this research project, the project is divided in to three separate MPhil projects or one PhD project. I have already discussed with one international PhD student (from Sri Lanka) to work on the project and the student is willing to be involved with the study.

Kengatharan, L., and Kengatharan, N., (2014). The Influence of Behavioral Factors in Making Investment Decisions and Performance: Study on Investors of Colombo Stock Exchange, Sri Lanka. *Asian Journal of Finance & Accounting* 6 (1), 1-23

### Cairns

*Dr. Taha Chaiechi*

Dr Silvia Tavares (from the College of Science and Engineering-CSE), and I are currently working on a project called "Evidence-based economic assessment of micro-climate in urban areas". Literature framed around the

concept of “microclimates and urban comfort” suggest that urban vibrancy results in positive social and economic outcomes. On the other hand, there seems to be a gap in the understanding of relationships between economic activities, transport operations, real estate values, and public health with microclimate.

Consequently, how the latter impacts local economies, especially in tropical cities is an underexplored subject (that is the primary motivation to conduct this research). Since urban economies are complex systems, our aim is to amalgamate a set of distinct but related socioeconomic factors when conducting economic assessment of urban comfort. In assessing these aspects, it is needed to investigate a wide scope of factors, over a widespread range of spatial and/or historical scales. Recommended methodology for this project include (but is not limited to): Urban Morphology, climate Analysis, Cost-Benefit Analysis, Market and non-market valuation.

This is a multidisciplinary research project that combines the expertise from CBLG and CSE. Silvia and I are optimistic that such combination will lead to creative and high impact research. Furthermore, given the scale of this research project, the project is divided in to two separate PhD projects. We have already admitted one international PhD student to work on the project (starting in March).

## **Townsville**

*Dr. Rachel Hay*

I have recently completed my PhD studies on the topic “The engagement of women and technology in Agriculture”. Increases in demand for Australian beef products, a shortage of rural workers, and the need for efficient and intelligent ways to approach production are causing graziers to turn to on-farm technology

to improve farming practices. Previous findings show that women graziers are embracing rural technology producing economic advantages for farming as well as lifestyle (Hay & Pearce, 2014). Women are driving technology from the farmhouse for the paddock, highlighting a shift away from men as sole decision makers in agribusinesses. Previously rural men perceived that they were incapable or uninterested in adopting technology. Traditionally seen as decision makers, this mindset affects the diffusion of technology into the agricultural industry. However, results from the final study (Hay, 2018) show that male graziers were learning and using technology more now than before. Marketers of rural technology target men as the sole decision maker, completely disregarding women as both decision makers and rural technology users and adopters, adding to the failed uptake of rural digital technology.

The research informs agricultural stakeholders, government, policy makers and others including technology service providers, media and communications experts about factors that influence technology adoption and women’s key role in adoption decisions. The research reaches beyond the beef producing community to benefit the wider community by providing food security, jobs, tourism opportunities, and a future for beef producer’s children. Adopting technology encourages better management practices and increases production, in turn improving the longevity of the farming business, ultimately securing the future of the Northern Beef Industry. Rachel’s other research focus is on trans-disciplinary approaches to sustained behaviour change in social marketing and environmental protection interventions as well as human dimensions, readability, communications, Instant Feedback Assessment Techniques and Business Coaching.

## FEATURE

Hay, R. (2018). The Engagement of Women and Technology in Agriculture. (Doctor of Philosophy, Management, and Commerce PhD), James Cook University, <https://researchonline.jcu.edu.au/53136/>. (10.4225/28/5ad015a60c689)

Hay, R., & Pearce, P. (2014). Technology adoption by rural women in Queensland, Australia: Women driving technology from the homestead for the paddock. *Journal of Rural Studies*, 36, 318-327. doi:<http://dx.doi.org/10.1016/j.jrurstud.2014.10.002>

*Dr Hong-Bo Liu, Dr Rabiul Beg, A/Prof Sizhong Sun, Prof Zhang-Yue Zhou and A/Prof Abhishek Bhati (JCU Singapore)*  
We recently completed a report for a project funded by The Pratt Foundation. The project examines the impacts of Australian firms' overseas business activities (outsourcing, import and export) on their performance, namely employment of both casual and full-time workers, profitability and total sales revenue.

