

# Sustainable campus: engaging the community in sustainability

Sustainable  
campus

Linda Too and Bhishna Bajracharya

*Institute of Sustainable Development and Architecture, Bond University,  
Gold Coast, Australia*

57

Received 11 July 2013  
Revised 9 September 2013  
Accepted 1 October 2013

## Abstract

**Purpose** – The purpose of this paper is to identify the major factors necessary for engaging university campus community in sustainability. While general awareness in sustainability issues has improved in recent years through mass media coverage, this knowledge is not always translated into actual sustainable practice. Studies have indicated that there are many factors for engaging the community in sustainability.

**Design/methodology/approach** – A multi-disciplinary literature review is first undertaken to distil the drivers that enhance participation in sustainability programmes by the university community. Next, to illustrate the applicability of the factors identified in the community engagement framework, two case studies are undertaken to highlight the importance of the identified factors in influencing the level of community participation in their sustainability programmes.

**Findings** – The 6-P framework for community engagement includes factors such as psychological needs, physical facilities, personal motivations, public perception, price mechanisms and policies. The case studies of two universities' sustainability projects illustrate that the framework is highly applicable to university communities.

**Originality/value** – While research on behaviour change has been undertaken by various disciplines such as urban planning, marketing and psychology, these have been done in isolation. The originality of this paper is therefore achieved by drawing together the knowledge from these well-established disciplines to develop an original 6-P framework. This framework has the potential of assisting university leaders in the development of their community engagement strategy to mobilise and motivate their community members to take practical steps towards building a sustainable campus. However, the robustness of this framework will need to be further validated in future studies.

**Keywords** Sustainable, Sustainability, Engagement, Community, Campus, 6-P framework

**Paper type** Conceptual paper

## Introduction

In recent years, sustainability has become an important part of many corporate social responsibility agendas. The findings and evidence presented in the United Nations Climate Change Conferences in Mexico (2010) and South Africa (2011) have further highlighted the need for a paradigm shift towards building a low-carbon sustainable society to deal with climate change. As such, there is an urgent need for every level of society to review their actions and aim to be better stewards of our natural resources for developing low-carbon economies.

To date, much of the effort in this direction has been centralised with policymakers being the major initiators of sustainability programmes. However, the policies and



International Journal of  
Sustainability in Higher Education  
Vol. 16 No. 1, 2015  
pp. 57-71  
© Emerald Group Publishing Limited  
1467-6370  
DOI 10.1108/IJSH-07-2013-0080

The authors would like to acknowledge the support provided by Mr Isara Khanjanasthiti in the preparation of this paper.

programmes developed eventually hope to change the consumption patterns of businesses and communities. The advent of social media technologies has vastly increased the awareness of green issues among the general public. Majority of people know and are aware of the need to be environmentally sensitive. However, a survey conducted by [DEFRA \(2005\)](#) found that while 30 per cent of people claim to care about companies' environmental and social record, only 3 per cent reflect this awareness in their purchases. Additionally, although 90 per cent of people know that drink cans may be recycled, only 50 per cent say they have actually done so. It therefore suggests that mere knowledge will not change current consumption patterns. A holistic strategy is needed to engage the community in sustainability practices.

The role of the community in advancing the sustainability agenda cannot be under-estimated. Professor Tim [Jackson \(2005\)](#) from the University of Surrey (2005) noted that "negotiating change is best pursued at the level of groups and communities". Social support is particularly vital in breaking habits, and in devising social norms and more sustainable patterns of consumption ([DEFRA, 2005](#)). The UK Government has initiated a new Community Action 2020 – Together We Can programme to support communities in their efforts to move towards sustainable living. Similarly, the Built Environment Industry Innovation Council (BEIIC) has been set up under the Australian Federal Government's Innovation Industry Councils initiative to consider innovative challenges like climate change and sustainability. Within the [BEIIC's 2009-2014 Strategic Plan \(2009\)](#), a key proposal is to develop a community engagement strategy to promote sustainable practices.

However, changing attitude and behaviour is a difficult and complex subject. Current findings suggest that it takes more than just information dissemination to influence and close the attitude – behaviour gap. While this topic has been widely researched in many disciplines, including psychology, marketing and urban planning, the rich knowledge in this topic has been accumulating in silos. The purpose of this paper is therefore to draw together the findings from these disciplines and develop a framework for engaging the community in sustainability programmes. This paper is focused on university communities for two reasons. First, universities, being generators of cutting-edge research, can be expected to be leaders of new and innovative sustainable practices. Second, the demographic diversity within the university community (i.e. staff and students) is in itself a microcosmic society. Consequently, it is potentially a good test bed for the purpose of this paper in developing a conceptual framework for community engagement.

The paper is divided into five sections. The first provides the background to and outlines the purpose of this study. Next, the main themes of this paper, i.e. sustainable campus and community engagement, are explored to delineate the different dimensions to them. Following this, the drivers of community engagement in sustainable initiatives are identified through a multi-disciplinary literature review to result in a conceptual framework. Two case studies are then provided to illustrate the application of the community engagement conceptual framework before concluding remarks are made at the end.

### **Sustainable campus community engagement**

A sustainable university campus can be defined as:

[...] a higher education institution [...] that addresses, involves and promotes [...] the minimisation of environmental, economics, societal and health negative effects in the use of their resources [in] its main functions of teaching, research, outreach and partnership, and

---

stewardship [...] to [help] society make the transition to sustainable lifestyles (Velazquez Contreras, 2002, p. 155).

