ENVIRONMENT AND SUSTAINABILITY PLANS AND POLICIES: SOLUTIONS, STRAIGHTJACKETS OR MEANINGLESS DRIVEL?

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ABSTRACT

In recent years, Australian university managers have increasingly put pen to paper to articulate their various approaches to the environment, and sustainability more broadly. Australian universities are operating in a difficult context of increasing regulation, reporting and accountability requirements concerning their environmental and sustainability-related activities and obligations. Concurrently, they are facing increasing calls to provide solutions reflecting myriad and potentially conflicting priorities of staff, students, and the broader community. In response, a plethora of planning, design and policy instruments have been produced to scope, evidence, guide and monitor these ambitious endeavours. This presentation will explore how a number of Australian universities have responded. In particular, the research will examine Australian universities’ approaches in areas spanning: the natural environment; the built environment and precincts; use of natural resources; sustainability-focused teaching, learning and research; and the relationship between the physical and cultural environment. Publicly available governance documentation, principally including plans and policies, will provide the lens for the research. The presentation aims to communicate key findings to practitioners, including examples of good practice, to support ongoing development and documentation of effective planning and policy solutions.

KEY WORDS
environment, sustainability, higher education, university, institutional policy

INTRODUCTION

Higher education institutions play a pivotal role in metropolitan and regional communities worldwide, in terms of education provision, research, creative and technological innovation and employment. Attention has now turned to the moral and ethical role, footprint and environmental impact of these large organisations as the global impetus for ecological, social and economic sustainability has grown. In recent decades, as massification and competition have come to characterise higher education systems globally (Freeman, 2015), international sustainability declarations and environmental regulation have both grown alongside public concern regarding the environment and sustainability issues (Hanh, 2013). Concurrently, associations specifically focused on environmental sustainability in higher education have emerged most particularly in Europe and the United States (Table 1). In Australasia, the vast majority of Australian and New Zealand universities and some Technical and Further Education (TAFE) colleges and Institutes of Technology and Polytechnics (ITPs) are members of the
### Table 1: Associations focused on environmental sustainability in higher education

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<thead>
<tr>
<th>BASE</th>
<th>ASSOCIATION</th>
<th>KEY INITIATIVES</th>
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<tbody>
<tr>
<td>International</td>
<td>International Alliance of Research Universities Campus Sustainability Initiative (IARU)</td>
<td>- Collaboration</td>
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<tr>
<td>International</td>
<td>International Sustainable Campus Network (ISCN)</td>
<td>- Conference</td>
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<td>Europe</td>
<td>University Educators for Sustainable Development (UE4SD)</td>
<td>- Conference</td>
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<tr>
<td>Europe</td>
<td>COPERNICUS Alliance (European Network on Higher Education for Sustainable Development)</td>
<td>- Conference</td>
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<td>United Kingdom</td>
<td>The Environmental Association for Universities and Colleges (EAUC)</td>
<td>- Green Directory</td>
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<td>- Green Gown Awards UK</td>
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<td>- International Green Gown Awards</td>
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<td>- Sustainability exchange</td>
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<td>- Climate Change Action Plan</td>
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<tr>
<td>Scotland</td>
<td>Universities and Colleges Climate Commitment for Scotland (UCCCIS)</td>
<td>- Sustainability Tracking, Assessment &amp; Rating System (STARS)</td>
</tr>
<tr>
<td>United States</td>
<td>Association for the Advancement of Sustainability in Higher Education (AASHE)</td>
<td>- Workshops and conferences</td>
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<td>- Secretariat for signatories of the Talloires Declaration</td>
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<td>- Research and resource development</td>
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<td>- Campus Ecology Program and Campus Ecology Network</td>
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<td>- Recycling</td>
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<td>United States</td>
<td>Campus Ecology Program of the National Wildlife Federation</td>
<td>- Networking</td>
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<td>- Campus Sustainability Day</td>
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<td>- Climate Leadership Awards</td>
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<td>- American College &amp; University Presidents’ Climate Commitment</td>
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<td>- Summits and workshops</td>
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<td>South Korea</td>
<td>Korean Association for Green Campus Initiative</td>
<td>- Action and Sector Teams</td>
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<tr>
<td>China</td>
<td>China Green Universities Network (CGUN)</td>
<td>- Case studies</td>
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<td>- Guidelines</td>
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<td>- Network</td>
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<td>- Built environment and energy use</td>
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<tr>
<td>Asia and the Pacific</td>
<td>United Nations University: Promotion of Sustainability in Postgraduate Education and Research (ProSPER.Net) - Asia and Pacific Islands</td>
<td>- Network</td>
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<tr>
<td>Australia and New Zealand</td>
<td>Australasian Campuses Towards Sustainability (ACTS)</td>
<td>- Conference and workshops</td>
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<td>- Green Gown Awards Australasia</td>
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<td>- International Green Gown Awards</td>
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<td>- School curriculum</td>
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<td></td>
<td>Australian Education for Sustainability Alliance (AESA)</td>
<td>- ESD Innovation Toolkit</td>
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<tr>
<td></td>
<td>Mainstreaming Environment &amp; Sustainability in African Universities (MESA)</td>
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This paper explores Australian university governance artefacts that focus on environmental sustainability, including formally articulated plans and policies. Previously, Australian universities had somewhat minimalistic policies embedding limited scope outside of legislative compliance and environmental sustainability-related teaching and research reflecting their traditional streams of activities (Freeman & Jensen, 2010); however, Australian universities have now developed whole-of-institution responses, including planning, design and policy instruments that embody environmental sustainability aspirations, intentions and specifications. Many Australian universities also have well-established master plans aimed at ‘accommodating growth in student numbers while maintaining quality space and academic achievement’ (Davies & Sheahan, 2014, p. 1). Alongside these governance artefacts, universities also implement a rich range of sustainability initiatives (for example, see programs highlighted from the Green Gown Award Australasia winners and highly commended entries at www.acts.asn.au; and Group of Eight, 2015).

