

# GREENING UNIVERSITIES TOOLKIT V2.0

TRANSFORMING UNIVERSITIES INTO GREEN AND SUSTAINABLE  
CAMPUSES : A TOOLKIT FOR IMPLEMENTERS

ADVANCE COPY



© United Nations Environment Programme, 2014

FRONT COVER IMAGE: Tyree Energy Technologies Building at University of New South Wales, Australia developed by Brookfield Multiplex.

*This publication may be reproduced in whole or part and in any form for educational or nonprofit purposes without special permission from the copyright holder provided acknowledgement of the source is made. UNEP would appreciate receiving a copy of any publication that uses this workbook as a source. No use of this publication may be made for resale or for any other commercial purpose whatsoever without prior permission in writing from UNEP.*

*The contents of this book do not necessarily reflect the views or policies of UNEP or the editors, nor are they an official record. The designations employed and the presentation do not imply the expressions of any opinion whatsoever on the part of UNEP concerning the legal status of any country, territory or city or its authority or concerning the delimitation of its frontiers or boundaries.*



UNEP promotes environmentally sound practices globally and in its own activities. This report is printed on paper from sustainable forests including recycled fibre, the paper is chlorine free and the inks vegetable-based.

Our distribution policy aims to reduce  
UNEP's carbon footprint.

# **GREENING UNIVERSITIES TOOLKIT V2.0**

TRANSFORMING UNIVERSITIES INTO GREEN AND SUSTAINABLE  
CAMPUSES : A TOOLKIT FOR IMPLEMENTERS

# ACKNOWLEDGEMENTS

## PROJECT TEAM

### **Maresh Pradhan**

Chief, Environmental Education and Training Unit, UNEP

### **Pablo Fuentenebro**

Associate Programme Officer, Environmental Education and Training Unit, UNEP

## AUTHORS

### **Malay Dave**

Cooperative Research Centre for Low Carbon Living

### **Zhonghua Gou**

Cooperative Research Centre for Low Carbon Living

### **Deo Prasad**

Cooperative Research Centre for Low Carbon Living

### **Fengting Li**

Tongji University

## ADDITIONAL ACKNOWLEDGEMENTS

We would like to thank the different individuals and institutions who in way or another have contributed to the successful completion of this project. The Greening Universities Toolkit V2.0 has been developed by the UNEP Environmental Education and Training in collaboration with the Cooperative Research Centre for Low Carbon Living, Australia. In addition to the authors listed above, we would like to thank the UNEP Publishing Board, which approved the publication of the Toolkit on November 2014 and the Division of Communication and Public Information, for its assistance with the design and editing of the manuscript.

The authors are grateful for the support of the Environmental Education and Training Unit throughout the different stages of this project and review of the final draft. Suggestions for textual edits have been incorporated into this published version of the Toolkit.

Preparation of this Toolkit was inevitably and appropriately an exercise in international collaboration. The authors in particular would like to thank participants of the GUPES workshop for university leaders held at Universidad Andrés Bello, Santiago, Chile in September 2011, where the draft Toolkit framework was introduced and discussed; and those involved in the GUPES Green Room event on Universities and Sustainability in Nairobi in February 2012, where a “work in progress” version was reviewed and critiqued. A draft version of the Toolkit was presented during the GUPES launch in Shanghai in June 2012, where numerous suggestions and additional case studies were provided and incorporated. This resulted in the first version of the Greening Universities Toolkit which was launched in June 2013 during the 7th World Environment Education Congress (WEEC) in Marrakesh, Morocco. In January 2014 the Cooperative Research Centre for Low Carbon Living, Australia was invited for developing a revised and expanded version of the Toolkit. This new version of the Toolkit – The Greening Universities Toolkit V2.0 – was developed through further research, case study contribution by numerous universities from around the globe, and an intensive workshop held in August 2014 at the Cooperative Research Centre for Low Carbon Living, Australia.