Utilizing a micro dataset from the Business Longitudinal Database, Australia, which is collected by ABS and covers the period from 2006-07 to 2010-11, we find:

- Outsourcing negatively affects employment of casual workers but not full-time workers, which occurs due to the size effect (growth opportunity);
- Outsourcing negatively affects a firm's profitability and positively affect its total sales revenue;
- Import generates positive impacts on employment of both casual and full-time workers and total sales revenue, and weakly and negatively affects profitability;

- Export negatively affects employment of both casual and full-time workers, and positively affect sales revenue.

One point that is worth of noting is that the negative impact, for example the perceived negative impact of outsourcing on employment, is likely not to be as severe as one would expect, which occurs due to the potential growth opportunity. Policy makers shall not discourage a firm's engagement of overseas business activities. Even if an overseas business activity is perceived to generate a negative impact at home, it is likely that the potential growth opportunity (size effect) can offset such negative impact.

## Singapore

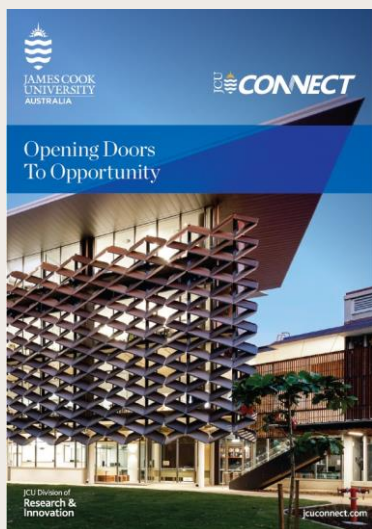
*Dr. Wesley Kendall*

I'm in the process of finishing my next book, tentatively titled "Dollar Diplomacy; The Rising Global Influence of Corporate States on Legal, Economic and Social Regimes", which weighs the impact of corporate involvement in international relations, and argues that the interests of sovereign nations have been eclipsed by corporate influence, which has resulted in the undermining of democratic institutions globally.

I would hope that my research into the use of corporate power exposes systemic forms of corruption that, when brought into light, allow readers to make more informed electoral decisions and compel law and policy makers to hold corporations more accountable.



# Research Services



JCU Connect will provide a critical interface between industry clients and JCU – creating a “front door” through which industry (government, business & community) can engage with the breadth and depth of JCU’s research and commercial expertise, intellectual property, facilities, research stations, analytical services, and innovation centres; AND continuing to provide a “one-stop-shop” for JCU researchers seeking assistance with grants for competitive funding, industry-led research partnerships, ethics, animal welfare, research data and reports, and commercialisation of intellectual property.

For all enquiries and partnership opportunities, please contact the team at [jcuconnect@jcu.edu.au](mailto:jcuconnect@jcu.edu.au)

Research Services is the driving force supporting and facilitating a wide range of research-related activities at James Cook University. This support spans research ethics and integrity, research performance data and policies, competitive grant funding, contract research with industry partners, research-related consultancies and tenders, and the protection and commercialisation of intellectual property.

Team members are located across both Townsville and Cairns campuses, and since 2017, have also been providing JCU-S with a range of research management support and advice.

In response to Australia’s increased focus on industry led research and the associated impact of research on the environment, society and the economy, Research Services will shortly be re-branding and launching as JCU Connect.

# Grants

## 1. Collaborative Research

### Opportunities in the Galapagos Islands:

Seed grant funding is available to enhance collaborative research in the Galapagos Islands of Ecuador through the joint participation of academic researchers at James Cook University (JCU), the Universidad San Francisco de Quito (USFQ), and the University of North Carolina at Chapel Hill (UNC). Areas of interest for the 2019 solicitation are:

- (1) Marine Science,
- (2) Conservation Biology/Science,
- (3) Sustainable Development,
- (4) Tropical Health,
- (5) Bio-Security &
- (6) Food Security.

Well described and justified proposals will be supported up to \$5,000 (USD) for the period ending December 31, 2019. Proposals are limited to 5-pages.