In keeping with the complexity and compelling challenges of global, national and local environmental issues, there is a wealth of literature regarding public environment policy (Baurnol & Oates, 1988; Richards, 2000; Cohen, 2014). In addition, there is a growing body of literature exploring higher education institutional responses (Lozano, Lozano, Mulder, Huisisngh & Waas, 2013; Wright, 2002; Wright, 2006). Concurrently, there is literature emerging regarding higher education sustainability-related evaluation instruments (Yarime & Tanaka, 2012; Shriberg, 2002), including the United Kingdom’s new ‘Green League Table’ (Jones, 2015) and the Learning in Future Environments (LiFE) Index developed in the United Kingdom to demonstrate higher education institutions’ environmental sustainability commitments (LiFE, 2015, About LiFE). The LiFE Index is being promoted in Australasia through the Australasian Campuses Towards Sustainability (ACTS).

Indicative of this international interest, several journals specifically focus on sustainability in higher education, including the International Journal of Sustainability in Higher Education (IJSHE), Journal of Cleaner Production (JCLEPRO) and Environmental Education Research, Clean Technologies and Environmental Policy. While the majority of such research focuses on European and North American higher education institutions (Karatzoglou, 2013) this paper explores formally articulated, plan and policy responses established by Australia’s universities and asks: Are these university planning and policy instruments solutions, straightjackets or meaningless drivel?

**METHOD**

The research involved the identification, coding and analysis of publicly available, internet-delivered governance documents, or ‘artefacts’ that have ‘as their central feature an inscribed text’ (Scott, 2014). The research sought to identify environment and/or sustainability policies published by all 40 public and private Australian universities, and environment and/or sustainability plans for 11 selected Australian universities. The data set included formal, internet-delivered environment and/or sustainability policies from 26 public Australian universities. Of the 21 whole-of-institution, publicly available environment and/or sustainability plans or frameworks identified, the data set of 11 plans included two from each of the Group of Eight universities (the University of Queensland,
the University of Melbourne), Innovative Research Universities (Murdoch University, Flinders University), and Australian Technology Network (University of South Australia, University of Technology, Sydney); one from a Regional Universities Network university (Federation University Australia) as it was not possible to locate a second one online, and plans from four non-affiliated universities (Griffith University, University of Canberra, Charles Sturt University, University of Tasmania). The data set for environment and/or sustainability plans spans public universities in all states and territories other than the Northern Territory where it was not possible to source one online. The data were coded using thematic analysis (Braun & Clarke, 2006). The planning and policy documents were examined against criteria including level of prescription (high/low) and scope (governance, operations, education, research, outreach), after Yarime and Tanaka (2012).

DRIVERS FOR INSTITUTIONAL PLANS AND POLICIES

International sustainability declarations and national initiatives

Internationally, a series of sustainability declarations relevant to higher education have been introduced, commencing with the Stockholm Declaration of the United Nations Conference on the Human Environment (UNEP, 1972), followed by The Belgrade Charter: A global framework for environmental education (MEdIES, n.d.) and the Tbilisi Declaration (UNESCO-UNEP, 1978). These early declarations emphasise the fundamental importance of environmental education for both young people and adults.

Following the release of the seminal report, Our Common Future (Brundtland, 1987), university administrators specifically committed to sustainability through the Talloires Declaration, stating that ‘university heads must provide leadership and support to mobilise internal and external resources so that their institutions respond to this urgent challenge’ (ULSF, 1990, n.p.). The following year (1991), the Halifax Declaration (IISD, n.d.) recommends universities commit to sustainable development, better utilise their intellectual resources and meet ethical obligations to overcome malpractices of resource utilisation.

In 1992, the United Nations Conference on Environment and Development in Rio de Janeiro endorsed Agenda 21 (United Nations, 1992) including sections focused on promoting environmental education, public awareness and science for sustainable development (see chapters 35 and 36). The Kyoto Declaration of 1993 followed shortly thereafter. Endorsed by the International Association of Universities (IAU) members, the Kyoto Declaration emphasises universities’ ethical obligations and calls for them to establish sustainability action plans encompassing both environmental education and sustainable physical operations. Building on these, the Association of Commonwealth Universities (ACU) Swansea Declaration of 1993 asserts the role of universities in developing an environmentally secure world. The Conference of European Rectors COPERNICUS – The University Charter for Sustainable Development (1994) subsequently shifted the focus to the leadership role of universities in fostering environmental literacy and environmental ethics through education, encouraging interdisciplinarity in education and research, and the dissemination of sustainable development knowledge. The Declaration of Thessaloniki (UNESCO-EPD, 1997) calls for the reorientation of education towards the environment and sustainable development (including all levels and all disciplines), and public awareness programs.