The multi-faceted emphasis is largely consistent with the common “triple bottom-line” (i.e. social, economic and environmental outcomes) framework for sustainable development. While it is acknowledged that the different dimensions of a sustainable campus are equally important, the interpretation of term “sustainable campus” is typically focused on minimising environmental impacts. For example, the Talloires Declaration is a voluntary environmental agreement developed by the Association of University Leaders for a Sustainable Future (ULSF). To date, this declaration has been signed by over 430 university presidents and chancellors in over 50 countries (ULSF, 2012). The primary motivation for this declaration of commitment was the concern over environmental degradation. In this regard, the ten-point action plan advocated in it mainly ensures sustainability and environmental literacy across research, teaching, outreach and policies. Similarly, the annual report of member institutions published by the Sustainable Campus Group (SCG) consists mainly of results in environmental performance. These include energy and greenhouse gas emissions, waste and recycling, water and institutional commitment. The SCG is a membership organisation established in 2006 to advance the cause of sustainability in the Australian tertiary education sector.

To move towards a sustainable campus, Velazquez *et al.* (2006) proposed a sustainable university model, which states that a sustainable university should first form a sustainability vision, on which a sustainability mission is conceptualised. Additionally, a university-wide sustainability committee should be founded to establish and ratify sustainability policies, targets and goals in line with the sustainability mission. Networking with other universities to share their approaches in sustainability is also an important part of a sustainable university. Finally, sustainability strategies of a sustainable university should span across education, research, outreach and partnership and campus operations (i.e. waste, energy, water and transport).

The *State of the Campus Environment* report from the USA highlighted that many universities have poor access to public transport and that transport was one of the weaker links in campus sustainability (McIntosh *et al.*, 2001). Likewise, the *Campus Environmental Survey* of 59 universities in the USA which signed the Talloires Declaration found that campuses have done very well in conventional operational measures such as recycling but have been reluctant to implement tougher initiatives such as buying renewable energy and promoting alternative transport (Shriberg and Tallent, 2003). They also pointed out that governance framework plays an important role in acting as a barrier or opportunity to effectively present the sustainability agenda to campus stakeholders.

Although universities have traditionally been improving their sustainability through operational measures, community engagement and outreach also plays an important role to affect lasting changes towards greater sustainable practices. Sarkissian *et al.* published a book *Kitchen Table Sustainability: Practical Recipes for Community Engagement with Sustainability* in 2009, which illustrates the importance of community engagement for achieving sustainable transformations in today’s complex world. According to Sarkissian *et al.* (2009, p. 6), “communities are the heart and hands” of all sustainability movement, regardless of its context. Thus, there are “critical relationships” among the following three components (Sarkissian *et al.*, 2009, p. 11):

- (1) sustainability (the ultimate overall goal);
- (2) communities (the means to achieving sustainability); and
- (3) community engagement (method for which to mobilise the community to participate actively in sustainability programmes).

To this end, the next section draws together accumulated knowledge from different disciplines to identify the drivers of community engagement in sustainability. From here, inferences are made with regard to the elements that are important to be present in sustainability programmes that would actively engage the community, i.e. a community engagement framework in sustainability.

### Drivers of community engagement in sustainability

Within the psychology discipline, many models have been developed to steer consumer behaviour towards environmental sustainability. For example, the *reasoned action paradigm* (Kaiser *et al.*, 1999), the *norm-activation model* (Thorgersen, 1999), the *value/belief-attitude-immediate sequence-behaviour* school (Scott and Jobber, 2000) and the *awareness-information-decision-action* model (Barr, 2003). Although these theoretical models vary in their names and descriptions, they share a common conceptual foundation, i.e. environmentally sensitive behaviour starts with individuals having an understanding of the consequences of their behaviours (knowledge). It affects their attitudes about the environment, leading to behaviours congruous with the sustainability agenda. To this end, many programmes promoting sustainable behaviour have featured information-intensive campaigns to enhance the environmental knowledge of their target audience. Yet, studies have shown that knowledge alone has little impact on changing behaviour. Further, empirical attempts to establish a clear causal pathway from knowledge and attitude to environmentally sensitive behaviour have yielded ambiguous results. Thus, there could be other contributing factors in addition to knowledge and attitude.

Bohler *et al.* (2006) noted that previous models have assumed that environmental attitudes and knowledge override essential consumer needs. Similarly, Hensher (2006) and Kennedy (2002) found that consumer decisions tend to be influenced mostly by hip pocket resources and reasoning rather than environmental knowledge and attitudes. In this regard, the classical model of Olander and Thorgersen (1995) appears to be well-placed by including consumer need factors. In their model, behaviour modification is organised into *motivation-ability-opportunity-behaviour*. Motivation includes both attitudes and social norms in relation to environmentally responsible behaviours. Ability refers to the habits and task knowledge of the individual, whereas opportunity includes access to products and services as well as convenience.

In the same vein, green marketing literature emphasises the importance of developing consumer value propositions when creating marketing programmes to enhance consumers' propensity towards purchasing product or adopting a more environmentally sensitive behaviour. Ottman *et al.* (2006) argue that:

[...] green products and services must satisfy two objectives: improved environmental quality and customer satisfaction. Misjudging either or overemphasising the former at the expense of the latter can be termed *green marketing myopia*.

