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## **Sustainability in higher education in the Asia-Pacific: developments, challenges, and prospects**

Alexandra Ryan and Daniella Tilbury *International Research Institute in Sustainability, University of Gloucestershire, Cheltenham, UK*

Peter Blaze Corcoran

*Center for Environmental and Sustainability Education, Florida Gulf Coast University, Fort Myers, Florida, USA*

Osamu Abe

*ESD Research Centre, Rikkyo University, Tokyo, Japan, and*

Ko Nomura

*Graduate School of Environmental Studies, Nagoya University, Nagoya, Japan*

### **Abstract**

**Purpose** – The purpose of this paper is to provide an overview of the contributions of the Asia-Pacific region to leading practice in sustainability in higher education (HE), as prelude and orientation to this special issue collection from different countries and regions.

**Design/methodology/approach** – This is a critical review that includes international and regional policy contexts in sustainability and “education for sustainable development” (ESD), whilst exploring the trajectories of key initiatives across the region and considering the broader context of sustainability innovation within the HE sector.

**Findings** – The Asia-Pacific region offers many creative initiatives and shows considerable progress in ESD and in understanding the learning dimensions of sustainability. At the same time, it mirrors global trends in that further work is needed to promote systemic change in educational arenas, particularly in terms of strategic integration within HE institutions. The Asia-Pacific contributions to this collection demonstrate the need to harness national policy, to develop local and regional initiatives and to work effectively towards more profound change in HE curricula and through collaboration with external communities and stakeholders.

**Originality/value** – This is a distinctive collection of new initiatives from the Asia-Pacific, which compensates for the comparative lack of dissemination in this area. There is considerable sustainability innovation emerging in this region which shows leading-edge responses from within the HE sector on a number of key challenges and issues.

**Keywords** South Asia, Pacific region, Educational innovation, Sustainable development, Higher education, Curriculum development

**Paper type** Research paper

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### **Introduction**

We live with growing awareness of the complexities of sustainability and the challenges presented by our present patterns of life. Although ecological and humanitarian problems persist, opportunities for creative response continually emerge in line with our increasing understanding of these dynamics. Since, the 2002 Johannesburg Summit, the special role of our education systems in facilitating, envisioning, and leading change towards sustainability has been the focus of renewed attention. Higher education (HE) in particular prides itself on being at the vanguard of vision and wisdom, and its core values point to its potential leadership role across societies. This special issue has been compiled with this role in mind and presents a series of cases and perspectives from the Asia-Pacific region, to showcase new efforts to accelerate innovation for sustainability in HE. It is clear that to date, examples of sustainability initiatives from Australia and New Zealand have been most widely published, but developments in other parts of the region have received less consideration. Therefore, this collection focuses on innovative work from East and South Asia to the island Pacific, with contributions from Japan, India, the Philippines, the South Pacific Islands, China, and Taiwan. These highly informative articles bear witness to diverse efforts emerging from within the HE sector and in dialogue with HE, bringing new voices into scholarly discussions about sustainability and strategic change in the educational arena.