In 2000, ULSF, IAU, COPERNICUS-CAMPUS in addition to UNESCO formed the
Global Higher Education for Sustainability Partnership. Shortly thereafter (2001), the *Lüneburg Declaration on Higher Education for Sustainable Development* (UNESCO) declared ‘the ultimate goal of education for sustainable development is to impart the knowledge, values, attitudes and skills needed to empower people to bring about the changes required to achieve sustainability’ (p. 1). The *Declaration of Barcelona* (EESD, 2004), which specifically focused on engineering education, encourages the development of moral and ethical values in addition to disciplinary knowledge. Launching the United Nations Decade of Education for Sustainable Development in higher education, the international conference on Committing Universities to Sustainable Development endorsed the *Graz Declaration on Committing Universities to Sustainable Development* (Uni Graz, Oikos, COPERNICUS & TUG, 2005) calling ‘on universities to give sustainable development fundamental status in their strategy and their activities’ (p. 1). Finally, the *University Summit Torino Declaration on Education and Research for Sustainable and Responsible Development (Turin Declaration)* (G8, 2009) acknowledges the pivotal role of higher education institutions in sustainable and responsible development.

**Table 2: Chronology of international declarations encouraging sustainable development in higher education**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TITLE OF DECLARATION</th>
<th>MEETING</th>
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<tbody>
<tr>
<td>1975</td>
<td>The Belgrade Charter: A global framework for environmental education</td>
<td>UNESCO International Environmental Workshop (Yugoslavia)</td>
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<tr>
<td>1978</td>
<td>Tbilisi Declaration</td>
<td>UNESCO-UNEP Intergovernmental Conference on Environmental Education (Georgia)</td>
</tr>
<tr>
<td>1990</td>
<td>Talloires Declaration</td>
<td>International Presidents Conference (France)</td>
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<tr>
<td>1991</td>
<td>Halifax Declaration</td>
<td>International Association of Universities, United Nations University, Association of Universities and Colleges of Canada and Dalhousie University sponsored International Conference on University Action for Sustainable Development (Canada)</td>
</tr>
<tr>
<td>1993</td>
<td>Kyoto Declaration</td>
<td>International Association of Universities (IAU) Ninth Round Table (Japan)</td>
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<td>1993</td>
<td>Swansea Declaration</td>
<td>Association of Commonwealth Universities (ACU) Fifteenth Quinquennial Conference (Wales)</td>
</tr>
<tr>
<td>1994</td>
<td>COPERNICUS – The University Charter for Sustainable Development</td>
<td>Conference of European Rectors (Switzerland)</td>
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<tr>
<td>1997</td>
<td>Declaration of Thessaloniki</td>
<td>UNESCO-EPD International Conference, Environment and Society: Education and Public Awareness for Sustainability (Greece)</td>
</tr>
<tr>
<td>2001</td>
<td>The Lüneburg Declaration on Higher Education for Sustainable Development</td>
<td>International conference, Higher Education and Sustainability: Towards the World Summit on Sustainable Development 2002 (Germany)</td>
</tr>
<tr>
<td>2004</td>
<td>Declaration of Barcelona</td>
<td>Second International Conference of the Engineering Education in Sustainable Development (EESD) (Spain)</td>
</tr>
<tr>
<td>2005</td>
<td>Graz Declaration on Committing Universities to Sustainable Development</td>
<td>COPERNICUS-CAMPUS and UNESCO sponsored International conference on Committing Universities to Sustainable Development (Austria)</td>
</tr>
<tr>
<td>2009</td>
<td>Turin Declaration</td>
<td>G8 University Summit (Italy)</td>
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</table>

Source: Adapted and updated from Wright (2002) and Lozano, Lukman, Lozano, Huisingh & Lambrechts (2013).
Spanning over 40 years these international declarations have consistently emphasised the role of higher education institutions in fostering environmental literacy, delivering environmental education embedded in science, technology, engineering and mathematics (STEM), social science and humanities disciplines, conducting leading-edge sustainability-related research (including interdisciplinary efforts), disseminating knowledge to the public, and managing physical operations sustainably. These declarations have also positioned higher education institutions as leaders in this arena, calling on them to contribute their intellectual resources and meet their ethical and moral obligations to environmental sustainability. Explicitly, commitment to principles embodied in these international declarations involves fundamental institutional reconsideration and reconfiguration: 'It requires [higher education institutions] to rethink their missions, and to restructure their courses, research priorities, community outreach and campus operations' (Yarime & Tanaka, 2012, p. 64).

**Government environment policy**

In the public sector, government employs a range of environmental strategies, plans and policies including ‘emissions taxes, abatement subsidies, marketable allowances, regulation based on performance standards or technology, property rights, deposit-refund schemes, information programs, liability rules’ (Richards, 1999, p. 222), along with education, research and information-oriented policy instruments. These instruments represent a continuum spanning ‘command-and-control’ (regulatory instruments) versus ‘incentive-based’ (market-based instruments). The relative merits of public strategies, plans and policies (see Majone, 1976; Bohm & Clifford, 1985) vary with respect to efficiency or cost effectiveness, incentives to innovate (technology), administrative burden (information requirements and monitoring costs), political feasibility/public acceptance, flexibility/adaptability and legal constraints (summarised as minimising costs subject to constraints including pollution abatement, legal and political constraints) (Richards, 1999, p. 228).