In other words, simply providing information about the importance of saving the environment is unlikely to change existing habits towards more sustainable choices.

Knowledge coupled with a consumer-centred approach is required for effecting behaviour modification. Many green products have failed because of green marketing myopia – managers' myopic focus on the "greenness" of their product/service over the broader expectations of their target consumers or community. Sometimes, consumers who buy green do so not necessarily for environmental reasons. To this end, consumer value positioning is vital to the success of green products/services, i.e. understanding what consumers value and positioning the product/service to address these needs. [Ottman \*et al.\* \(2006\)](#) in their study reviewed successful green products and concluded that there are at least five desirable benefits: efficiency and cost-effectiveness, health and safety, performance, symbolism and status as well as convenience. The following is a brief description of each of these values that consumers look for in green products:

- *Efficiency and cost-effectiveness*: One of the biggest selling points of green products is their potential energy and resource efficiency. While the initial purchase price could be higher, long-term operational cost savings can convince consumers to buy green. In the light of increasing energy and resource prices, such savings provide a strong reason to purchase green.
- *Health and safety*: Health and safety are key considerations when consumers make their product choices. In particular, for certain demographic groups, this may be a prime consideration, e.g. the elderly, children and pregnant women. Some green products such as green buildings are particularly well-positioned to emphasise this attribute. Given many reports on sick building syndrome and its direct impact on occupants, health and safety are an important choice consideration. Sick buildings with poor indoor air quality have been linked to headaches; eye, nose and throat irritation; dizziness; and fatigue among occupants.
- *Performance*: This refers to the performance of the core attribute of a product. For example, consumers expect washing machines to deliver a clean yet gentle wash. While green products may have the added value of lower environmental impact, consumers do not expect the core performance attribute to be compromised as a result.
- *Symbolism and status*: Green products can be positioned as status symbols. Rather than having green product perceived to be only for "tree huggers", i.e. strong green supporter, they are today positioned to appeal to the broader segment of consumers. Toyota's gas and electric hybrid car, the Prius, has been marketed to represent "green chic". Research has also shown that consumers respond to social pressure and, hence, would like to be seen as supporting a good social cause, i.e. the feel-good factor.
- *Convenience*: For many consumers today, time is the only true luxury. In a time-poor society, convenience thus plays an immense role in influencing consumer's choice of product. Green products that help save time are well-placed for market growth.

Additionally, urban planning literature is also useful in shedding light on the drivers of community engagement in sustainability. [Berke and Conroy \(2000\)](#) brought sustainable development to the community level by defining it as:

[...] a dynamic process in which communities anticipate and accommodate the needs of current and future generations in ways that reproduce and balance local social, economic, and ecological systems, and link local actions to global concerns.

Along the same vein, [Conroy and Beatley \(2007\)](#) observed that community participation in sustainability programmes is “both dynamic and intergenerational, making it difficult to assess ‘success’ at any particular point in time”. Therefore, the complexity of engaging communities in sustainability is therein highlighted. Further, it is “transdisciplinary” and requires an integrated, and holistic “balance-seeking” process ([Yanarella, 1999](#)). Consequently, research on sustainable development is increasingly focused on the implementation or action component ([Laws \*et al.\*, 2004](#)). There is also increasing focus on active community engagement with emphasis on collaboration with local communities and community capacity building in urban planning literature. Effective community engagement would require multiplicity of components such as education, action, trust, inclusion and strong governance ([Sarkissian \*et al.\*, 2009](#)).

There have been a number of studies focusing on sustainable development within communities. However, [Markey \*et al.\* \(2010\)](#) noted that, while many communities have incorporated sustainable development principles into their vision statements and decision-making processes, few have succeeded in translating their high-level goals and objectives into tangible projects and actionable implementation strategies ([Dale, 2001](#); [Parkinson and Roseland, 2002](#); [Gahin \*et al.\*, 2003](#)). In short, there are implementation gaps that prevent communities from capitalising on the many known and proven sustainable techniques and technologies ([Markey \*et al.\*, 2010](#)). [Sproull and Hofmeister \(1986\)](#) noted that the overall success of an implementation effort will necessarily be tied to the clarity of its innovation and the related link with behavioural changes it will necessitate. In other words, understanding the drivers is the key to successfully engaging the community in sustainability.

In a study of sustainable transportation planning, [Krizek \*et al.\* \(2007\)](#) observed that to promote walking and cycling, there need to be adequate facilities. For walking, they include pavements, public spaces and/or road crossings. For bicycling, they include relatively wide curb lanes, on-street or off-street bicycle paths, secure parking and showers at the workplace. Additionally, [Conroy and Beatley \(2007\)](#) argue that, while tangible motivators such as having demonstration green building projects and parks are important, leadership, funding and timing are critical to implementing sustainable development. In the same vein, [Markey \*et al.\* \(2010\)](#) argued that lack of leadership in respect of unrealistic goals and poor community engagement forms potential barriers to behavioural change. The authors noted that communities need to know if they are selecting and implementing initiatives that are making a tangible difference to the sustainability of the community. Also, there are enough “low hanging fruit” or simple sustainability projects such as waste disposal, transportation and energy use that communities can undertake. These simple projects can overcome complexity and uncertainty barriers to becoming more sustainable.