Finally we would like to acknowledge the substantial contribution of Dr. Paul Osmond from UNSW Australia, the co-author of the previous version of this toolkit, whose work the Greening universities Toolkit V2.0 is developed and expanded upon. We also thank Dr. Lan Ding from UNSW Australia for her generous contribution in case studies and data collection. Thanks also to Emiliano Miranda y Miranda for his design and formatting work in the revised Toolkit.

In addition, the following Universities are acknowledged for providing the authors with the content and illustrations for the inspiring case studies included in this report:

## **AFRICA**

- ▶ The American University in Cairo, Egypt
- ▶ University of Nairobi, Kenya

## **ASIA-PACIFIC**

- ▶ University of New South Wales, Australia
- ▶ Macquarie University, Australia
- ▶ Wollongong University, Australia
- ▶ Shangong Jiaotong University, Jinan City, China
- ▶ Tongji University, Shanghai, China
- ▶ Fudan University, Shanghai, China
- ▶ Shanghai University of Electric Power, Shanghai, China
- ▶ Calicut University, India
- ▶ CEPT University, India
- ▶ TERI University, India

## **EUROPE**

- ▶ University of Copenhagen, Denmark
- ▶ Ca'Foscari University of Venice, Italy
- ▶ Autonomous University of Barcelona (UAB), Spain
- ▶ Autonomous University of Madrid, Spain
- ▶ University of Murcia, Spain
- ▶ Chalmers University, Sweden
- ▶ Middle East Technical University, Turkey
- ▶ University of Gloucestershire, UK