Australian universities are subject to Commonwealth, State and Territory public environment policies, legislation and regulatory instruments that shape institutional responses in myriad ways, the relevance and influence of which vary. While the National Greenhouse and Energy Reporting (NGER) legislation stipulates greenhouse gas emissions monitoring and reporting requirements, government policy does not specifically require universities to institute mitigation strategies or formulate policy responses.

**Higher education institutional environment policies, plans and strategies**

Globally, a growing number of higher education institutions are developing environment policies (Wright, 2002; Wright, 2006). Many such policies are publicly available on the Sustainable School and Campus Policy Bank developed by the Canadian-based International Institute for Sustainable Development (IISD). These policies span education (curriculum; education for environmental sustainability), sustainable operations (energy management; environmental management of facilities and grounds; chemicals and hazardous waste management; waste management and recycling), governance (planning/processes) and finance (procurement/purchasing). Higher education environment policies recognise the ethical and moral obligations of these institutions to play a leadership role in promoting environmental sustainability, running sustainable operations, conducting sustainability-related research and undertaking public outreach...
Higher education institutions have also established both environment plans and master plans to guide campus development. For example, key themes identified in Australian university master plans include ‘transport, pedestrian movement and way finding, student services and centres (hubs), teaching and research space growth, pedagogy changes, co-location and clustering, place making, precinct planning, enhancement of the campus experience, student housing needs, outdoor learning and open space, heritage [and] university as part of the city’ (Davies & Sheahan, 2014, p. 1). Environment plans and policies intersect in complex and curious ways with master plans.

Globally, sustainable development initiatives in higher education institutions have focused on ‘education, research, outreach and partnership, and sustainability on campus’ (Velazquez, Munguia & Taddei, 2004). Karatzoglou (2013) suggests that ‘Universities continue to cope effectively ... with the dynamic nature of sustainability by displacing barriers, changing teaching paradigms, developing social competencies, communication skills, and community relations, and deepening their involvement in local and regional initiatives’ (p. 50). By way of contrast, others (see Wright, 2006) observe that higher education institutions have been slow to respond effectively to the sustainability agenda, and faced many challenges when doing so, leading to the conclusion that ‘[t]he adequate conditions for the successful implementation of sustainability programs do not exist’ (Velazquez, Munguia & Taddei, 2004, p. 383). The range of challenges for higher education institutions introducing sustainable development initiatives include lack of awareness, funding, support, time, data access, training, interdisciplinary research, performance indicators and policies to promote sustainability on campus (Velazquez, Munguia & Sanchez, 2005). Further, Wright (2006) suggests that such institutional policies lack ‘teeth’: ‘rarely do university environmental policies offer specific directions or action plans through which to achieve the overall goals and objectives of the policy’ (p. 761).

The effectiveness of higher education institutions’ environmental sustainability efforts may be measured using various evaluation instruments. For example, Shriberg (2002) developed cross-institutional assessment instruments to evaluate measures including 'decreasing throughput; pursuing incremental and systemic change simultaneously; including sustainability education as a central part of curricula; and engaging in cross-functional and cross-institutional efforts' (p. 254). As an alternative, rankings-based approach, the United Kingdom's People & Planet ‘green league’ criteria assesses: policy and strategy; human resources; environmental auditing and management systems; ethical investment; carbon management; workers rights; sustainable food; staff and student engagement; education for sustainable development; key sustainability impacts; energy sources; waste and recycling; carbon reduction; and water reduction.

The Sustainability Tracking, Assessment & Rating System (AASHE), launched in the United States, is a self-reporting framework used globally by higher education institutions to measure sustainability performance. Registered participants use the STARS Reporting Tool to measure performance regarding academics (curriculum and research), engagement (campus and public), operations (air and climate, buildings, dining services, energy, grounds, purchasing, transportation, waste, water) and planning and administration (coordination, planning and governance; diversity and affordability; health, wellbeing and work; investment; and innovation).
Building on a range of emerging evaluation approaches, Yarime and Tanaka (2012) analyse environmental sustainability assessment tools through the lens of governance (including development and implementation of policies and plans), operations, education, research and outreach. They find, with respect to governance, that 'most of the assessment tools address the importance of creating policies, strategies, planning, initiatives and visions. ... Conversely, ... implementation of policies ... has not received much attention' (Yarime & Tanaka, 2012, p. 73, emphasis added). These tools and analyses have several common components, including governance (vision or strategy, policy, planning, ethical investment), operations (energy, waste, water, infrastructure, purchasing), education (curriculum), research and outreach (staff, students and community). The focus on operations is consistent with research indicating the ecological footprint of Australian universities largely comprises buildings and transportation (Flint, 2001).

The challenge of policy and plan implementation is a consistently emerging theme. Andrew Smith of the Higher Education Funding Council of England (HEFCE) observes that ‘We’ve got a load of plans and strategies, but what we really need now is delivery’ (The Guardian, 2011). Shah and Nair (2014), exploring strategic planning instruments concur: ‘one would question the extent to which ‘the glossy plans’ are fully implemented’ (p. 148). Challenges regarding environment policy implementation and review are consistent with research regarding institutional policy more broadly in Australian, United States, New Zealand and Papua New Guinea higher education institutions (Freeman, 2010; Freeman, 2012; Freeman, Jensen & Hatwell, 2013; Freeman, 2014; Freeman, Capell, Goldblatt, Lapan, Mafile'o & Thompson, 2014; Freeman, Lapan, Mafile'o, Capell, Goldblatt & Thompson, 2014).

