

# Leadership and Sustainability in the Built Environment

Edited by Alex Opoku and Vian Ahmed



# Leadership and Sustainability in the Built Environment

Edited by Alex Opoku and Vian Ahmed



First published 2015 by Routledge 2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge 711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2015 selection and editorial material, Alex Opoku and Vian Ahmed; individual chapters, the contributors

The right of the editor to be identified as the author of the editorial material, and of the authors for their individual chapters, has been asserted in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

British Library Cataloguing-in-Publication Data A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data Leadership and sustainability in the built environment/edited by Alex Opoku and Vian Ahmed.

pages cm

1. Sustainable construction. 2. Sustainable architecture.

 Leadership. I. Opoku, Alex, editor. II. Ahmed, Vian, editor. TH880.L43 2014
 690.068'4—dc23
 2014027244

ISBN: 978-0-415-62242-4 (hbk) ISBN: 978-1-315-84953-9 (ebk)

Typeset in Sabon LT Std by Swales & Willis Ltd, Exeter, Devon, UK



# Leadership and Sustainability in the Built Environment

Leadership and sustainability have separately been the subject of numerous studies in a built environment context over the years, but they have yet to be addressed together. The real impact of legislation and guidelines designed to promote sustainability within the construction industry is closely linked to the leadership behind it, as this book explores in a variety of ways.

Featuring research from five different continents, the international scope of this book allows a comparison of experiences in different types of economies and cultures. The interdisciplinarity of this subject is also reflected in the backgrounds of the contributors, with a significant number of perspectives derived from business and management research.

The issues examined in this book are essential reading for all researchers, decision-makers and graduate students in the built environment.

Alex Opoku recently took up a position as a Senior Lecturer in Quantity Surveying at London South Bank University, having previously conducted research in the Department of Engineering at Cambridge University.

Vian Ahmed is a Professor and Director of Postgraduate Research Studies at the Built Environment department of the University of Salford.

#### Spon Research

Publishes a stream of advanced books for built environment researchers and professionals from one of the world's leading publishers. The ISSN for the Spon Research programme is ISSN 1940-7653 and the ISSN for the Spon Research E-book programme is ISSN 1940-8005

#### Published:

Free-Standing Tension Structures: From tensegrity systems to cablestrut systems 978-0-415-33595-9 W. B. Bing

Performance-Based Optimization of Structures: Theory and applications 978-0-415-33594-2 Q.Q. Liang

Microstructure of Smectite Clays & Engineering Performance 978-0-415-36863-6 R. Pusch & R. Yong

Procurement in the Construction Industry: The impact and cost of alternative market and supply processes 978-0-415-39560-1 W. Hughes et al.

Communication in Construction Teams 978-0-415-36619-9 S. Emmitt & C. Gorse

Concurrent Engineering in Construction Projects 978-0-415-39488-8 C. Anumba, J. Kamara & A.-F. Cutting-Decelle People and Culture in Construction 978-0-415-34870-6 A. Dainty, S. Green & B. Bagilhole

Very Large Floating Structures 978-0-415-41953-6 C.M. Wang, E. Watanabe & T. Utsunomiya

Tropical Urban Heat Islands: Climate, Buildings and Greenery 978-0-415-41104-2 N.H. Wong & C. Yu

Innovation in Small Construction Firms 978-0-415-39390-4 P. Barrett, M. Sexton & A. Lee

Construction Supply Chain Economics 978-0-415-40971-1 K. London

Employee Resourcing in the Construction Industry 978-0-415-37163-6 A. Raiden, A. Dainty & R. Neale

Managing Knowledge in the Construction Industry 978-0-415-46344-7 A. Styhre Collaborative Information
Management in Construction
978-0-415-48422-0
G. Shen, A. Baldwin & P. Brandon

Containment of High Level Radioactive and Hazardous Solid Wastes with Clay Barriers 978-0-415-45820-7 R.N. Yong, R. Pusch & M. Nakano