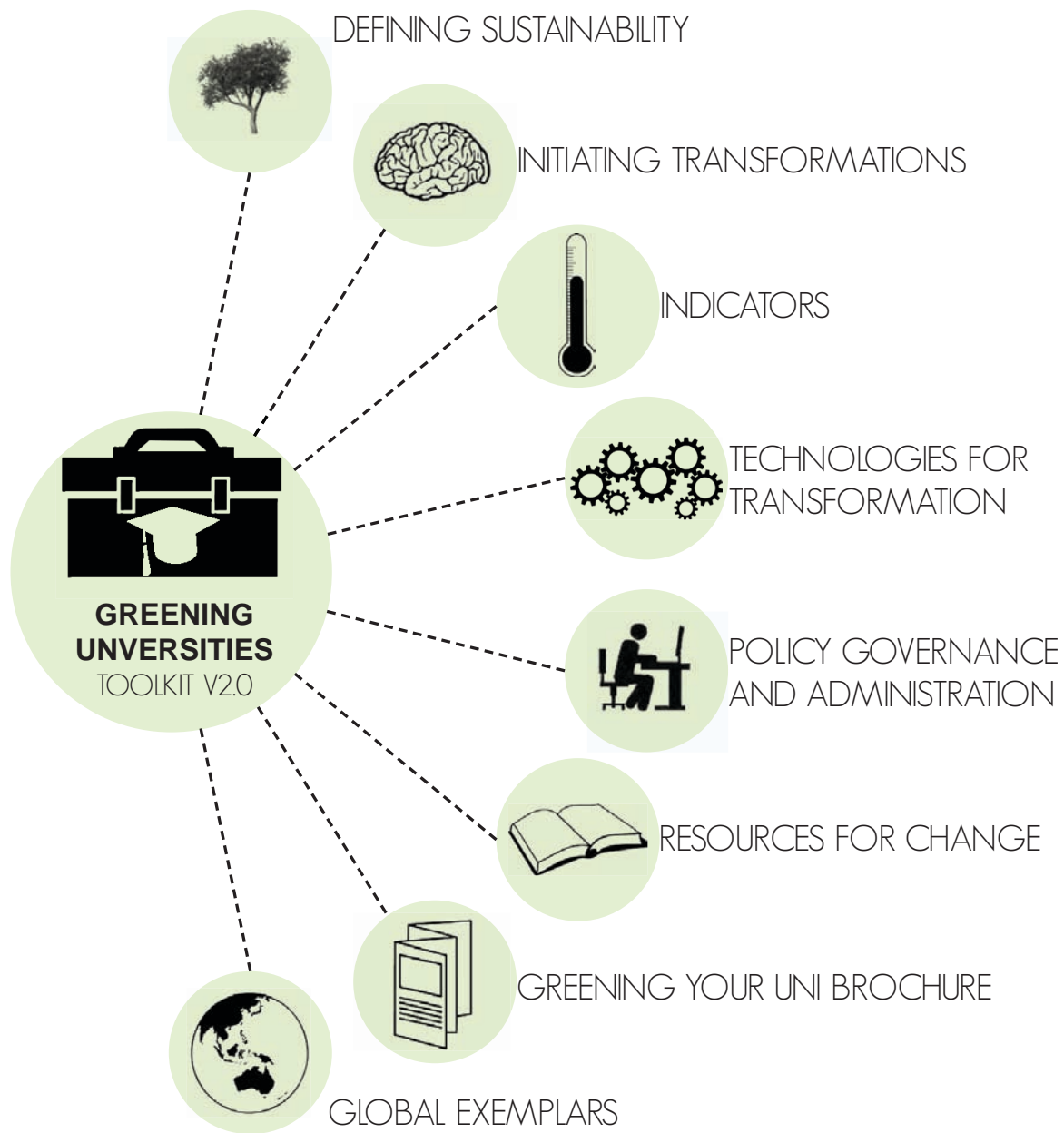
## **LATIN AMERICA**

- ▶ University of Sao Carlos, Brazil
- ▶ University of Sao Paulo, Brazil
- ▶ University of Chile, Chile
- ▶ Earth University, Costa Rica
- ▶ University of Applied Sciences, Colombia

## **NORTH AMERICA**

- ▶ University of British Columbia, Canada
- ▶ Princeton University, USA
- ▶ Sustainable Living Centre, Maharishi University of Management, Iowa, USA

Finally, we would like to point out that this Toolkit aims to be a "living document" that will be updated on a regular basis. For this purpose, we plan to have an electronic online version, where universities are able to incorporate and share their experiences in the greening of university campuses.



# THE DESIGN AND DEVELOPMENT OF THIS TOOLKIT

The Toolkit was conceived in 2011 as part of the Greening Universities Initiative set up by UNEP's Environmental Education and Training Unit (EETU) in partnership with other UN agencies and leading "green universities" experts and researchers, under the umbrella of the Global Universities Partnership for Environment and Sustainability (GUPES). UNEP's approach to this project involves:

- ▶ Developing criteria for green/sustainable campuses, including infrastructural, managerial and operational considerations;
- ▶ Supporting the development and implementation of strategies for transforming Universities into green/sustainable campuses;
- ▶ Advocacy, lobbying and publicity activities for greening Universities;
- ▶ Developing and launching a global award scheme for green Universities.

Publication of this Toolkit addresses the first of these four objectives. The University of New South Wales (UNSW) Faculty of the Built Environment was engaged to prepare the draft Toolkit for review by UNEP. This process involved four stages:

- ▶ An extensive review of the green University literature, including both academic research and the so-called "grey" literature of reports, websites and operational material produced by individual Universities and international and national associations relevant to University sustainability;
- ▶ Two international workshops auspiced by GUPES, held in Santiago, Chile in September 2011 and in Nairobi, Kenya in February 2012, which reviewed and discussed work in progress and provided input and direction to the final document;
- ▶ Collection of a substantial body of best practice case studies from Universities worldwide both to inform the content of the Toolkit overall and to include as a standalone Chapter on global exemplars; and
- ▶ Final review by the EETU to ensure currency, consistency and alignment with the objectives of the UNEP Greening Universities Initiative.