AUSTRALIAN UNIVERSITY ENVIRONMENT POLICIES

The level of prescription in Australian university environment policies is low. Typically these policies are very brief (two to three pages), comprising a small number of principles-based, generalised, umbrella provisions and peripheral information required by institutional policy templates (that is, title, responsibilities, definitions, version control). Taken as a set, environment policies are generally scant and patchy in terms of content; however, there are several exemplars of more developed policies (see the University of Tasmania Sustainability Policy [2015]).

The definition of sustainable development established in the seminal Brundtland report, Our Common Future: World Commission on Environment and Development (1987), is reflected in a number of environment policies: ‘Sustainable development seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future’ (clause 49). In several other instances, environment policies reflect the goal of the National Strategy for Ecologically Sustainable Development (ESDSC, 1992): ‘Development that improves the quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends’ (n.p.).

Australian university environment policies have ambitious and broad-ranging environmental objectives. These include, but are not limited to, formally acknowledging the institutions’ contribution to climate change, committing to environmentally responsible practices that minimise impacts and committing to exemplary compliance
with environmental legislation and regulation. Other objectives – relating to social and financial goals - include embedding a culture of responsibility, increasing awareness of staff, students and the community, conducting sustainability-related education and research, minimising consumption and assuring organisational sustainability. Policy objectives are underpinned by governing principles in a few instances. For example, the University of Tasmania’s *Sustainability Policy* (2015) includes governing principles covering open participation; integration; shared responsibility; leadership, innovation, creativity and best practice; global perspective; precautionary principle; student-focused. Reflecting different prioritisation, the University of Adelaide’s *Sustainability Policy* (2011) has governing principles which include sustainability knowledge; participation by all; and the campus environment.

Policy nomenclature is a signifier of institutional emphasis and prioritisation, as much as a reflection of content. Whereas in some policy domains there is a high level of nomenclature homogeneity between Australian universities (for example, risk), in others, there is not, suggesting greater diversity in terms of institutional emphases and approaches (for example, academic integrity / honesty and plagiarism). In this instance, policy nomenclature is reasonably evenly split between an emphasis on the environment (42 per cent) and an emphasis on sustainability (38 per cent), with the remainder including both environment and sustainability in the title (19 per cent) (Table 3).

**Table 3: Nomenclature for environment and sustainability policies (n=26)**

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<td>7 (27%)</td>
<td>4 (15%)</td>
<td>4 (15%)</td>
<td>9 (35%)</td>
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<td>11 (42%)</td>
<td>5 (19%)</td>
<td>10 (38%)</td>
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</table>

This suggests that, at least for the purposes of Australian university environment policy nomenclature, the words ‘environment’ and ‘sustainability’ may be inter-changeable; however, as sustainability policies broadly encompass environmental, social and financial principles, ‘environment’ may be perceived as a sub-set of the broader ‘sustainability’ agenda. This issue is subject to discussion amongst sustainability practitioners.

Australian universities must respond to, and are shaped by, a large body of government regulation; however, none of this legislation explicitly obliges them to adopt environment plans or policies. Australian university environment policies inconsistently identify either none, or some of the following acts, regulations, standards and guidelines (Table 4). This includes both mandatory Commonwealth and State/Territory legislation, and non-mandatory reference materials (standards, guidelines and international declarations).

Environment policies consistently refer to institutional environment plans, and not infrequently, university-specific design standards and specifications. Australian university environment policies also identify either no, or some related institutional policies, including governance policies (corporate social responsibility, quality), finance policies (procurement/purchasing, tendering, Fairtrade, investment), human resources policies (equal opportunity, travel, health and safety), infrastructure policies (vehicle fleet, air conditioning, waste management) and academic policies (course policy).
Table 4: Regulation shaping Australian university environment policy, operations and sustainability initiatives

| Legislation and regulations (Commonwealth) | - Clean Energy Act 2011 (Cth)  
- Energy Efficiency Opportunities Act 2006 (Cth)  
- Energy Efficiency Opportunities Regulations 2006 (Cth)  
- Environmental Protection and Biodiversity Conservation Act 1999 (Cth)  
- National Environment Protection Measures Act 1998 (Cth)  
- National Greenhouse and Energy Reporting Act 2007 (Cth)  
- National Greenhouse and Energy Reporting Regulations 2008 (Cth)  
- National Greenhouse and Energy Reporting (Measurement) Determination 2008 (Cth)  
- Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 (Cth)  
- Renewable Energy (Electricity) Act 2000 (Cth)  
- Various state and territory acts and regulations  
- Australian/New Zealand Standard (AS/NZS) ISO 14001:2004 Environmental management systems – Requirements with guidance for use (Standards Australia)  
- Green Star Building Rating System (Green Building Council of Australia)  
- HB 203:2006 Environmental risk management – Principles and process (Standards Australia, 2006)  
- National Australian Built Environment Rating System (NABERS) (NSW Office of Environment and Heritage)  
- National Construction Code (NCC)  
- National Greenhouse and Energy Reporting (Measurement) Technical Guidelines  
- Talloires Declaration (ULSF, 1990) |

There is much emphasis in Australian university environment policies on provisions relating to physical operations, including minimisation of waste, energy sourcing and use, greenhouse gas emissions and water, and the introduction of sustainable design, transport and procurement practices. The following section briefly explores these policy provisions.