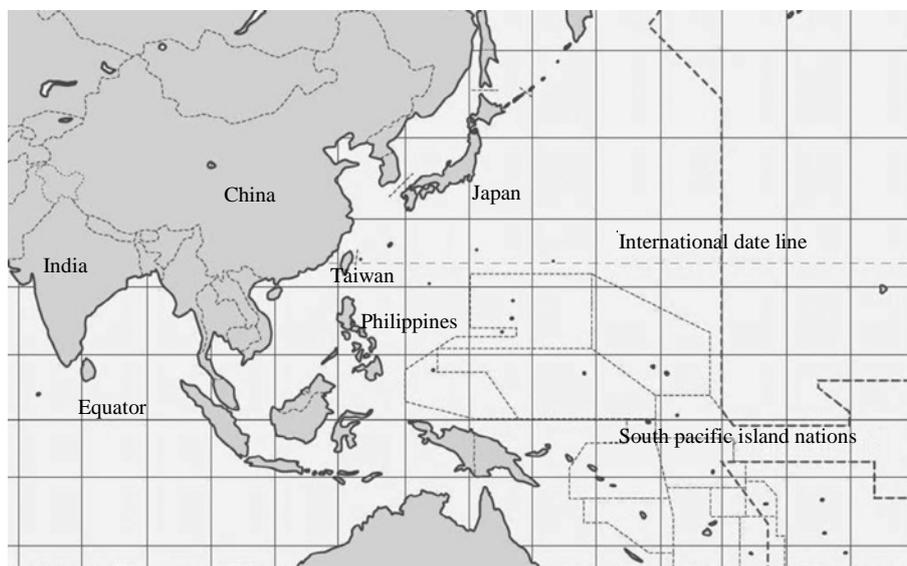
In the context of this special issue, an inclusive view of the term “sustainability” is adopted, whereby sustainability is understood as a learning process and a term with variable and contested meanings (Wals and Jickling, 2002, pp. 221-3). The broad remit for sustainability in HE has been informed by previous innovation and current practice in the field of environmental education, which is an important point of reference for a number of the contributions to this collection. The collection takes an integrated view of the nature and purpose of HE institutions and is also aligned with the narrative of “education for sustainable development” (ESD) and its vision of strategic change in education systems. In addition, the Decade of Education for Sustainable Development (DESD) 2005-2014 and other United Nations (UN)-sponsored initiatives have strengthened and focused global efforts in this area. Therefore, this special issue covers diverse aspects of “sustainability in HE,” including the environmental management and corporate operations of HE institutions as well as their core academic business.

The contributions that follow highlight work to establish campus “greening,” projects to promote cross-sectoral partnerships and community participation, new teaching and research initiatives, and perhaps most importantly, strategic efforts to integrate such activities effectively. The authors have reflected on their social and policy contexts, considering thematic questions about the place of HE in advancing sustainability. Each article explains essential developments, pointing to the policies and initiatives that form the context to their contribution; considers the challenges arising in the specific sustainability activities under analysis; and forecasts the prospects for sustainability initiatives in HE. By exploring the potential impact and legacy of current activities, the authors seek to extract lessons, to uncover critical factors for success and to understand the implications for change within HE. The collection shows leading sustainability practice emerging in the Asia-Pacific region, with the intention of offering insight and inspiration, to inform future efforts within HE and in collaboration with other sectors worldwide.

By way of introduction, this paper provides an overview of the prompts and platforms for the contributions that follow. Following a brief contextualization of sustainability challenges in the Asia-Pacific, a review is offered of significant HE sustainability initiatives, particularly where cross-regional collaborations and networks are involved. Key successes for the region are noted, for example in its attention to ESD and its role in initiating the UNESCO DESD programme. Consideration is given to critical issues for HE institutions attempting to integrate sustainability principles into their operations. Finally, reflection is offered on the contributions to this special issue and themes emerging across the articles, to highlight areas where most progress is evident and where further effort is needed.

## Sustainability in the Asia-Pacific region

The Asia-Pacific is the largest UNESCO region; it is home to over three billion people, who constitute more than 60 percent of the entire global population. Socio-political realities differ widely across the region, in governance and policy, colonial and “semi-colonial[1]” histories. At the time of writing, Asia-Pacific societies span the economic spectrum from the wealth found in Japan to the poverty found in Bangladesh, but overall their populations include two-thirds of the world’s poor. The region has some of the late twentieth century’s most rapidly expanded economies and populations; societies that have experienced profound shifts in industrial patterns and priorities. In 1996, just prior to the regional economic crisis that developed from 1997, the UNESCO Principal Regional Office for Asia and the Pacific (UNESCO-PROAP, 1996) remarked that “the world has never seen such growth in so short a time.” Economic acceleration has been in evidence for China and India during the early years of the twenty-first century, but such recovery has not been evenly spread across the region and has not matched the scale and speed of growth experienced during the late twentieth century (Figure 1).



