

# HIGHER EDUCATION AND SUSTAINABLE DEVELOPMENT

A model for curriculum renewal

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# HIGHER EDUCATION AND SUSTAINABLE DEVELOPMENT

Sustainability issues will shape what students do in their future careers, especially within built environment professions. Yet many institutions struggle to adapt programs and coursework to reflect this. Responding to a need for guidance, this book provides a practical resource to quickly – and effectively – update curriculum to meet the emergent sustainability context. The authors use their experiences in engineering education and insights from colleagues and institutions around the world to provide tools to address common institutional challenges and to make the most of emerging opportunities.

The book begins by exploring the rationale for action, discussing why curriculum renewal has been challenging to-date and identifying urgent drivers for change. It then presents a new model for curriculum renewal to deal with these challenges, from course and program design through to stakeholder engagement and organisational considerations. The model shows what educational leaders are beginning to practise: a whole-of-system approach to timely program design and review.

The book uses the model to detail practical ways to move forward, including creating a strategy, identifying graduate attributes, mapping learning outcomes, auditing the program, updating coursework and implementing the renewed curriculum. With extensive case study material from around the world, this resource will assist institutions – from department heads to program convenors – to cost-effectively align offerings with present and future educational demands.

**Cheryl Desha** has a degree in Engineering (Environmental, first class) and a PhD in rapid curriculum renewal. Her research focuses on building capacity for sustainable development within tertiary education. She is a Senior Lecturer in the Science and Engineering Faculty, QUT, and a Principal Researcher with The Natural Edge Project (TNEP).

**Karlson 'Charlie' Hargroves** has a degree in Engineering (Civil/Structural) and is undertaking a PhD in carbon structural adjustment. His research focuses on opportunities for transformational change towards sustainable development. He is a Senior Research Fellow in the Curtin University Sustainability Policy Institute and a Principal Researcher with The Natural Edge Project (TNEP).

Cheryl and Charlie are members of The Natural Edge Project, a sustainability think-tank which operates as a collaborative partnership for research, education and policy development on innovation for sustainable development. TNEP's mission is to contribute to and succinctly communicate leading research, case studies, tools, policy and strategies for achieving sustainable development across government, business and civil society. Working with the TNEP team, Cheryl and Charlie have co-authored four books on sustainable development, published in four languages.

*We work day after day not to finish things, but to make the future better because we will spend the rest of our lives there.*

*Charles Kettering<sup>1</sup>*

*A sustainable society into the indefinite future . . . depends totally and absolutely on a vast re-design triggered by an equally vast mind-shift – one mind at a time, one organization at a time, one technology at a time, one building, one company, one university curriculum, one community, one region, one industry at a time, until the entire system of which we are each a part has been transformed into a sustainable system, existing ethically in balance with Earth's natural systems, upon which every living thing utterly depends – even civilization itself.*

*Ray Anderson, founder and former CEO, Interface Carpets (1934–2011)<sup>2</sup>*

*Education is a prerequisite for promoting the behavioural changes and providing all citizens with the key competences needed to achieve sustainable development. Success in reversing unsustainable trends will to a large extent depend on high quality education for sustainable development at all levels of education including education on issues such as the sustainable use of energies and transport systems, sustainable consumption and production patterns, health, media competence and responsible global citizenship.*

*European Union Strategy for Sustainable Development, Luxembourg 2002<sup>3</sup>*

*. . . what we now need [is] strategies, international understandings and policies that will guide action, correct the biggest market failure the world has ever seen [climate change] and provide a framework for the entrepreneurship and discovery across the whole of business and society, which can show us how to achieve a cleaner, safer, more sustainable pattern of growth and development.*

*Sir Nicholas Stern<sup>4</sup>*

## Notes

- 1 Kettering, C. (n.d.) American engineer and inventor, 1876–1958.
- 2 Anderson, R. (2005) 'Rethinking development: Local pathways to global wellbeing' Keynote presentation, in proceedings of The Second International Conference on Gross National Happiness, St. Francis Xavier University, Antigonish, Nova Scotia, Canada, 20–23 June.
- 3 Office for Official Publications of the European Communities (2002) *European Union Strategy for Sustainable Development*, Luxembourg, in Nadolny, A. and Schauer, T. (2007) *The Future of Europe: Sustainable development and economic growth?* Proceedings of the International Symposium, Vienna, 12–13 September 2007.
- 4 Stern, N. (2009) *A Blueprint for a Safer Planet: How to manage climate change and create a new era of progress and prosperity*, Random House.