Many Australian university environment policies have umbrella provisions regarding waste minimisation. For example, La Trobe University aims to ‘minimis[e] waste to landfill by following the waste hierarchy of avoid, minimise, reduce, reuse, recycle and then dispose of correctly as the last option’ (2015, p. 2). Similarly, many policies incorporate umbrella provisions broadly committing to minimisation of energy consumption (including embodied energy), and in a few instances, committing to optimising the use of renewable energy sources such as green power.

Many Australian university environment policies explicitly commit to reducing the consumption of energy. In some instances, institutional greenhouse gas reduction targets are established in policy documents. More broadly, minimisation objectives for waste and energy consumption extend to building materials, furniture and other manufactured products such as paper and office supplies.

Many Australian university environment policies include provisions committing to sustainable design for capital and infrastructure projects including new buildings, retrofits and refurbishments. For example, the Deakin University *Environmental Sustainability Policy* (2009) states that ‘the University will strive to reduce the environmental footprint resulting from its operations by: … incorporating principles of environmental
sustainability into the design, construction, refurbishment and operation of its buildings, plant and grounds’ (p. 1). In some instances, institutions specifically commit to using the Green Building Council Australia’s Green Star sustainability rating system for new infrastructure.

Many Australian university environment policies incorporate provisions committing to minimisation of water consumption, frequently providing more detailed provisions regarding commitments to deploy water efficient infrastructure and water consumption monitoring systems. In addition to umbrella provisions generally supporting efficiency, more detailed policy clauses focus on capturing, treating and re-using stormwater and rainwater; treating and re-using grey water; and protecting surface water and groundwater through soil and water management practices.

Several Australian university environment policies commit to sustainable transport through the reduction of work-related travel, and facilitating opportunities for alternatives such as carpooling, video-conferencing, walking, public transport and cycling. A few policies commit to providing secure bicycle facilities with lockers and showers for riders.

Several Australian university environment policies promote sustainable business and procurement practices. For example, the University of Newcastle *Environmental Sustainability Policy* (2011) states the institution will:

i. employ sustainable procurement practices which take a whole of life cycle approach to minimising waste and damage to the environment, while achieving value for money benefits for the University and the broader community
ii. incorporate the cost and impact of environmental externalities into decision making
iii. purchase local products and services where possible
iv. employ business practices that support the global [F]airtrade movement aimed at tackling poverty and empowering producers through trade. (p. 4)

In a few instances, Australian university environment policies deal specifically with biodiversity, landscaping and grounds maintenance, including provisions seeking to promote integrated pest management targeting noxious weeds and feral animals; minimising the use of fertilisers, soil conditioners and pesticides; using native vegetation/plant species (occasionally excluding heritage plantings); and protecting native flora and fauna.

All Australian university environment policies include provisions regarding the delivery of curriculum aimed at fostering students’ sustainability literacy and knowledge, and fostering the capacity of graduates to respond to complex sustainability issues. For example, Newcastle University aims, through the *Environmental Sustainability Policy* (2011), to ‘deliver leading-edge interdisciplinary teaching and learning experiences to equip students with knowledge, confidence and enthusiasm so that they can positively engage in fostering environmentally sustainable solutions through their careers and everyday living’ (p. 2). Environment policy provisions also focus on equipping staff and graduates to apply sustainable environmental practices in both professional and personal spheres.
All Australian university environment policies include provisions reinforcing their role in environmental sustainability research, frequently in partnership with government and industry, to collaboratively contribute towards solutions for a more sustainable world. Finally, Australian university environment policies frequently refer to ‘third stream’ or community engagement activities. Policy provisions relate to promoting environmental awareness and responsibility, encouraging environmentally sustainable behaviours, and sharing sustainability knowledge with government, industry, community and other institutions.

AUSTRALIAN UNIVERSITY ENVIRONMENT PLANS

In contrast with policy, the level of prescription in Australian university environment plans is higher, with broad goals, objectives, targets and performance measures articulated in most plans. With the exception of two plans, each of which is one page long, environment plans are comparatively long (four between 5-10 pages; three between 15-20 pages; and two over 30 pages). Other than the one-page plans, they are typically detailed and comprehensive, but not overly constraining. Plan nomenclature includes an emphasis on environmental management (two plans), EMS framework (one), environmental sustainability (three) and sustainability (two plans and three strategies). Where plans had a nominated time period (ten plans), this ranged from two years (one plan), three years (four), four years (two), five years (two) and six years (one).