In much the same way, research in sustainability in the higher education sector suggests leadership to be an important driver in engaging the university community in sustainability ([Teddei-Bringas \*et al.\*, 2008](#); [Eagan \*et al.\*, 2008](#)). [Carlson \(2006\)](#), noted that top-level commitment, which incorporates sustainability as a top priority of universities, can create incentives for innovation in sustainability across university campuses. Additionally, [Ferrer-Balas \*et al.\* \(2008\)](#) argued that peer pressure from competing institutions and funding availability underpinned the progress of

sustainability in universities. The findings of Sammalisto and Arvidsson (2005) concurred with the above.

**A 6-P community engagement framework for a sustainable campus**

The subject of engaging the community in sustainability has been the focus of many researchers in various disciplines. The preceding section has illustrated that while the terms used in each professional discipline may suggest some points of differentiation, a common theme that cuts across them all is how to encourage more positive practical actions towards sustainability. For example, within psychology, this topic has been approached from the perspective developing behaviour modification models to identify the factors that influence sustainability choices. Along the same vein, the marketing discipline has focused on identifying attributes that consumers value in green products/services. It can thus be inferred that in the development of sustainability programmes, these attributes should also be considered to better engage the community. The empirical findings from many urban planning studies are also informative in relation to the physical factors influencing the choice/decisions of communities in sustainability.

While these conceptual and empirical studies yielded rich insights into the drivers of community engagement in sustainability, closer examination suggests that there are clear areas of overlap. Synthesising these findings, an original 6-P community engagement framework is developed. This framework identifies the factors (both intrinsic and extrinsic) that would engage the community in sustainability programmes.

A sustainability programme is usually made up of smaller individual sustainability projects. One measure of the success in community engagement is the rate of participation. Therefore, if community engagement is a process in getting active participation, the individual sustainability projects are the vehicles for community to participate in sustainability. The 6Ps represent the factors that are important in raising community participation levels in these sustainability projects. It is argued that for a successful community engagement exercise (i.e. active participation), the sustainability programme being developed (which is made up of smaller projects) should demonstrate all 6Ps of the framework. However, individually, the smaller sustainability projects need not exhibit all 6 Ps in each of them. This framework is intentionally kept generic and does not seek to provide any causal links among the six factors identified.

Figure 1 explains this framework diagrammatically.

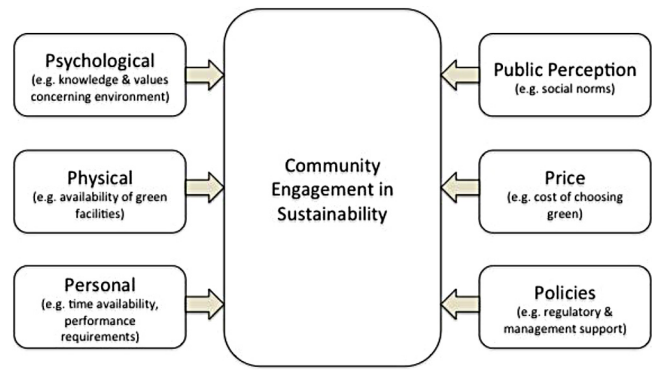


**Figure 1.**  
The 6-P community  
engagement in  
sustainability  
framework

## Case studies

Having developed a holistic framework for community engagement in sustainability, the paper will now illustrate the application of the 6-P framework in two university communities. The two case studies will examine how the 6Ps are evident in the sustainability programme and how the different 6P factors have been factored into the different sustainability projects that make up the sustainability programme.

### *Monash University*

Monash University was rated Australia's greenest university in 2011 ([My Green Australia, 2012](#)). Some of the awards the university has won for its sustainability initiatives include: the 2010 Premier's Sustainability Award, the UN Association Education Award and the 2009 Banksia Environmental Award. The university, which also signed the Talloires Declaration, stated that involvement and support of its community members was a primary driver of its achievement in sustainability. Monash University has established The Office of Environmental Sustainability (TOES), which is responsible for developing a sustainability programme and implementing sustainability projects within the university campus ([Monash University, 2012](#)).

While the sustainability programme at Monash consists of many individual projects, four highly successful sustainability projects are highlighted to demonstrate the application of the 6-P framework. These include:

- (1) Monash Footprints.
- (2) Bin There, Done That.
- (3) Monash Environmental Pledge.
- (4) Sustainable Transport Fiesta.

*Monash Footprints.* Monash Footprints is a major behavioural change sustainability project which aims to encourage a more sustainable lifestyle among its staff and students. The project is a free extracurricular course for staff and students of the university ([Monash University, 2012](#)) and has received a Highly Commended award from the ACTS Green Gown Awards (Sustainable Campus Group, 2011). In each week of the Monash Footprints course, participants are involved in a number of practical activities including: learning how to cook sustainable food; tasting organic and Fairtrade products; and learning how to reduce their environmental footprints in water, transport, energy, waste and shopping. The course also develops communication skills of participants by facilitating discussion and exchange of knowledge among them.

The course, valued at \$700 for each participant, is offered free of charge and runs for 4 weeks ([Monash University, 2012](#)). The programme is delivered by four mentors, and both staff and students are welcomed to volunteer to become mentors. Mentors will first receive a one-day training course. They will then design the delivery manner of the Footprints project, which will be supported by the necessary resources from TOES. The feedback on the project has been highly positive. A mentor has commended the programme for its "informative, practical, and most of all, fun" activities ([Monash University, 2012](#)). [Table I](#) outlines 6-P factors which are addressed by the Monash Footprints project.

