Preface

We are pleased to introduce the third volume of the “Handbook of Theory and Practice of Sustainable Development in Higher Education”.

This publication, which consists of a set of volumes, introduces many of the papers discussed and presented at the World Symposium on Sustainable Development at Universities (WSSD-U-2016), which was held at the Massachusetts Institute of Technology (MIT), in Cambridge, MA, USA in September 2016.

The aims of WSSD-U-2016, consistent with the goals of the WSSD-U series, were:

i. to provide universities all round the world with an opportunity to display and present their work (i.e. curriculum innovation, research, activities, practical projects) relating to education for sustainable development at university level;
ii. to foster the exchange of information, ideas and experiences acquired in the execution of projects, from successful initiatives and good practice;
iii. to discuss methodological approaches and projects which aim to integrate the topic of sustainable development in the curriculum of universities;
iv. to network the participants and provide a platform so they can explore possibilities for cooperation.

Last but not least, a further aim of the event was to document and disseminate the wealth of experiences available today.

To this purpose, the “Handbook of Theory and Practice of Sustainable Development in Higher Education” has been produced.

This volume is structured around two parts. Part I, under the heading “Sustainability Models and Systems” outlines a range of models and formats which have been experimentally tested and implemented, with a view to catering for the inclusion of sustainability matters in university systems and programmes.

Part II, titled “Implementation Strategies”, demonstrates many of the means and formats authors have used to allow a due emphasis on matters related to sustainable development to be provided at their universities, sometimes working against unfavourable political and social settings.
We thank the authors for their willingness to share their knowledge, know-how and experiences, as well as the many peer reviewers, which have helped us to ensure the quality of the manuscripts.

Enjoy your reading!

Hamburg, Germany          Walter Leal Filho
Msida, Malta              Mark Mifsud
Poole, UK                 Chris Shiel
Johannesburg, South Africa Rudi Pretorius
Winter 2016/2017
Contents

Part I Sustainability Models and Systems

Designing Sustainable Consumption and Production Systems in Higher Education Institutions: The Case of Solid Waste Management ................................................ 3
Danesto B. Anacio

Sustainable Campus Management at Freie Universität Berlin—Governance and Participation Matter ..................... 27
Andreas Wanke

Education for Sustainability: A Wisdom Model .................... 47
Lorraine Lander

ecoGIS—A Solution for Interactive Facility Management to Support the European Eco-Management and Audit Scheme (EMAS) .......... 59
Rainer Kettemann, Anete Fridrihsone and Volker Coors

A Real-World Lab Approach to the Carbon Neutral Campus Transition: A Case Study .......................................................... 73
Lisa Botero, Michael Bossert, Ursula Eicker, Jan Cremers, Nansi Palla and Christiane Schoch

Sustainable Academic Libraries: A Campus Partnership at Michigan State University ................................. 89
Eric D. Tans

Becoming Sustainable in Our Own Way: Sustainability at the Flagship Massachusetts Public University ............ 101
Ludmilla Pavlova-Gillham and Dennis Swinford

Identifying Relevant Versus Received Sustainability Education at Industrial Engineering and Management Programs ..................... 115
Niccolas Albiz

Implementing Sustainability in the Classroom at Université Laval..... 133
Vincent Richard, Daniel Forget and Noémie Gonzalez-Bautista
Environmental Dashboards: Fostering Pro-environmental and Pro-community Thought and Action Through Feedback  .   149
John E. Petersen, Daniel Rosenberg Daneri, Cindy Frantz and Md Rumi Shammin

The Implementation of Sustainable Development in the Nordic Higher Education Institutions (HEIs)  . 169
Meeri Karvinen, Ullika Lundgren, Helena Mälkki and Jaana Sorvari

Part II Implementation Strategies

Energy Consumption in Student Hostels of Universiti Sains Malaysia: Energy Audit and Energy Efficiency Awareness  . 191
Theam Foo Ng, Ahmad Firdaus Ahmad Shabudin, Mohd Sayuti Hassan, Marlinah Muslim and Kamarulazizi Ibrahim

Resilience Thinking in Higher Education: Institutional Resilience as a Sustainability Goal  . 209
P. Brian Fisher

The Campus as a Living Laboratory: Macalester College Case Study  . 223
Suzanne Savanick Hansen

Sustainable Energy Campus: A Challenge on Smart Facilities and Operations  . 241
Paulo Ferrão and Mário de Matos

Unipoli Green—Four Universities Working Together for Sustainability  . 257
Eveliina Asikainen, Sannamari Hellman, Lotta Parjanen, Marika Puputti, Saana Raatikainen and Marjut Schroderus

Prerequisites for the Sustainability of Municipalities in Rio Grande do Sul—Brazil: A Project to Foster Sustainable Development  . 275
Luciana Londero Brandli, Amanda Lange Salvia, Marcos Antonio Leite Frandoloso and Walter Leal Filho

A Decade of Earth in the Mix: A Bibliometric Analysis of Emergent Scholarly Research on Sustainability Education and Ecopsychology in Higher Education  . 291
Amanda Leetch and Marna Hauk

Creating a Sustainable Campus from the Ground up  . 307
Peter Walker and Sandra Mendler

Sustainability Champions: Role Models in Sustainability Graduate Education  . 329
Michael C. Cavallaro, Martin Boucher and Toddi A. Steelman
Renewable Distributed Generation and Its Stakeholders’ Engagement
Contributing to Climate Change Mitigation and Adaptation in Brazil
Unisul—Universidade Do Sul de Santa Catarina, Brazil .......... 343
Mario Corrêa de Sá e Benevides, Alek Suni and
José Baltazar Salgueirinho Osório de Andrade Guerra

A Holistic View for Integrating Sustainability Education
for the Built Environment Professions in Indonesia ............. 355
Usha Iyer-Raniga and Tony Dalton

The Sustainability Journey of USM: Solution Oriented Campus
Ecosphere for Vitalising Higher Education Action on GAP .......... 377
Omar Osman, Kamarulazizi Ibrahim, Kanayathu Koshy,
Noor Adelyna Mohammed Akib and Ahmad Firdaus Ahmad Shabudin

Working for Sustainability Transformation in an Academic
Environment: The Case of itdUPM ................................. 391
Carlos Mataix, Sara Romero, Javier Mazorra, Jaime Moreno, Xosé Ramil,
Leda Stott, Javier Carrasco, Julio Lumbreras and Inmacula Borrela