

SDG7

**Ensure Access  
to Affordable,  
Reliable,  
Sustainable,  
and Modern  
Energy**

GODWELL NHAMO, CHARLES NHEMACHENA,  
SENIA NHAMO, VUYO MJIMBA *and* IVANA SAVIĆ

SDG7 – ENSURE ACCESS  
TO AFFORDABLE, RELIABLE,  
SUSTAINABLE AND  
MODERN ENERGY

# CONCISE GUIDES TO THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

## Series Editors

Walter Leal Filho

World Sustainable Development Research and Transfer Centre,  
Hamburg University of Applied Sciences

Mark Mifsud

Centre for Environmental Education and Research, University  
of Malta

This series comprises 17 short books, each examining one of the UN Sustainable Development Goals (SDGs).

The series provides an integrated assessment of the SDGs from an economic, social, environmental and cultural perspective. Books in the series critically analyse and assess the SDGs from a multi-disciplinary and a multi-regional standpoint, with each title demonstrating innovation in theoretical and empirical analysis, methodology and application of the SDG concerned.

Titles in this series have a particular focus on the means to implement the SDGs, and each one includes a short introduction to the SDG in question along with a synopsis of their implications on the economic, social, environmental and cultural domains.

# SDG7 – ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY

**GODWELL NHAMO**

*University of South Africa, South Africa*

**CHARLES NHEMACHENA**

*Alliance for a Green Revolution in Africa, Kenya*

**SENIAM NHAMO**

*University of South Africa, South Africa*

**VUYO MJIMBA**

*Human Sciences Research Council, South Africa*

AND

**IVANA SAVIĆ**

*Leiden University, The Netherlands*



United Kingdom – North America – Japan  
India – Malaysia – China

**Emerald Publishing Limited**  
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2020

Copyright © 2020 Godwell Nhamo, Charles Nhemachena,  
Senia Nhamo, Vuyo Mjimba and Ivana Savić. Published under an  
exclusive license by Emerald Publishing Limited.

**Reprints and permissions service**

Contact: [permissions@emeraldinsight.com](mailto:permissions@emeraldinsight.com)

No part of this book may be reproduced, stored in a retrieval system, transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without either the prior written permission of the publisher or a licence permitting restricted copying issued in the UK by The Copyright Licensing Agency and in the USA by The Copyright Clearance Center. No responsibility is accepted for the accuracy of information contained in the text, illustrations or advertisements. The opinions expressed in these chapters are not necessarily those of the Author or the publisher.

**British Library Cataloguing in Publication Data**

A catalogue record for this book is available from the British Library

ISBN: 978-1-78973-802-5 (Print)

ISBN: 978-1-78973-799-8 (Online)

ISBN: 978-1-78973-801-8 (Epub)



**ISOQAR**

REGISTERED

Certificate Number 1985  
ISO 14001

ISOQAR certified  
Management System,  
awarded to Emerald  
for adherence to  
Environmental  
standard  
ISO 14001:2004.



INVESTOR IN PEOPLE

# CONTENTS

<i>About the Authors</i>	vii
<i>Preface</i>	ix
<i>Acknowledgements</i>	xi
1. Energy in the Context of the 2030 Agenda for Sustainable Development	1
2. Measuring Progress Towards SDG 7 Targets in East Asia and the Pacific	33
3. Placing Emphasis on Renewables, Efficiency and Energy Diplomacy in Europe and Central Asia	63
4. North America's Energy Progress in Controversial and Contested Circumstances	89
5. Progress and Challenges in Attaining SDG 7 in Latin America and the Caribbean Region	113
6. Projecting Progress and Challenges to Accelerating the Achievement of SDG 7 in South Asia	143
7. Imminent Changes in MENA Region Energy Dynamics	175
8. Energy Poverty in the Midst of Plenty: A Harsh Reality for Sub-Saharan Africa	201
9. Concluding the Matter: Global Energy Gaps and Remedial Pathways to 2030	233
<i>Index</i>	263

*This page intentionally left blank*

## ABOUT THE AUTHORS

**Prof. Godwell Nhamo** (PhD, Book Project Leader) is a Chief Researcher and a Chair for the Exxaro Chair in Business and Climate Change hosted by the Institute for Corporate Citizenship at the University of South Africa. He has interest in the fields of climate change and governance, the green economy and sustainable development, and he is a National Research Foundation C3 rated scholar. He has published widely in his areas of interest and has over 20 years of work experience in the academic field. Among his offerings are 6 books (5 edited) and over 70 journal articles. Since 2013, he has graduated 10 PhDs and hosted 10 postdoctoral fellows. He also sits on a number of both international and national boards in his research space and has also received several awards and recognition for his outstanding work both locally and internationally.