*Bin There, Done That.* Bin There, Done That is another sustainability project which has been implemented across all university campuses. The programme aims to increase

recycling rates among university staff by replacing individual waste bins under staff's working desks with desktop bins and paper recycling boxes located under staff desks.

By arranging waste facilities in this manner, staff at Monash University are effectively encouraged to dispose of their waste in a more appropriate manner. Table II outlines the 6-P factors which are addressed by the Bin There, Done That project.

*Monash Environmental Pledge.* Monash Environmental Pledge project is an annual campaign of Monash University. The project invites members of the university community to pledge to mitigate their environmental impact on one of the following themes: transport, energy, waste, food and water (Monash University, 2012). The project aims to promote sustainable practices among staff and students. For each pledge received, the university will contribute \$5 for the university's green projects which have been installing green features and technology throughout its campuses. Once a community member registers his/her pledge on Monash University's website, he/she will be given tips on how to reduce environmental footprint in the selected theme (Monash University, 2012). Each year, students and staff are asked to renew their pledges to demonstrate their ongoing commitment to the project, and the number of pledges is displayed on the university website. The programme has enjoyed high success, with over 6,000 and 4,000 pledges received in 2010 and 2011, respectively. With the funds raised as a result of this programme, a number of sustainability projects have been implemented throughout Monash campuses (Monash University, 2012). Table III outlines 6-P factors which are addressed by the Monash Environmental Pledge.

*Sustainable Transport Fiesta.* Sustainable Transport Fiesta was launched in October 2011 by Monash University (2011). The event, which ran for 2 weeks, aimed to encourage staff and students to travel to and from the university by sustainable transport modes (e.g. public transport, bicycles, walking and carpools). To achieve this purpose, the event involved and rewarded staff who had been or were committed to travelling with a sustainable transport mode. Each day of the event was focussed on one particular transport mode, and participants who utilised such transport mode on the day

| 6-P factor    | Description                                                                                                                                                                                                                                                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Psychological | The project creates greater awareness of sustainability and educates participants on how to live in a more sustainable manner                                                                                                                                            |
| Personal      | The course is offered free of charge, and therefore participants can participate in the programme without paying any fee. Participants also personally benefit from the programme with the opportunity to develop communication skills in a fun, interactive environment |

**Table I.**  
6-P factors addressed  
by Monash  
Footprints project

| 6-P factor | Description                                                                                                                                                                                                                                                      |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical   | By altering arrangements of waste and recycling bins throughout staff offices, recycling practices are encouraged as a result. Staff are now more considerate of the waste they generate and dispose of                                                          |
| Price      | All waste and recycling bins required for this initiative are provided by TOES at no charge to office which is interested in undertaking this initiative. Thus, staff who take ownership of this programme for their office are not required to pay an extra fee |

**Table II.**  
6-P factors addressed  
by Bin There, Done  
That project

would be rewarded. Rewards included breakfasts, reusable water bottles and coffee cups, Fairtrade coffee and chocolate (Monash University, 2012). The event was highly successful and attracted over 700 staff and student participants. Table IV outlines the 6-P factor which is evident in the Sustainable Transport Fiesta event.

All sustainability projects at Monash University are supported by TOES. Thus, the policies factor has been addressed. The above discussion has shown that the sustainability programme at Monash University has addressed all 6-P factors.

*Cornell University*

Cornell University, located in New York, USA, has embedded sustainability as its core value through research, education, outreach and campus management. The university aims to become carbon-neutral by 2050 and has adopted a Cornell Climate Action Plan to guide the university’s sustainability progress (Cornell University, 2008).

Cornell University’s sustainability efforts involve extensive participation and innovation from staff and students. Students at Cornell University, who have “been catalysts for change”, have formed various groups, each of which represents different interest (e.g. local food, renewable energy or composting benefits) (Cornell University, 2008). Four highly successful sustainability projects are singled out to demonstrate the application on the 6-P framework. These include:

- (1) Green Teams;
- (2) Lights Off Cornell;
- (3) Take Back the Tap; and
- (4) TCAT Public Transport Service.

*Green Teams.* Cornell Sustainability encourages interested staff to form their own Green Teams to incorporate sustainability into the daily operation of their departments. As of August 2012, six Green Teams have been created. Some of the existing green teams represent the following departments: Campus Life, CALS, Human Ecology and Cornell Outdoor Education. Green Teams also have their own websites, on which their mission

**Table III.**  
6-P factors addressed  
by Monash  
Environmental  
Pledge project

| 6-P factor        | Description                                                                                                                                                                                        |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Psychological     | The tips given to each staff or student who pledges to this project are useful for educating staff and students on how to reduce their environmental footprints practically and effectively        |
| Public perception | The project displays the number of pledges received publically on the university’s website, which can serve as peer pressure for other staff and students to also take their environmental pledges |

**Table IV.**  
6-P factors addressed  
by Sustainable  
Transport Fiesta  
event

| 6-P factor | Description                                                                                                                                                                                                                                                         |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal   | The event rewarded staff and students who showed commitment to travel by a sustainable transport mode. The rewards served as personal incentives for community members to participate in the event and continue utilising green transport modes following the event |

statements, recent activities and annual reports are published. On the Green Teams' websites, sustainability manuals are also available for interested staff and students to download. [Table V](#) outlines 6-P factors which are addressed by the Green Teams arrangement.