**Figure 1.**  
Map of Asia-Pacific societies featured in this issue

Extraordinary complexity of human and natural ecology is in evidence across the region (UNESCO, 2009a, p. 18). Noted for its cultural and ethnic diversity, as in the hundreds of linguistic varieties found in Papua New Guinea, the region has produced a vibrant cultural legacy, for example in its religious innovations and archaeological artefacts. This is paralleled by its rich ecosystems and natural resources; two-thirds of the world's coral reefs, and some of its "deepest seas, driest deserts and dampest forests" (Yencken et al., 2000, p. xii). The challenges of sustainability are clearly manifest; for example, in the serious problems of pollution facing the region's megacities; in the social impact of labour migration resulting from rapid economic transition; in the threat of rising sea levels from the Indian subcontinent to the Pacific Islands; and in the difficulties of improving participation in development, under increasingly internationalised market pressures.

Despite the scale of its contrasts and challenges, the Asia-Pacific region has pioneered sustainability thinking and practice in various spheres, particularly in the educational arena (UNESCO, 2009b). Integrative thinking has been necessary in order to reconcile the needs of such cultural, ecological and political diversity with the pressures towards regional economic and resource development. As earlier analysts observed, addressing these issues coherently at the level of policy and practice in times of such rapid development has required careful analysis and recognition of multiple stakeholder interests (Lindsay, 1993). Demand for HE has also risen across the Asia-Pacific region, in tandem with overall growth in birth rates and areas of increasing affluence, which adds urgency to the pursuit of sustainability in HE. This renders the Asia-Pacific region a particularly interesting testing ground for evaluating HE responses to the challenges of sustainability.

### **Sustainability innovation in HE in the Asia-Pacific**

HE initiatives for sustainability across the Asia-Pacific are in many respects aligned with global trends, although the region has arguably made greater progress with its trajectory on education and learning for systemic change. Many HE institutions across the Asia-Pacific are enhancing their sustainability credentials with campus "greening" efforts in areas such as carbon management, waste management, and construction. The Universiti Sains Malaysia (2006) mission statement expresses strong commitment to poverty alleviation as part of ESD, while creatively articulating its commitment to sustainability and to the integration of its roles and functions using the metaphor of the "university in a garden" (Sanusi and Khelgat-Doost, 2008). On a wider scale, more than 20 Korean universities take part in the Korean Green Campus Association, a network to improve campus practice and enhance the educational environment for sustainability learning in relation to the motto "reduce, re-use, recycle" (Park, 2008).

Various initiatives have been established to unite academic disciplines and institutions in research activities aligned to sustainability. In 2005, the University of Tokyo established the Integrated Research System for Sustainability Science (IR3S) to promote multi-disciplinary points of focus in sustainability research. A Japanese network with a global perspective but specific focus on Asia, IR3S also launched the trans-disciplinary international journal *Sustainability Science* (Nomura and Abe, 2010; Komiyama and Takeuchi, 2006). Certain global initiatives that exist to increase synergy between research and educational activities and to encourage inter-university collaboration have been harnessed to support ESD. The UNITWIN/UNESCO Chairs Programme is one such vehicle; for example, in the establishment of a UNESCO Chair in Research and Education for Sustainable Development based at Okayama University in 2007. Research in ESD has also emerged in connection with the United Nations University (UNU) Regional Centres of Expertise in ESD (RCE) initiative (see below); for example, research at the University of the South Pacific RCE is grounded in the value of regionalism as the best methodology to enhance overall sustainable development, including economic growth, governance, and security.

Strategic change has also been promoted through collaborative work and delivery partnerships among HE institutions. United Nations Environment Programme Regional Office for Asia and the Pacific (UNEP-ROAP) organised the Asia-Pacific Regional University Consortium (RUC), which launched its Leadership Programme on Environment for Sustainable Development in 2004 through Tongji University in Shanghai, delivered by a consortium of 12 institutions[2]. Since 2006, the RUC consortium has also offered a multi-national, inter-disciplinary postgraduate Master's programme in Environmental Management and Sustainable Development (Niu et al., 2010). In 2008, the UNU Institute of Advanced Studies (IAS) initiated ProSPER.Net, the Promotion of Sustainability in Postgraduate Education and Research Network, which unites leading HE institutions across the Asia-Pacific. The key aim of ProSPER.Net is to share information and develop collaborative projects, such as sustainability curricula for business schools, e-learning provision for civil servants and policy-makers, and generic sustainability modules (Nomura et al., 2010; Tabucanon, 2008).