Performance Improvement in Construction Management 978-0-415-54598-3 B. Atkin & J. Borgbrant

Organisational Culture in the Construction Industry 978-0-415-42594-0 V. Coffey

Relational Contracting for Construction Excellence: Principles, Practices and Partnering 978-0-415-46669-1 A. Chan, D. Chan & J. Yeung

Soil Consolidation Analysis 978-0-415-67502-4 J.H. Yin & G. Zhu OHS Electronic Management Systems for Construction 978-0-415-55371-1 I. Kamardeen

FRP-Strengthened Metallic Structures 978-0-415-46821-3 X. L. Zhao

Leadership and Sustainability in the Built Environment 978-1-138-77842-9 A. Opoku & V. Ahmed

The Soft Power of Construction Contracting Organisations 978-1-138-80528-6 S.O. Cheung, P.S.P. Wong & T.W. Yiu

Fall Prevention Through Design in Construction: The Benefits of Mobile Construction 978-1-138-77915-0 I. Kamardeen

#### Contributors

Vian Ahmed is a Professor in the Built Environment. Her teaching expertise is in construction management and IT at the undergraduate and postgraduate levels. She has broad research interests covering skills, culture and people in construction, including e-learning in construction, construction IT for large organisations and SMEs, ontology development for construction education, construction management and organisation readiness. She is a senior fellow of the Higher Education Academy, with well over 100 journal and conference publications, 18 graduated doctoral students and a similar number of continuing students. She holds a BEng (Civil), MSc (Construction) and PhD in Computer Aided Learning in Construction.

Leighton A. Ellis is an Assistant Lecturer in the Department of Civil and Environmental Engineering at the University of the West Indies, St. Augustine, Trinidad and Tobago. He is a member of the Association of Professional Engineers of Trinidad and Tobago (APETT). He holds both a BSc and MSc (Eng) in Construction Engineering & Management and is presently pursuing a PhD in Construction Management. Ellis' research is in the area of leadership assessment of graduate students using innovative techniques for student assessment.

Fidelis A. Emuze is presently a Senior Lecturer and Department Head, Department of Built Environment at the Central University of Technology, Free State, South Africa. He holds a National Diploma and Higher National Diploma in Civil Engineering, an MSc in the Built Environment, and a PhD in Construction Management. Dr. Emuze has taught and assessed undergraduate and postgraduate courses in Construction Management, Research Methodology and other topics. His completed and on-going research pertains to lean construction and sustainable construction. Dr. Emuze is on the editorial review board of international journals and scientific committees of conferences in the construction research domain.

Chris Fortune has recently joined the Business and Management School at Glyndŵr University, Wrexham, Wales as a Professor of Project Management, having previously held professorial posts in construction project management at Heriot Watt University, Edinburgh, Scotland and

at the University of Salford. He is a former Associate Head of School of the Built Environment (Teaching and Learning) and an Associate Dean (Academic) for a Faculty of Business, Law and Built Environment. Professor Fortune entered academe after working as a chartered surveyor and chartered builder in the construction industry for a number of years and possesses an MBA from the Institute of Education, University of London and a PhD from Heriot Watt University. He has a well-established academic track record in teaching and researching issues in procurement and supply chain management, with over 120 publications in conference proceedings and journal papers to his name. Professor Fortune has over 20 years' experience of teaching modules related to procurement practice and theory and supervising dissertations related to sustainable practices, procurement and supply chain management at the undergraduate and post graduate levels.

Yamuna Kaluarachchi is a Reader and Deputy Director of the Research Centre, School of Surveying & Planning, Kingston University. Kaluarachchi is a chartered architect by profession. Her expertise and research interests include sustainable social housing refurbishment, stakeholder engagement, changing behaviour to enhance low-carbon living and disaster resilience of communities and their built assets.