## 2. University of St Andrews - Global Fellowship Scheme

The Global Fellowship Scheme provides prestigious awards enabling talented scholars from around the globe to spend anywhere between one week to a month at St Andrews to undertake a course of research and study, to explore potential collaborations, enhance existing relationships, advance research work, or simply to find the space to think in an inspirational environment. The next selection for the inaugural Global Fellowships will take place in April 2019.

## 3. Media Training with 'Science in Public'

Being able to present your work effectively to the media, policy makers, industry or the general public is a fantastic skill for researchers. JCU offer two types of media training in conjunction with Science in Public; a

specialist science media training, public relations and communications company.

### *How to make a pitch (90 minutes)*

Presented by Niall Byrne and Sarah Brooker (with an editor from The Conversation in the Townsville sessions) Each participant will do a 1 minute pitch about their research and Niall and Sarah will then work through it forensically to help pick out key messages that would work, thoughts on the structure and so forth. I have seen them in action and they are seriously good at this – very fast and fantastic capacity to help message cut through. It is a really valuable experience for everyone to watch and listen to them work on the material. The session is particularly recommended for researchers who are likely to have, or want to have, a story in the media shortly. Media Intensive (all day)

This full day's intensive workshop will help you: know what to expect when the media does a story; practise your interview techniques with working journalists in TV, print and radio; get your message out as accurately as possible

Specific topics include: what makes a good TV, radio or print story; how to take control of the media agenda; making the big announcement; what to do when a journalist knocks on your door; handling difficult questions; organising a good media release; The workshop runs from 9.00 – 4.00pm (approx.) and participants will need to be in attendance for the whole day.

To register your interest:

If you would like to attend any of the sessions please email

[Bradley.smith@jcu.edu.au](mailto:Bradley.smith@jcu.edu.au)

There is no charge for the making a pitch sessions. The intensive workshops are \$880 per head however the Division of Research and Innovation will cover the fees for 10 ECRs.

Monday 4<sup>th</sup> of March – Cairns

9.30am – 11.00am – making a pitch

11.30am – 1.00pm – making a pitch



Wednesday 6<sup>th</sup> of March – Townsville  
9.30am – 11.00am – making a pitch  
11.30am – 1.00pm – making a pitch

Thursday 7<sup>th</sup> of March Townsville  
9.00am – 5.00pm – full day media  
training intensive

Friday 8<sup>th</sup> of March Townsville  
9.00am – 5.00pm – full day media  
training intensive

#### **4. L'Oréal-UNESCO for Women in Science Australian & New Zealand Fellowships.**

You may be aware of the L'Oréal-UNESCO for Women in Science Australian & New Zealand Fellowships. The FWIS program was founded in 1998 with a simple aim; to ensure that women are fairly represented at all levels in science. Applications for the 2019 Fellowships open on Monday 28th January through our website –

[www.forwomeninscience.com.au](http://www.forwomeninscience.com.au) - and will close on Monday 4th March 11.59pm

In 2019 we will award four Australian and one New Zealand post-doctoral female scientists with a \$25,000 Fellowship. Applicants within five years of completing their PhD, from a variety of fields including life sciences, clinical and health sciences, material sciences, physical sciences, mathematics or engineering, are encouraged to apply.

#### **5. Field work in complex places**

JCU is presenting a PD program accredited by the UN Department of Safety and Security from May 13th to 17th of May at the JCU Cairns Campus and Camp Barrabadeen

I have funding available for four ECRs (about \$3,000 per head) and can provide travel and accommodation for Townsville based staff. If you want to attend please let me know ASAP ([bradley.smith@jcu.edu.au](mailto:bradley.smith@jcu.edu.au)).

This 5-day immersive role-play based course teaches field skills for fieldwork research with vulnerable participants and/or for extended periods in insecure or culturally/politically complex environments. All participants completing the course earn four Certificates of Training for field deployment issued by the United Nations Department of Safety and Security.

Using a blended learning approach that balances theory (2 days) with practice (3 days), the subject is taught by a combination of professional security consultants and academics.

See the attached flyer and Course overview for more information. If anyone has any questions about this training you can contact the Course Coordinator directly:

E-mail: [scott.flower@gcore.com](mailto:scott.flower@gcore.com)

Phone: +65 9626 3495

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