Partnership and outreach functions have been mobilised through the UNU network of RCEs[3]. Many of the Asia-Pacific RCEs (which at the time of writing number 17) are hosted within HE institutions, creating social learning networks for local sustainability action, by integrating formal and non-formal education, local government, non-governmental organisations (NGOs), businesses, and the media. HE institutions provide an institutional structure for RCE networks and assist with action research to connect sustainability theory and practice (Mochizuki and Fadeeva, 2008). The HE benefits can be significant, for example in helping to surmount the compartmentalization of university structures; in Japan and Malaysia, RCE activities have prompted enhanced inter-disciplinary working across institutions (Mochizuki and Fadeeva, 2008, pp. 377-9). The RCE approach also protects against duplication

and competition in local networks, a concern in earlier assessments of NGO-generated environmental education in the Asia-Pacific (Bhandari and Abe, 2000, p. 77). The input of NGOs to sustainability practice in the region has been significant and NGO momentum has often helped to stimulate sustainability engagement in HE institutions.

UNESCO has also endeavoured to connect programmes with overlapping concerns, such as the DESD and the Asia-Pacific Programme of Educational Innovation for Development (APEID). In 2007, the UNESCO-APEID conference (UNESCO-PROAP, 2008) focused on participatory and sustainable development in HE, to encourage new approaches to social inequalities through engagement with communities, NGOs, and the private sector. A documented decrease in effective community development and civic participation strategies had become a source of growing concern, with piecemeal and “ad hoc” approaches in HE institutions (UNESCO-PROAP, 2008, pp. 2-3). These initiatives to improve collaborations and partnerships challenge HE to revise its understanding of governance and expertise, underlining the importance of participative approaches to support the strategic educational impulse of ESD (UNESCO-PROAP, 2008; Wals and Jickling, 2002).

## **Education for sustainable development in the Asia-Pacific**

It has been observed, for example in detailed studies of the Australian context, that within the education sector, learning processes for sustainability are frequently neglected. In HE, “campus greening” initiatives have generally not been accompanied by the development of formal provision or informal learning from campus sustainability practice (Tilbury *et al.*, 2005, pp. 8-13). As HE prioritises critical reflection on cultural practices and their conceptual frameworks, this neglect of learning opportunities is extremely problematic. This global trend is also mirrored in the Asia-Pacific, although it can also be argued that the region has directed considerable attention to pedagogy and learning for sustainability and shows a stronger overall trajectory in this respect.

Environmental education initiatives flourished during the 1990s, with support from agencies such as UNESCO, UNICEF, and UNEP. Much of this work targeted schools, although some tertiary initiatives were developed, e.g. the Network for Environmental Training at Tertiary Level in Asia and the Pacific. However, reviews of regional progress noted the lack of prioritisation for sustainability in the curriculum and teacher education, and the entrenchment of environmental education in the physical sciences without coherent analysis of the human dimensions (Bhandari and Abe, 2000, p. 74). Commentators argued that systemic educational reform was absent, in terms of “whole-of-government” commitment and strategies for progression from school to tertiary level. Without reconfiguration of policies and practices, existing projects demonstrated “innovation without change,” with “little evidence in the region of the broad reorientation of education practices, systems and structures” (Fien *et al.*, 2000, p. 42).

Nevertheless, the Asia-Pacific region became a key influencer, foregrounding the role of learning in strategic change for sustainability across formal education and in broader community settings. The 2005-2014 DESD originated in the region, with the proposal from the Japanese Government and NGOs at the World Summit for Sustainable Development in 2002 (Tilbury and Janousek, 2007; Nomura and Abe, 2009). As the Asia and Pacific Regional Bureau for Education, UNESCO Bangkok has given strategic regional guidance for the DESD with its Situational Analysis of ESD in the Asia-Pacific Region (UNESCO, 2005a) and Working Paper: Asia-Pacific Regional Strategy for ESD (UNESCO, 2005b). The Asia-Pacific approach[4] highlights partnerships and regional co-ordination; mobilisation of the media, youth networks, and the private sector; and linkages across educational sectors and with other stakeholders (Elias, 2006, p. 84).