Timothy Michael Lewis has recently retired as Professor of Construction Engineering & Management at the University of the West Indies, Trinidad and Tobago. He holds a MEng in Civil Engineering from the University of Liverpool and an MSc in Technological Economics from the University of Sterling as well as his PhD in Civil Engineering from the University of the West Indies. He is a Fellow of the Institution of Civil Engineers (FICE) and the American Society of Civil Engineers (FASCE) as well as of the FAPETT. He has published extensively on construction management and economics topics.

Ciaran McAleenan, a chartered civil engineer, has designed and managed major water and road projects as well as developing HS&E and road design standards. An award winning international speaker, author and a prolific researcher, he has presented at conferences in four continents including World and National Congresses and CIB Commission Conferences. A corporate member of ICE, McAleenan sits on their editorial board for the Management, Procurement and Law journal and on their Steering Group for the Construction H&S Register. He is a Professional Member of ASSE, Fellow of the HEA and member of the faculty at the Ulster University.

Philip McAleenan is an MSc graduate of Queens University Belfast. He also holds certificates in law and education, is a Fellow of the Institute of Leadership & Management and is a Professional Member of ASSE. Managing partner at Expert Ease International, he co-developed the Organisation Cultural Maturity Index and the multi-award winning Operation Analysis and Control model. He regularly presents to CSSE

and CIB conferences and the World Congresses on OSH. He guest lectures at ECU, QUB, and UUJ where he teaches ethics reasoning to construction undergraduates. He has written extensively on safety, contributing to manuals, professional and academic papers and books in the UK and USA.

Alex Opoku is currently a Senior Lecturer in Quantity Surveying at the School of Built Environment and Architecture, London South Bank University. He is also the Course Director for the MSc Quantity Surveying programme at the School of Built Environment and Architecture. Prior to joining the London South Bank University in 2013, Opoku worked as Postdoctoral Research Associate at the University of Cambridge, Centre for Sustainable Development in the Department of Engineering, Opoku holds a PhD in Construction & Project Management from the University of Salford. He graduated from Nottingham Trent University with an honours degree in Building Management in 2005 and received an MSc degree in Quantity Surveying Commercial Management from the Leeds Metropolitan University in 2008. Dr. Opoku also has a well-established academic track record in teaching and researching issues in sustainable built environment, with a good number of publications in conference proceedings and journal papers to his name. He believes in making academic research relevant to practitioners and has been engaging with the construction industry through workshops, seminars and conferences.

Andrew K. Petersen is Professor in the Department of Civil Engineering, FH Mainz, University of Applied Science, Mainz, Germany. He has held positions as Senior Lecturer at the University of the West Indies and Principal Lecturer in the Department of Civil Engineering, University of Portsmouth, England. Professor Petersen has introduced a number of new assessment strategies for assessing student learning in the subject of health and safety risk management.

Begum Sertyesilisik is a Visiting Professor in the School of Built Environment at the Liverpool John Moores University and is working in the Department of Architecture at the Istanbul Technical University. Sertyesilisik has been awarded a PhD in the field of construction contracts at the Middle East Technical University. She obtained an MSc in the field of Project Management, an MBA, and a BSC in Architecture at the Istanbul Technical University. She specialises in the areas of project management, sustainability, contract and dispute management. She is a member of the Chamber of Architects in Istanbul and of CIB.

Egemen Sertyesilisik graduated from Istek Kemal Ataturk High School in 2002. He received a BA from the Political Science and Public Administration Department at the Bilkent University in 2007. He then received a MA from the program in Politics and the Mass Media at the University of Liverpool. In 2010 he obtained an MBA at the Yildiz Technical University. Sertyesilisik started his PhD at Marmara University in the field of Political Economy of the Middle East in 2011.

#### Acknowledgements

We would like to express our gratitude and appreciation to all those who gave us the possibility to complete this book. A special thanks to all the authors who contributed to this book for their time and co-operation in writing these chapters. We would also like to acknowledge with much appreciation the crucial role of the academics who took their time to review the papers.

At a personal level, the editors would each also like to thank their families for their invaluable support during the editing of the book.