*Lights Off Cornell.* Lights Off Cornell is an energy conservation project which engages student volunteers in switching off lights in buildings after office hours. The project initially conducted an energy audit, which estimated that up to US\$60,000 can be saved annually by turning unneeded lights off at night. Every night, students are assigned to turn off lights in each building. Student volunteers also record data of lights which they turn off every night to calculate the figures of energy, money and carbon pollution saved as a result of the programme. These figures are periodically updated on the website of the programme, which also publicly shows outstanding volunteers' achievements in the Volunteer Spotlight section. Volunteers are also issued with community service certificates from the university's Energy and Sustainability Department following the conclusion of their participation in the programme ([Cornell University, 2008](#)). [Table VI](#) outlines 6-P factors which are addressed by the Lights Off Cornell project.

*Take Back the Tap.* Take Back the Tap is a major water-saving project at Cornell University that is run by students. The programme aims to reduce supply and demand of bottled water and reinvest in public water infrastructure. To this end, the programme has been educating the community at the university about environmental issues surrounding water, creating viable alternatives to bottled water (e.g. increasing bottle filling stations on campus). The programme aims to ultimately eliminate bottled water from Cornell's campus. [Table VII](#) outlines 6-P factors which are addressed by the Take Back the Tap project.

*TCAT Public Transport Service.* Cornell University has been heavily subsidising TCAT, the regional public transport service, which resulted in the following outcomes:

| 6-P factor        | Description                                                                                                                                                                     |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Psychological     | Sustainability information published on the Green Teams' websites can educate staff and students about how to live in a more sustainable manner                                 |
| Public perception | As the information of each Green Team is published on the university's sustainability website, this can create peer pressure on other departments to form their own Green Teams |

**Table V.**  
6-P factors addressed  
by Green Teams  
arrangement

| 6-P factor    | Description                                                                                                                                                                                                                                                                                    |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Psychological | Energy and pollution saving figures achieved as a result of the project are published on the university's website. These quantified environmental benefits can create greater awareness of sustainability and encourage staff and students to switch off their lights when they are not in use |
| Personal      | Students who participate in Lights Off Cornell are rewarded in two ways: being recognised officially on the project website's Volunteer Spotlight for their achievements; and being rewarded with community service certificates, which can be beneficial for their future careers             |

**Table VI.**  
6-P factors addressed  
by Lights Off Cornell  
project

- staff and students can now utilise the TCAT service for free;
- a shuttle bus service, which runs every 10 minutes, has been established between the campus and the main downtown; and
- additional bus services have been launched to create stronger links from the campus to student housing areas.

The price subsidy has encouraged active participation of students in using the TCAT public transport. In this regard, the price factor can be considered a prime driver in the success of this sustainability project at Cornell (Table VIII).

The preceding discussion has outlined four sustainability projects to demonstrate the application of the 6P framework. In addition, all sustainability projects at Cornell University are supported by the Energy and Sustainability Department. Thus, the policies factor has also been addressed.

Conclusion

This paper has developed the 6-P community engagement framework for developing a sustainable campus and has illustrated its application through a case study method to review the current sustainability programmes adopted by two university campuses. These case examples clearly illustrate the need for a holistic approach to engage any community in sustainable development.

Knowledge from various disciplines such as psychology, urban planning and marketing must be harnessed and synthesised so that an integrated approach can be developed to better engage the community in sustainability projects. The 6-P framework suggests that psychological, physical, personal, public perception, price and policy factors are important for engaging the community in sustainable development. Future research could test the framework’s robustness in other communities or organisational settings (such as corporations and schools) by mapping existing sustainability projects of these communities to the 6-P framework to identify the gaps in the community engagement strategy. Studies in the future can also develop scales to

Table VII.  
6-P factors addressed  
by Take Back The  
Tap project

| 6-P factor    | Description                                                                                                                                                                                 |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Psychological | The project has been informing the community about issues surrounding water, which can create greater awareness of sustainability in regard to water among staff and students at Cornell    |
| Physical      | The project aims to create better alternatives to bottled water on campus, and access to safe, filtered water has been improved due to the provision of additional drinking water fountains |

Table VIII.  
6-P factors addressed  
by TCAT Public  
Transport Service

| 6-P factor | Description                                                                                                                          |
|------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Price      | The free TCAT public transport service is a strong incentive for the staff and students to use the service                           |
| Physical   | The TCAT bus routes provided important physical links between the campus and student housing areas as well as the main downtown area |

operationalise each of the six factors and test the wider applicability of the framework through bigger sample sizes.

The 6-P framework is useful in that it can serve as the foundation upon which further research can be based to identify the dominant factors that drive community participation in sustainability projects. In practice, the framework can become a guide for developing a community engagement strategy. The factors identified serve as a checklist during the formulation of a sustainability programme. Additionally, the 6-P framework also demonstrates the need for both top – down commitment and bottom – up initiatives for sustainability. Community engagement in sustainability requires a paradigm shift in nurturing a sustainability culture among diverse groups of people within university campuses.