One specific regional contribution has been the UNESCO-International Union for Conservation of Nature (IUCN) Asia-Pacific DESD Indicators Project[5] (Tilbury *et al.*, 2007) which emerged prior to, and thus informed, the UN Global Monitoring and Evaluation Framework for the DESD (UNESCO, 2009a). Reflecting on Asia-Pacific experiences, Tilbury and Janousek (2007, p. 137) have highlighted that leadership and support provided by inter-agency organisations has been essential to the successes of the DESD in the region[6]. However, they also note the difficulties of engaging corporate and government agencies with the ESD agenda, despite conscious efforts to involve these stakeholders. The learning involved in sustainability tends to be understood as an issue strictly for formal education, so that opportunities to bring learning processes into mainstream policy and practice are missed (Tilbury and Janousek, pp. 135-9). The importance of reaching the widest range of government forums and corporate stakeholders is also reflected in lessons from the Asia-Pacific DESD Indicators Project about the need to raise inter-sectoral sustainability awareness in the fields of science, culture, and communications (Elias and Sachathep, 2009, p. 27).

The 2009 Global Progress Report for the DESD (UNESCO, 2009a) captures structural and policy changes, and points to mid-term findings and impacts, to frame priorities for the second phase of the DESD. It gives emphasis to the need for substantial professional capacity-building and greater alignment of the formal curriculum in support of sustainability, as the majority of progress made to date has been at school level. The report also states clearly that across the education sector, substantial pedagogic innovation is still required, a point that has particular resonance in relation to HE. It highlights that research development in the field of ESD is in its infancy and improved communication is needed about the scope of ESD and the learning processes that are necessarily part of sustainability activities. Its Asia-Pacific section highlights the range of sustainability challenges facing the region, but points to success in connecting these challenges to ESD, and in developing clear national strategies that link ESD with sustainable development priorities (UNESCO, 2009a, pp. 18-19).

## **International challenges for HE and sustainability**

HE worldwide is facing substantial rethinking about the skills that future graduate cohorts will need to address worldwide recession, ongoing humanitarian concerns, and unexpected ecological crises. The emergence of concepts of “sustainability” and “education for sustainability,” and their reception and implications within academia, provides the context for this special issue (Corcoran and Wals, 2004; Sharp, 2002; Stephens et al., 2008; Tilbury and Wortman, 2008; Wals and Jickling, 2002). The DESD has provided essential impetus for strategic change in sustainability, and for HE this means specific focus on educating future generations of decision makers, leaders, and educators, and on efforts to engage in outreach and service to society. However, as the Global Progress Report confirms (UNESCO, 2009a, pp. 64-6), substantial innovation is still needed in order to advance these aims.

As the sustainability agenda has emerged into international discourse and policy, HE has become a significant point of focus for implementing change, and societies seek direction from the sector. Governmental agencies intend that HE should lead the field by generating scientific and technological advances and by enhancing the abilities of graduates to engage with complex sustainability challenges in diverse professional and practical contexts. HE institutions worldwide are increasingly gearing their corporate operations towards efficient sustainability practice in the management of their estates, generating useful learning about sustainability outcomes and contributing to local and regional sustainability goals. However, widespread institutional change is proving to be elusive, with few institutions managing to unfold and uphold systemic commitments (Sharp, 2002, p. 130).

The emergence of global sustainability declarations, e.g. Talloires (1990), Copernicus (1994), and Lüneberg (2001), underlines the expectation that HE should be a catalyst for sustainability progress in academic and practical innovation[7] and by networking key stakeholders (UNESCO-PROAP, 2008; Wright, 2004). However, while international declarations may provide useful publicity to encourage progress, they are not sufficient to change institutional and disciplinary practices in HE (Bekessy *et al.*, 2007). Scientific research to address problems of human development and to mitigate human pressure on ecosystem services is increasingly directed at understanding complex interactions (Clark, 2007; Komiyama and Takeuchi, 2006). This invariably requires inter-disciplinary investigation, to bridge the distinction between “basic” curiosity-driven and “applied” problem-solving research (Clark, 2007, pp. 1737-8). However, the capacity to generate innovative scientific and technological solutions is hampered by research specialization. Similar obstacles to inter-disciplinary work are also evident in teaching and learning, as certain aspects of disciplinary thinking and practice do not help to build capacity to address sustainability questions, for academics or students.