<table>
<thead>
<tr>
<th>ENVIRONMENT MANAGEMENT SYSTEM (EMS) FRAMEWORK</th>
<th>ENVIRONMENTAL SUSTAINABILITY</th>
<th>SUSTAINABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Management Plan</td>
<td>EMS Framework and Sustainability Enabling/Strategic Plan</td>
<td>Sustainability (Action) Plan</td>
</tr>
<tr>
<td>2 (18%)</td>
<td>1 (9%)</td>
<td>3 (27%)</td>
</tr>
</tbody>
</table>

Table 5: Nomenclature for environment and sustainability plans (n=11)

Similar to the environment policies, the definition of sustainable development established in the Brundtland report, Our Common Future: World Commission on Environment and Development (1987) is reflected in a number of Australian university environment plans. Of all of the international sustainability declarations, the Talloires Declaration has had the most influence with over half of all Australian universities signatories (University of Canberra, 2011). The document analysis supported this finding, with half of all environment plans examined specifically noting adherence to the Talloires Declaration.

Several university environment plans specifically note the influence of the United Nations Conference on Sustainable Development (Rio+20) held in 2012 and resulting report, The Future We Want (United Nations, 2012) that encourages higher education institutions to adopt environmental sustainability management practices. Other influences acknowledged in Australian university environment plans include the Turnaround Leadership for Sustainability in Higher Education (TLSHE) project sponsored through the Office for Learning and Teaching (OLT), the World Commission on Environment and Development, and the Australian Technology Network’s (ATN) Declaration of commitment to local, national and global sustainability. Australian government strategies
and agreements have also influenced university environment plans, including the *National Strategy for Ecologically Sustainable Development* (ESDSC, 1992) and *Heads of Agreement on Commonwealth/State Roles and Responsibility for the Environment* (COAG, 1997).

Australian university environment plans have broad-ranging objectives including operationalising corporate social responsibility (CSR) and identifying ‘goals, objectives, [key performance indicators], targets and strategies, and associated accountabilities for executive management, teaching, research, community engagement and partnerships, and operational practice’ (Griffith University, p. 2013, p. 2). Environment plans also aim to ‘put into place strategic initiatives to meet this commitment [to environmental sustainability principles] and build on [the university’s] reputation as a sustainability leader’ (University of Technology Sydney, 2011, p. 2). In several instances, environment plans intentionally replicate governing principles and objectives articulated in environment policies.

Unlike most environment policies, environment plans recognise, to varying degrees, key components of environmental management systems or frameworks for environmental action, including: council and operational environment committees; organisational leadership and culture; accountability, performance monitoring and reporting; budgets and sustainability-dedicated funding schemes; strategic plans, policy instruments, operational or action plans; and sustainability staff. A few environment plans explicitly refer to related, external initiatives such as local council sustainability visions or programs.

There is much emphasis in environment plans on waste minimisation, frequently expressed as some combination of ‘the R’s’ - rethink, redesign, reduce, reuse and recycle. Recycling extends to ‘paper, cardboard, polystyrene, commingled (glass, plastics and cans) fluorescent tubes, books, e-waste, furniture, metal, printer cartridges, mobile phones and batteries’ (Griffith University, 2013, p. 25). The focus on waste minimisation extends to purchasing of recycled or recyclable consumables (furniture, operational products, food containers and utensils) and correct disposal of specialist waste.

Similarly, environment plans focus on reduction of absolute energy consumption through the installation of efficient technology, metering and monitoring, energy audits, sustainable design standards and controls. Environment plans also include strategies to reduce greenhouse gas emission levels (frequently within the context of institutional growth) and purchase energy from renewable energy sources. The University of Queensland *EMS Framework and Sustainability* (2010) identifies the production of energy, and the University of Technology Sydney *Sustainability Strategy: 2012-2015* aims to meet targets in part through the installation of ‘one or more trigeneration facilities to reduce the greenhouse gas emissions generated by the UTS City Campus’ (p. 4).

There are many examples of calculation methods, such as the Federation University Australia carbon inventory. This inventory provides a template that allows for the calculation of net emissions as follows: ‘direct emissions (natural gas, petrol for vehicles, diesel for vehicles), indirect emissions, optional emissions (electricity, flights, waste – landfill, natural gas extraction, train travel, water consumption, paper consumption, petrol and diesel fuel extraction), less green power’ (2014, p. 4).
Many Australian university environment plans include provisions regarding sustainable design including retrofitting existing infrastructure and ensuring that such design principles are embedded in new infrastructure developments. Sustainable design features include insulation, energy management systems to control lighting and air conditioning, motion detectors, sustainable water heating and rainwater harvesting and reuse, recycling and water efficiency (Griffith University, 2013). Operations-related plan provisions, particularly related to sustainable design, also reference university master and space management plans, and design targets, for example, the Green Building Council of Australia’s Green Star ratings.

There is much emphasis in Australian university environment plans on objectives and strategies regarding minimisation of water consumption through water efficiency measures, and water quality strategies. Water efficiency measures include the installation of flow restrictors, conversion of toilet cisterns, identification and resolution of water leaks, water recycling, monitoring and management. Water quality strategies include projects to maintain groundwater quality and minimise pollution entering storm water systems.

There is also a key emphasis on sustainable transport through increasing patronage of public transport, installing bike infrastructure (paths, signage, racks and shelters, pumps, lockers and showers), modifying vehicle fleets (more fuel efficient, non-petroleum power sources), facilitating carpooling and introducing virtual meeting and transport technologies (video-conferencing, teleconferencing, Skype, emerging technology, working from home, online course offerings).