## OBJECTIVES AND EXPECTED OUTCOME OF THIS TOOLKIT

The objective of this Toolkit is to inspire, encourage and support universities to develop and implement their own transformative strategies for establishing green, resource-efficient and low carbon campuses. It will provide an opportunity to build stakeholder capacity to deliver systemic, institution-wide integration of sustainability principles into all aspects of university business. This initiative is intended to improve the sustainability performance of universities globally and to provide support to other stakeholders embarking on their own sustainability journeys. Further, it will enhance the practical relevance of universities to sustainable development and by extension, the new paradigm of the "green economy". In short, the aim is to encourage and promote the contribution of universities to the overall sustainability of the planet. We cannot have a sustainable world where universities promote unsustainability [1] – conversely, the sustainable university can help catalyse a more sustainable world.

## USING THIS TOOLKIT

This Greening Universities Toolkit is designed to provide universities with the basic strategies and tactics necessary to transform themselves into green, low carbon institutions with the capacity to address climate change, increase resource efficiency, enhance ecosystem management and minimise waste and pollution. To effectively support this journey and other transformative processes in Universities, the Toolkit is structured in such a way that the focus is on the sustainable planning, design, development and management of the university campus. This is linked to the core business of teaching, research and outreach, which are the subject of a separate initiative by UNEP's Environmental Education and Training Unit (EETU) [Higher Education Guidelines for Curriculum Review and Reorientation Towards Sustainable Development], Aspects of teaching, research and outreach are addressed here only insofar as they intersect/interact with the fabric and operations of the campus.

# TABLE OF CONTENTS

|                                 |           |
|---------------------------------|-----------|
| <b>EXECUTIVE SUMMARIES.....</b> | <b>11</b> |
|---------------------------------|-----------|

|                          |           |
|--------------------------|-----------|
| <b>INTRODUCTION.....</b> | <b>15</b> |
|--------------------------|-----------|

|   |           |
|---|-----------|
| <b>CHAPTER 1: UNIVERSITIES AND SUSTAINABILITY: DEFINITIONS, ISSUES, RISKS AND CHALLENGES.....</b> | <b>16</b> |
|---|-----------|

|  |    |
|--|----|
| 1.1 What do we mean by "sustainability"?                                   | 16 |
| 1.2 Sustainability and sustainable development                             | 17 |
| 1.3 The four capitals and the four bottom lines                            | 17 |
| 1.4 What does a "sustainable university" look like?                        | 18 |
| 1.5 Sustainability issues, risks and associated challenges in universities | 20 |
| 1.5.1 Environmental  | 20 |
| 1.5.2 Economic   | 21 |
| 1.5.3 Socio-cultural   | 21 |
| 1.6 Cost-benefits of greening  | 22 |

|   |           |
|---|-----------|
| <b>CHAPTER 2: STRATEGIES FOR INITIATING TRANSFORMATION.....</b> | <b>28</b> |
|---|-----------|

|  |    |
|--|----|
| 2.1 Where to begin?  | 28 |
| 2.2 Making the commitment - visions, missions, values and declarations | 30 |
| 2.3 Engaging the university (and wider) communities                    | 32 |
| 2.3.1 Initiating engagement for sustainable development                | 33 |
| 2.3.2 Levels and methods of engagement                                 | 34 |
| 2.4 Initiatives and Networks   | 35 |
| 2.4.1 International Sustainable Campus Network                         | 35 |
| 2.4.2 China Green Campus Network                                       | 37 |
| 2.4.1 Africa Green Campus Initiative                                   | 37 |

|                                   |           |
|-----------------------------------|-----------|
| <b>CHAPTER 3: INDICATORS.....</b> | <b>40</b> |
|-----------------------------------|-----------|

|                                       |    |
|---------------------------------------|----|
| 3.1 Selecting and defining indicators | 40 |
| 3.2 Examples of indicators            | 42 |

预览已结束，完整报告链接和二维码如下：

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_13275](https://www.yunbaogao.cn/report/index/report?reportId=5_13275)