To respond effectively, HE must reconsider its disciplinary mechanisms, institutional structures and its understandings of expertise (Bawden, 2004, p. 29; Corcoran and Wals, 2004, p. 4; Sterling, 2004). The strategic implications of sustainability reach far beyond individual curriculum changes, isolated environmental practices and signatures on international declarations, and require adjustments to academic priorities, organizational structures, financial and audit systems. Given the extreme complexity and insufficient rationality of modern HE institutions, accountability processes are also essential, to safeguard systemic change in corporate and academic practice (Bekessy *et al.*, 2007, pp. 313-4; Sharp, 2002, pp. 136-7). Crucially, systemic change thrives where pluralism and creativity are encouraged, rather than through the imposition of purely economic incentives or fixed views of sustainability. Such limiting approaches are particularly problematic in HE, “where critical and autonomous thinking should perhaps be emphasized the most” (Corcoran and Wals, 2004, p. 88). To integrate changes supportive of sustainability requires considerable innovation for HE institutions to evolve as “learning organizations”; advancing strategic integration, staff development, collaborative partnerships, and effective stakeholder dialogue (Tilbury and Wortman, 2008).

## **Emerging practice from the Asia-Pacific**

Moving from this overview of the regional and global context to closer exploration of specific societies, it is possible to gain tangible insights into the potential for sustainability innovation in HE. Pioneering responses to this mandate have been emerging from the Asia-Pacific region and the articles that follow showcase good practice and illuminate future pathways, touching on many of the critical issues mentioned above. The authors have considered common questions, to encourage comparative perspective and to unearth trends emerging from this diverse regional view, on matters such as location-specific problems, funding sources, structural barriers, and stakeholder engagement.

The articles present a series of important developments for consideration. Nomura and Abe examine initiatives in Japanese HE with a particular focus on the strength of government support and the alignment with national approaches to sustainability and ESD. Corcoran and Koshy consider policy and practice emerging in South Pacific Island Universities, where approaches to sustainability are guided by geographical and cultural context, address the challenges of vast distance, and protect distinctive indigenous traditions. Chhokar analyses policy connectivity in India and examines the relative successes of national efforts to integrate sustainability into the formal HE curriculum against efforts to develop local and community-focused projects. Niu and colleagues discuss key Chinese initiatives for sustainability in the curriculum and in campus practice, contextualizing this in relation to the scale of China and the need for wider reach and localisation. For the Philippines, Galang explores the innovative Dark Green Schools

Project, an accreditation process for “whole institution” approaches to sustainability, considering its sector-wide potential and key challenges. Finally, Su and Chang analyse the role of policy in orchestrating and funding initiatives in Taiwanese HE, illustrated by the Taiwan Sustainable Campus Program to renovate campuses, improve their sustainability credentials, and develop linked curricula.

The collection enables valuable comparisons on a number of strategic challenges for sustainability in HE and attempts to embrace these challenges in the Asia-Pacific region. First, the role of government and the place of policy-making is brought under the spotlight. In the cases of Japan, India, and Taiwan, the funding offered by governmental agencies has been critical to sustainability developments in HE. However, all six articles indicate that significant gaps exist between policy and reality, in relation to the aims articulated for both sustainable development and ESD. The Global Progress Report for the DESD (UNESCO, 2009a) has shown that one of the most profound problems in advancing sustainability stems from a lack of inter-ministerial communications. In this respect, the Asia-Pacific region has made some positive progress, with clear efforts from Japan and Taiwan to involve a range of government departments and to improve synthesis, particularly between educational and environment policies.