**Dr Vuyo Mjimba** (PhD) is a Chief Research Specialist in the Africa Institute of South Africa in the Human Sciences Research Council. He is a development, policy and practice scholar with research interests in sustainable development. His focus is on industrialisation, global value chains, climate change and innovation. He brings more than 12 years of commercial enterprise experience and insights to his research and academic work. In this space, he interacts with both experienced and early career researchers and practitioners, as well as masters and doctoral students exploring a broad spectrum of sustainable development matters in Africa.

**Prof. Senia Nhamo** has a PhD in Economics from the University of the Witwatersrand. She has expertise in econometrics,



environmental economics and macroeconomics. In the past 15 years, her work has involved tuition, research and academic citizenship in various academic institutions in Africa. Her current research efforts are focussed on revealing the importance of indicators towards the achievement of sustainable development goals.

**Dr Charles Nhemachena** is an Environmental/Agricultural Economist with more than 15 years' practical research and development skills and experience in Southern Africa and other parts of Africa. His technical areas of expertise include sustainable development, green growth/economy, climate change (impacts, adaptation and vulnerability), monitoring and evaluation, agricultural water management, food security, applied agricultural and environmental management and economics research and development within multi-disciplinary and multi-national teams.

**Ivana Savić** is a Legal Researcher, Strategist and Consultant. She has more than 10 years' experience in the fields of sustainable development, human rights and environmental law, covered at the global, regional and national levels. Her PhD is focusing on Environmental Rights of the Child, and she is enrolled at the Leiden University. The PhD focusses on the interaction and intersection of human rights, environment and trade and investment regimes in the context of sustainable development. It further advocates for the international recognition of the environmental rights of the child, particularly rights to the environment and rights to energy services.

# PREFACE

This book emerged from the inaugural Concise Guides to the United Nations Sustainable Development Goals (SDGs) project initiated by The World Sustainable Development Research and Transfer Centre (WSD-RTC) in 2018. The WSD-RTC is working with a United Kingdom based publisher, Emerald, in publishing a book series on all 17 intertwined SDGs. Each volume is co-authored by a team of well-known scholars and senior experts on each field. The volumes in the series demonstrate innovation in theoretical and empirical analyses, methodologies and applications, and an analysis of the means to implement the SDGs. This book therefore documents the above for the energy SDG (SDG7).

## PEER REVIEW PROCESS

The book underwent the rituals of academic blind peer review. Apart from being the international norm, this blind peer review process is mandatory for South African based authors in order to fulfil the requirements of the Department of Higher Education and Training's policy for recognised research outputs for subsidy purposes. Prof. Nhamo presided over the incorporation of all peer review observations and comments to enhance the quality of the book product. However, authors take full responsibility for any liabilities associated with the production of this book.

*This page intentionally left blank*

# ACKNOWLEDGEMENTS

We wish to thank blind peer reviewers and peer reviewers for their invaluable inputs during the writing and publishing process of this book. We offer our great appreciation to Dr David Chikodzi, a postdoctoral fellow under the Exxaro Chair in Business and Climate Change at the University of South Africa, who assisted us in preparing the GIS maps used in the book. We also thank Emerald for taking on board this book project. Our families are hereby acknowledged for their ongoing support of our work, and we would like to express our sincere thanks to Emerald for further quality control and the product that came out thereof. The book project was coordinated through the Exxaro Chair in Business and Climate Change at the University of South Africa. The Exxaro Chair is a research Chair funded by the Exxaro Resources (Pty) Ltd. Chairman's Fund. The Exxaro Chair, established in 2008, is now in its fourth term running (2018–2022). The vision of the Exxaro Chair is to 'create a Centre of Excellence in Business and Climate Change research, education, and advocacy-oriented community engagement'.

*This page intentionally left blank*