Alex Opoku Vian Ahmed

#### Contents

	List of figures	ix
	List of tables	X
	Notes on contributors	xi
	Acknowledgements	xiv
	Introduction	1
	RTI	
Or	ganizational leadership	3
1	Leadership theory and practice for sustainable built environment ALEX OPOKU AND VIAN AHMED	5
2	Behaviourism versus leadership: a transformational need for sustainability in the built environment FIDELIS A. EMUZE	18
3	Leadership: a negation of agency CIARAN MCALEENAN AND PHILIP MCALEENAN	33
	RT II stainable built environment	53
4	Sustainable development in the UK construction industry ALEX OPOKU	55
5	Drivers and challenges to the adoption of sustainable construction practices ALEX OPOKU AND VIAN AHMED	69

#### viii Contents

6	Sustainability leaders for sustainable cities BEGUM SERTYESILISIK AND EGEMEN SERTYESILISIK	82
PAI	RT III	
Lea	adership for sustainable built environment	97
7	The role of organizational leadership in the delivery of sustainable construction project practices ALEX OPOKU AND CHRIS FORTUNE	99
PAI	RT IV	
Int	ernational perspective and case studies	107
8	Challenges to leaders promoting innovative and sustainable social housing in the UK YAMUNA KALUARACHCHI	109
9	Leadership studies in changing times LEIGHTON A. ELLIS, TIMOTHY M. LEWIS AND ANDREW K. PETERSEN	123
	Index	139

### **Figures**

1.1	word frequency diagram of leadership styles in UK	
	construction industry	9
2.1	Illustrated definition of sustainability in the built	
	environment	20
4.1	Key sustainable construction themes and issues	59
4.2	Waste Management Hierarchy Framework	62
5.1	Sustainable construction drivers	76
5.2	Sustainable construction challenges	78
7.1	Type of construction organization and leadership	
	roles in promoting sustainability	104
8.1	The 'Diffusion of Innovations' Curve	113
8.2	Sustainability Maturity Curve	114
8.3	Perceived sustainability by organisations	117
9.1	Rotational diagram of leaders in teams	133
9.2	Traditional (left) and Bespoke (right) 360-Degree	
	Feedback relationships	135

#### **Tables**

1.1	Summary of leadership theories	7
1.2	Characteristics of Sustainability leadership	12
2.1	Logical link between lean, value and sustainability	22
2.2	Transitional mode of construction management	27
5.1	Sustainable construction drivers identified	
	in literature	73
5.2	Sustainable construction challenges identified	
	in literature	75
7.1	Organizational leadership roles in promoting	
	sustainability practices	103
8.1	Organisations' decision-making process for	
	innovative sustainable refurbishment	118
9.1	Showing the threading of sustainability in the	
	UWI M.Sc. Construction Management program	130

#### Introduction

Organizational leadership is vital in the construction industry and a key success factor in the drive towards sustainable built environment. This book showcases high-quality research that examines the link between leadership and sustainability in the built environment. The book consists of chapters underpinned by original research that seeks to shape the future direction in the field of leadership and sustainable built environment and help build a common understanding of the role and contribution of organizational leadership in achieving a sustainable built environment. It brings together these isolated issues serving as a source of reference material for both formal and informal higher education programmes in the built environment, including continuing professional development (CPD) and training programmes.

The book consists of chapter contributions written by built environment experts across the globe. The book is also useful to built environment practitioners in the United Kingdom and internationally due to the current relevance of sustainability in the construction sector. The book consists of nine chapters split into the following four parts:

- Leadership
- Sustainable built environment
- Leadership for sustainable built environment
- International perspective and case studies

The part one covers leadership theories and principles in the context of the built environment whilst the part two examines sustainable development principles and the built environment. Part three explore the link between organizational leadership in achieving a sustainable built environment. The final part provides some international perspective and case studies on the drive towards a more sustainable built environment.

#### Part I

## Organizational leadership

此为试读,需要完整PDF请访问: www.ertongbook.com