The second key challenge is the need to build sustainability progress not on generic approaches but on the specific local features of the region and the academic strengths of particular HE institutions. Corcoran and Koshy indicate the centrality of cultural parameters and social priorities in the sustainability responses of HE, while Su and Chang underline the need for HE to lead responses to practical local problems and to harness the learning opportunities this generates. Chhokar demonstrates the ways that in India, sustainability emerges in close relationship with longstanding intellectual and political movements in HE, while Nomura and Abe point to the use of specific local sustainability expertise to respond to the pressures of global competition faced by universities. Galang builds on these insights by pointing to preliminary findings from the Dark Green Schools Project, that HE institutions must find their own angles of engagement with the educational implications of sustainability. Using a specific example, Corcoran and Koshy demonstrate how “whole institution” approaches must connect with local settings and institutional priorities, as is the case in the University of the South Pacific’s plans and strategies.

The third challenge highlighted here concerns the complexities of creating sustainability learning opportunities within the formal HE curriculum. The potential scope of this type of activity includes curricula linked to sustainability practice on campus and in local communities, which also helps to address the need for greater leadership capacity for sustainability. However, there are substantial difficulties involved in embracing the range of disciplines at HE level, to develop systemic and inter-disciplinary learning for sustainability. This issue is underlined by Chhokar and Galang, who note the persistent obstacles that exist within HE institutions and in the solo-discipline training experienced by most academics. Many of the articles point out the additional effects of persistent scientific and technical bias in the ways that “sustainability” is understood, received, and channeled across HE and through societies in general. Nonetheless, the collection presents some innovative responses to the strategic demands that ESD makes upon HE, for example in the consortium delivery of the RUC highlighted by Niu and colleagues, or the targeted leadership training initiatives in Japan discussed by Nomura and Abe.

Throughout this collection (and often in the attempts to address these challenges, as identified above), there are many indications regarding the prospects for further progress in the Asia-Pacific and for HE worldwide. Regarding community engagement, there are positive signs, for example in Taiwanese and Japanese funding schemes where there is some prioritization for research and educational projects with clear community outputs. There are pioneering examples of community engagement being centrally positioned in the learning process, for example in the Samvardhan project and curriculum activities linked to RCE Pune in India. However, the Japanese case also indicates the difficulties of realizing explicit government aims in this area and the Indian examples point to the obstacles of depth, scale, and transfer that can hamper efforts to mainstream such approaches. The engagement of external and community stakeholders with HE tends to be an area of relative weakness, although the potential for sustainability, in terms of nurturing community resilience, makes effort in this area even more important. The contributions from India and China also point out the value of active student involvement to improve sustainability awareness within HE institutions.

Integrating strategies and improving leadership is critical to the longevity of sustainability initiatives and the contributors illustrate a number of ways that the Asia-Pacific region is advancing thinking and practice in this area. The orientation of the region towards integrated learning is evident in efforts to integrate campus practice and academic curricula, in the linked modules of the Taiwan Sustainable Campus Program and China’s National Green Campus Project, and in the “whole institution” approaches evident in the University of the South Pacific and the Dark Green Schools Project in the Philippines. There are also indications regarding the relative success of strategies commonly adopted to date; for example, Galang and Chokkar discuss standardized provision for undergraduate students, with both authors raising questions about degrees of impact and meaningful engagement. As Su and Chang emphasize, coherent curriculum development remains one of the great challenges for sustainability in HE, as it prompts complex debates about ways of nurturing and evaluating learning that is geared to the pursuit of sustainability.

## Concluding remarks

Across HE worldwide, the task of expanding the strategic reach of sustainability initiatives is substantial, and the potential impact and direction that HE institutions can contribute is significant. Sustainability brings urgency to the question of how HE can improve the speed and focus of its work with stakeholders and across disciplines, to reconcile academic and practical considerations, to deal with plural values and interests, and to adapt its structures accordingly. Our responses to the present economic climate and global recession will require increased innovation and efficiency that is integrated with our approaches to the questions and challenges of sustainability.

