

HIGHER EDUCATION AND SUSTAINABLE DEVELOPMENT

A model for curriculum renewal

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INTRODUCTION

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As ever larger proportions of school leavers and others gain university degrees, the world's population has never been as well credentialed. New graduates will face similar employment and professional challenges as those of earlier generations, and will have new sciences, tools and techniques to tackle them. They will also be practising their professions in increasingly complex contexts in response to the impacts of climate change and other environmental pressures. Future graduates of engineering and many other disciplines will individually and collaboratively have special roles, especially around the realisation of physical infrastructure, products and systems that embrace stronger concepts and properties of sustainability. How the education system in universities can meet this challenge is the subject of this book.

The authors are well known for their groundbreaking work on environmental issues and their intersections with education. In this book, they focus more on the education process itself, and challenge the sector to engage in transformative change, especially in engineering education. This sector is, like its profession, familiar with working with standards and codes. For education, such standards are now commonly expressed in the languages of learning outcomes, national qualification frameworks, and externally applied accreditation and registration processes. Most of the international standards on engineering accreditation include sustainability and other contextual matters in their specifications of required graduate learning outcomes. However, the extent and rate at which sustainability is introduced remain matters of discretion by the education providers. The authors discuss these issues in terms of limiting factors and driving factors.

Climate change threatens widespread and transformative change over several decades, but demands immediate policy change and action. Similarly, the authors' approach to transformative curriculum change to include sustainability is pro-active and strategic, rather than relying on more common processes of incremental improvement. A strong value of the book is its guidance on both principles and implementation of rapid curriculum change, drawing on analogous processes in engineering project design and management. Examples of graduate attribute mapping in the curriculum, learning outcomes tracking, and curriculum change and implementation are drawn from Australian and international universities. These examples will assist other universities to learn from successful practice.