## References

- Barr, S. (2003), "Strategies for sustainability: citizens and responsible environmental behaviour", *Area*, Vol. 35 No. 3, pp. 227-240.
- BEIIC (2009), *Strategic Plan 2009-2014*, Department of Industry, Innovation Science, Research and Tertiary Education, Canberra, available at: [www.innovation.gov.au/Industry/BuildingandConstruction/BEIIC/Documents/BEIICStrategicPlan.pdf](http://www.innovation.gov.au/Industry/BuildingandConstruction/BEIIC/Documents/BEIICStrategicPlan.pdf) (accessed 29 August 2012).
- Berke, P.R. and Conroy, M.M. (2000), "Are we planning for sustainable development? An evaluation of 30 comprehensive plans", *Journal of the American Planning Association*, Vol. 66 No. 1, pp. 21-33.
- Bohler, S., Grischkat, S., Haustein, S. and Hunecke, M. (2006), "Encouraging environmentally sustainable holiday travel", *Transportation Research Part A: Policy and Practice*, Vol. 40 No. 8, pp. 652-670.
- Carlson, S. (2006), "In search of the sustainable campus", *The Chronicle of Higher Education*, Vol. 53, pp. 10-14.
- Conroy, M.M. and Beatley, T. (2007), "Getting it done: an exploration of US sustainability efforts in practice", *Planning, Practice & Research*, Vol. 22 No. 1, pp. 25-40.
- Cornell University (2008), *Advancing sustainability action plan FY 2009*, Cornell University, Ithaca, NY, available at: [www.sustainablecampus.cornell.edu/docs/RPT\\_9-12-08\\_ASAP%20Final.pdf](http://www.sustainablecampus.cornell.edu/docs/RPT_9-12-08_ASAP%20Final.pdf) (accessed 15 January 2012).
- Dale, A. (2001), *At the Edge: Sustainable Development in the 21st Century*, UBC Press, Vancouver.
- DEFRA (2005), *The UK Government Sustainable Development Strategy*, TSO.
- Eagan, D.J., Calhoun, T., Schott, J. and Dayananda, P. (2008). *Guide to Climate Action Planning: Pathways to a Low-Carbon Campus*, National Wildlife Federation, Reston, VA.
- Ferrer-Balas, D., Adachi, J., Banas, S., Davidson, C., Hoshikoshi, A., Mishra, A. and Ostwald, M. (2008), "An international comparative analysis of sustainability transformation across seven universities", *International Journal of Sustainability in Higher Education*, Vol. 9, pp. 295-316.
- Gahin, R., Veleva, V. and Hart, M. (2003), "Do indicators help create sustainable communities?", *Local Environment*, Vol. 8 No. 6, pp. 661-666.
- Hensher, D.A. (2006), "Revealing differences in willingness to pay due to the dimensionality of stated choice designs: an initial assessment", *Environmental and Resources Economics*, Vol. 34 No. 1, pp. 7-44.
- Jackson, T. (2005), *Motivating Sustainable Consumption: A Review of Evidence on Consumer Behaviour and Behavioural Change*, Canadian Centre for Pollution Prevention, Ontario, available at: [www.c2ponline.com/documents/MotivatingSC.pdf](http://www.c2ponline.com/documents/MotivatingSC.pdf) (accessed 29 August 2012).

- Kaiser, F.G., Wolfig, S. and Fuhrer, U. (1999), "Environmental attitude and ecological behaviour", *Journal of Environmental Psychology*, Vol. 19 No. 1, pp. 1-19.
- Kennedy, C.A. (2002), "A comparison of the sustainability of public and private transportation systems: a study of the greater Toronto area", *Transportation*, Vol. 29 No. 4, pp. 459-493.
- Krizek, K.J., Poindexter, G., Barnes, G. and Mogush, P. (2007), "Analysing the benefits and costs of bicycle facilities via online guidelines", *Planning, Practice & Research*, Vol. 22 No. 2, pp. 197-213.
- Laws, D., Scholz, R.W., Shiroyama, H., Susskind, L., Suzuki, T. and Weber, O. (2004), "Expert views on sustainability and technology implementation", *International Journal of Sustainable Development and World Ecology*, Vol. 11 No. 3, pp. 247-261.
- McIntosh, M., Cacciola, K., Clermont, S. and Keniry, J. (2001), *State of the Campus Environment: A National Report Card on Environmental Performance and Sustainability in Higher Education*, National Wildlife Federation, Reston, VA, available at: [www.nwf.org/Global-Warming/Campus-Solutions/Resources/Reports/State-of-the-Campus-Environment-Report/Read-the-State-of-the-Campus-Environment-Report.aspx](http://www.nwf.org/Global-Warming/Campus-Solutions/Resources/Reports/State-of-the-Campus-Environment-Report/Read-the-State-of-the-Campus-Environment-Report.aspx) (accessed 7 July 2012).
- Markey, S., Connelly, S. and Roseland, M. (2010), "Back of the envelope: pragmatic planning for sustainable rural community development", *Planning, Practice & Research*, Vol. 25 No. 1, pp. 1-23.
- Monash University (2011), "Sustainable campus group", available at: [www.monash.edu/research/sustainability-institute/scg/](http://www.monash.edu/research/sustainability-institute/scg/) (accessed 9 January 2012).
- Monash University (2012), "Environment and sustainability", available at: [www.monash.edu.au/study/options/courses/environment-sustainability.html](http://www.monash.edu.au/study/options/courses/environment-sustainability.html) (accessed 13 January 2012).
- My Green Australia (2012), "Australia's 10 greenest universities", available at: <http://au.ibtimes.com/articles/275099/20120102/australia-s-10-greenest-universities-au-ibtimes.htm> (accessed 13 January 2012).
- Olander, F. and Thorgersen, J. (1995), "Understanding of consumer behaviour as pre-requisite for environmental protection", *Journal of Consumer Policy*, Vol. 18 No. 4, pp. 345-385.
- Ottman, J.A., Stafford, E.R. and Hartman, C.L. (2006), "Avoiding green marketing myopia", *Environment*, Vol. 48 No. 5, pp. 23-36.
- Parkinson, S. and Roseland, M. (2002), "Leaders of the pack: an analysis of the Canadian 'sustainable communities' 2000 municipal competition", *Local Environment*, Vol. 7 No. 4, pp. 411-429.
- Sammalisto, K. and Arvidsson, K. (2005), "Environmental management in Swedish higher education: directives, driving forces, hindrances, environmental aspects and environmental coordinators in Swedish universities", *International Journal of Sustainability in Higher Education*, Vol. 6, pp. 18-35.
- Sarkissian, W., Hofer, N., Shore, Y., Vajda, S. and Wilkinson, C. (2009), *Kitchen Table Sustainability: Practical Recipes for Community Engagement with Sustainability*, Earthscan, London.
- Scott, B.F. and Jobber, D. (2000), "Environmentally responsible purchase behaviour: a test of a consumer model", *European Journal of Marketing*, Vol. 34 Nos 5/6, pp. 723-746.
- Shriberg, M. and Tallent, H. (2003), *Beyond Principles: Implementing the Talloires Declaration*, ULSF, Talloires, France, available at: [www.ulsf.org/pdf/ShribergTallentFinal.pdf](http://www.ulsf.org/pdf/ShribergTallentFinal.pdf) (accessed 10 August 2012).
- Sproull, L.S. and Hofmeister, K.R. (1986), "Thinking about implementation", *Journal of Management*, Vol. 12 No. 1, p. 43.