Given the complexities of the regional context and the insights this enables in terms of strategic educational change, these Asia-Pacific HE sustainability innovations provide extremely important and worthwhile indicators of future potential. Asia-Pacific efforts to integrate HE functions, to embrace community outreach, and to harness government support, have resulted in successful examples of practice that may bear fruit worldwide. Viewed through the lens of these leading initiatives, the prospects for global progress are encouraging, although the authors have also given realistic consideration to the obstacles and difficulties involved. It is hoped that these fresh Asia-Pacific perspectives help to inspire further progress, so that HE can take up its rightful leadership role in sustainability: developing future citizens, guiding policy development, exchanging knowledge, supporting communities, and using academic freedom to fuel further enterprise and innovation.

## Notes

1. The term “semi-colonial” is used to indicate the historical status of countries such as China, where independent governance was maintained despite imperial economic, political, and sometimes military influence.
2. Established by the UNEP and Tongji University, this is offered by the UNEP-Tongji Institute for Environment and Sustainable Development at Tongji University.
3. The network is co-ordinated by the UNU-IAS in Yokohama, Japan.
4. This includes a specific Pacific ESD Strategy, endorsed in 2006, with three priorities: formal education and training; community-based education; and policy and innovation (Elias and Sachatp, 2009, p. 66). The Association of Southeast Asian Nations Environmental Education Action Plan 2008-2012 has a similar span, focusing on the formal and non-formal education sectors, human resource capacity-building, and networking, collaboration, and communications.
5. The project, organised by UNESCO-PROAP and the IUCN, piloted indicators in eight Asia-Pacific countries, and was facilitated by the Australian Research Institute in Education for Sustainability at Macquarie University, Australia.
6. For example, in Central Asia, through co-operative effort between education and environment ministries, the science sector and non-governmental organizations, the Regional Environment Centre for Central Asia and the United Nations Economic Commission for Europe.
7. In the USA, 650 institutions have joined the American College and University Presidents’ Climate Commitment ([www.presidentsclimatecommitment.org](http://www.presidentsclimatecommitment.org)), promising to reduce greenhouse gas emissions, implement climate action plans, and to develop related curricula.

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## **About the authors**

Alexandra Ryan is an Associate Director of Sustainability (Academic) at the University of Gloucestershire, UK, working across disciplines to embed sustainability within the curriculum and to support academic development across faculties. She also works as Consultant for the UK Higher Education Academy Education for Sustainable Development Project, on various projects to support academic and strategic change for sustainability in Higher Education. Alexandra Ryan is the corresponding author and can be contacted at: [aryan@glos.ac.uk](mailto:aryan@glos.ac.uk)

Daniella Tilbury is a Chair in Sustainability at the University of Gloucestershire, UK and has corporate and academic portfolios. She oversees its International Research Institute in Sustainability and its UNU Regional Centre of Expertise. Her doctoral study at the University of Cambridge in the early 1990s looked at institutional development in ESD within HE. She has since co-led the UNESCO-IUCN Asia-Pacific Indicators Project and Chaired the UN's Global Monitoring and Evaluation Expert's Group, which advises on the assessment of global progress during the UN DESD.

Peter Blaze Corcoran is a Professor of Environmental Studies and Environmental Education at the Florida Gulf Coast University, where he serves as Director of the Center for Environmental and Sustainability Education. He has been a Faculty Member at College of the Atlantic, Swarthmore College, and Bates College in the USA, and a Visiting Professor in Australia, The Netherlands, Fiji, and Malaysia. He works extensively on international environmental education, with special interest in the South Pacific Island Nations. He is the past President of the North American Association for Environmental Education. He serves as a member of the UNESCO Reference Group for the UN DESD.

Osamu Abe is based at the College of Sociology and Graduate School of Intercultural Communication, Rikkyo University. He is also the Director of Rikkyo University's ESD Research Centre; President of the Japanese Society of Environmental Education; Chair of the board of the Japan Council on the UN DESD (ESD-J); Board Member of the Japan Environmental Education Forum and a Member of the Commission on Education and Communication, the World Conservation Union (IUCN).

Ko Nomura is an Associate Professor at the Graduate School of Environmental Studies, Nagoya University, Japan. His research interests have been in the fields of environmental politics and environmental education in East Asia, particularly the role of environmental non-governmental organizations. Previously, he held research positions at Rikkyo University's ESD Research Centre and the Institute for Global Environmental Strategies.