Most Australian university environment plans include provisions regarding sustainable procurement practices such as giving preference to Fairtrade and ethically sourced products and incorporating sustainability principles into purchasing and tendering processes. Griffith University’s plan provides that 'comparisons may consider the source of raw materials, production, manufacturing, packaging, distribution, potential for reuse and recycling, operation, maintenance or disposal of the product' (2013, p. 28).

Australian university environment plans also frequently include provisions regarding biodiversity, landscaping and grounds maintenance. As public organisations with large ecological footprints, Australian universities have responsibility for stewardship of the environment through sustainable landscape design and preserving, monitoring and enhancing biodiversity of the campus environment. Environment plan provisions relate to the management of weeds, wildlife, fire and landscape asset management, along with responsibility for protected reserves, significant trees and protected species living on campus.

Australian university environment plans include a range of provisions regarding environmental education, from the development of sustainability literacy, delivery of cross-disciplinary environmental curriculum and commitment to fostering staff capacity. In addition to formal undergraduate and postgraduate environmental offerings, several plans discuss voluntary programs, workshops and community outreach initiatives involving students. For example, the core teaching and learning objective of the University of Canberra Sustainability Strategy 2010-2015 is 'graduates equipped to take place as leaders and catalysts for change in forging a sustainable future' (2011, p. 6).
Almost all Australian university environment plans include provisions regarding sustainability research such as increasing research scale, quality, profile and impact. Provisions also relate to increasing networking through cross-disciplinary collaboration and knowledge sharing. In several instances, plans specifically refer to niche specialisations. For example, see *Energy Research* (2010) for examples of energy-related research undertaken at Australian Group of Eight (GO8) universities.

Finally, Australian university environment plans include provisions regarding community outreach through networking with international and national sustainability associations and groups, advocating sustainability to staff, students and the community, and conducting sustainability events such as workshops, exhibitions and competitions.

**DISCUSSION**

The question posed is: are environment plans and policies solutions, straightjackets or meaningless drivel? There is no doubt Australian universities need leadership, cultural awareness, systems, instruments and infrastructure to address the urgent challenge of environmental sustainability. Given the low level of prescription of environment policies, and only moderate level of prescription of environment plans it would be difficult to claim that these governance artefacts represent straightjackets for Australian universities. Indeed many environment plans incorporate broad strategies and specific performance indicators that will contribute positively towards a culture of implementation monitoring and evaluation.

Do they represent solutions, or are they meaningless drivel? Plans and policies collectively provide principles and implementation strategies spanning the broad areas of governance, operations, education and research, and outreach consistent with the analytical framework developed by Yarime and Tanaka (2012). Australian university policies appear to be highly homogenous in terms of their broad focus; however, most environment policies are scant, patchy and somewhat haphazard with respect to content. As stand-alone documents, environment policies manifest an institutional commitment to environmental sustainability principles, but unlike many other matters governed by institutional policy they do not in and of themselves provide solutions. Australian university environment policies are heavily reliant on attendant environment plans for sense-making in terms of implementation. The extent to which this is problematic is then dependent on the nature of the relationship between policy and plans at the institutional level, and the extent to which the text itself is meaningful (that is, relevant to practice). Where the relationship is strong and the content is meaningful (two big asks), environment policy and plans read together can provide solutions.

Australian universities are influenced by international declarations (most notably the Talloires Declaration) and shaped by their environmental management systems. They are also influenced in various ways by the work of numerous international and national sustainability organisations. Government legislation, Building Codes, ISO and Australian Standards and design guidelines are extremely influential, particularly with respect to campus operations (waste, energy, emissions, water, design, transport, procurement). Education and research initiatives are closely aligned with, and influenced by, high-level strategic and academic plans. Environment plans and policies involve community outreach as universities have the opportunity to take an intellectual leadership role in the
sustainability agenda, and connect with sustainability and environment organisations (Figure 1).
CONCLUSION

This research suggests that most Australian universities have developed frameworks responding to this challenge, including governance committees, environmental management systems, environment plans, master plans, targets and performance measurement systems, staffing infrastructure and environment and related policies. In addition to formal governance structures and artefacts, most if not all Australian universities implement a range of campus and community outreach sustainability initiatives, network with local and international environmental associations, and participate in State/Territory, national and international activities such as World Environment Day and Earth Hour.

Where environment policy has been established prior to environment plans, policy may be employed as a lever to secure and express university management commitment to environmental sustainability action in the form of a comprehensive environment plan, government structure, budgetary commitment, staffing and performance measurement regime. Policy may also be established to drive cultural change and embed the principle of environmental sustainability across the university focus areas of learning and teaching, research, community outreach and operations.

There are only a few instances where Australian universities have both university-wide plans and institutional policies addressing essentially the same subject matter; the prime examples being research and information communication technology (ICT). In such instances, there is frequently overlap between the texts, confusion regarding objectives and coverage, and potential for misalignment. At least the first two of these concerns – overlap and confusion regarding objectives – are arguably demonstrated by a comparison of Australian university environment plans and environment policies. The nature of the relationship between the two influences the relevance and potential impact of both texts. Rather than meaningless drivel, environment policy may simply be redundant where governing principles are replicated in environment plans. In most cases, though, Australian universities are yet to reach a level of sustainability maturity such that plans alone represent the solutions required. As such, the combined model of governance artefacts – environment policies and environment plans – represents a contemporary solution to tacking this most challenging of areas.

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