- Teddei-Bringas, J.L., Esquer-Peralta, J. and Platt-Carrillo, A. (2008), "ISO 14001 and sustainability at universities: a Mexican case study", *Management of Environmental Quality: An International Journal*, Vol. 19 No. 5, pp. 613-626.
- Thorgersen, J. (1999), "The ethical consumer, moral norms and packaging choice", *Journal of Consumer Policy*, Vol. 22 No. 4, pp. 439-460.
- ULSF (2012), "Talloires declaration", available at: [www.ulsf.org/programs\\_talloires.html](http://www.ulsf.org/programs_talloires.html) (accessed 10 January 2012).
- Velazquez Contreras, L. (2002), "Sustainable universities around the world: a model for fostering sustainable university program's effectiveness", Doctoral dissertation, University of Massachusetts Lowell, Lowell, MA.
- Velazquez, L., Munguia, N., Platt, A. and Taddei, J. (2006), "Sustainable university: what can be the matter?", *Journal of Cleaner Production*, Vol. 14 Nos 9/10/11, pp. 810-819.
- Yanarella, E.J. (1999), "Local sustainability programmes in comparative perspective: Canada and the USA", *Local Environment*, Vol. 4 No. 2, pp. 209-223.

### Further reading

- ACTS (2011), "2011 ACTS conference", available at: [www.acts.asn.au/index.php/annual-conference/](http://www.acts.asn.au/index.php/annual-conference/) (accessed 12 June 2012).
- ACTS (2011), "Australasian campuses towards sustainability", available at: [www.acts.asn.au/](http://www.acts.asn.au/) (accessed 10 January 2012).
- ACTS (2011), "ACTivate! ACTS newsletter spring edition", available at: [www.acts.asn.au/wp-content/uploads/2011/06/ACTivate-2011-Spring-Edition-FINAL.pdf](http://www.acts.asn.au/wp-content/uploads/2011/06/ACTivate-2011-Spring-Edition-FINAL.pdf) (accessed 10 January 2012).
- BBC (2004), *Polling Results*, BBC, London, available at: [http://news.bbc.co.uk/1/1/shared/bsp/hi/pdfs/28\\_07\\_04\\_climatepoll.pdf](http://news.bbc.co.uk/1/1/shared/bsp/hi/pdfs/28_07_04_climatepoll.pdf) (accessed 10 January 2012).
- Katzev, R. and Wang, T. (1994), *Can Commitment Change Behaviour? A Case Study of Environmental Citizenship*, National Round Table on the Environment and the Economy, Ottawa, Ontario.
- Pearce, J. (1993), *Volunteers: The Organisational Behaviour of Unpaid Worker*, Routledge, London.

### About the authors

Dr Linda Too is currently an Associate Professor of Urban Development at the Institute of Sustainable Development and Architecture, Bond University. Her current research interests include corporate real estate as well as social and community planning with particular emphasis on sustainability. Linda Too is the corresponding author and can be contacted at: [ltoo@bond.edu.au](mailto:ltoo@bond.edu.au)

Dr Bhishna Bajracharya is currently an Associate Professor of Urban Planning at the Institute of Sustainable Development and Architecture, Bond University. His specialisations include master planned communities, sustainability and local agenda, as well as disaster management.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.